

# EAD Assessment Criteria

## Step 1 : Research & Data Collection

**Objective:** Gather real-world data related to the project using surveys and research.

**Tasks:**

1. Define the research problem and how AI can help solve it.
2. Design a **Google Forms** survey for data collection.
3. Distribute the survey to at least 10 people.
4. Collect and summarize responses.

 **Deliverables:**

- Research Report (1-page summary)
- Google Forms Survey (at least 10 responses)
- Short Video/Audio explaining findings

**Rubric: Research & Data Collection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Survey Structure</b>	Clear, well-organized, no bias, diverse questions	Mostly clear, some unclear wording	Basic structure, lacks variety in questions	Poorly structured, biased, or incomplete
<b>Data Collection</b>	10+ valid responses collected	7-9 responses, mostly valid	4-6 responses, some missing data	Less than 4 responses, missing critical data
<b>Research Depth</b>	Uses credible sources, includes AI integration	Good sources, some AI references	Limited sources, minimal AI discussion	No sources or AI discussion included

## Step 2.1: Data Analysis & Visualization

**Objective:** Organize and analyze collected data using charts and AI tools.

**Tasks:**

1. Input survey data into **Google Sheets**.
2. Use AI tools to identify patterns in the data.
3. Create visual representations (bar charts, pie charts, graphs).
4. Summarize findings in a short data analysis report.

 **Deliverables:**

- Data Spreadsheet (Google Sheets)
- AI-Generated Graphs/Charts
- Summary of Data Insights

**Rubric: Data Analysis & Visualization**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Data Organization</b>	Data is structured, accurate, and complete	Mostly structured, minor errors	Some organization issues, missing elements	Disorganized, missing major parts
<b>Visualization</b>	Graphs/charts are clear, well-labeled, insightful	Mostly clear, lacks full explanation	Basic graphs, limited insight	No graphs, unclear or missing labels
<b>Analysis Quality</b>	Identifies trends, includes AI insights	Identifies trends, some AI integration	Basic description, no AI insight	No analysis, data left unexplained

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## Step 2.2: User Interface (UI) Design

**Objective:** Design the user interface of the AI assistant using Figma.

**Tasks:**

1. Sketch a user-friendly layout for the AI assistant.
2. Use **Figma** to create a digital wireframe.
3. Ensure buttons, text fields, and chatbot interactions are clear.
4. Conduct a basic **usability test** for improvements.

 **Deliverables:**

- Figma Wireframe
- AI Usability Testing Summary
- User Experience Feedback Report

**Rubric: UI/UX Design**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Wireframe Design</b>	UI well-structured, follows best practices	Mostly clear but some UI issues	Basic layout, lacks usability	No wireframe or unclear layout
<b>User Experience</b>	Intuitive, easy-to-use navigation	Mostly clear, needs minor improvements	Some confusing UI elements	Poorly structured, difficult to use
<b>Usability Testing</b>	Feedback collected, applied improvements	Some usability feedback incorporated	Limited feedback, minimal changes	No usability test performed

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## Step 3: AI Development & Coding

**Objective:** Build an AI-powered prototype or chatbot for recycling assistance.

**Tasks:**

1. Use **Scratch/Code.org** to develop a chatbot or AI simulation.
2. Implement AI logic to classify recyclable materials.
3. Debug and refine the AI's response accuracy.
4. Test AI functionality through multiple inputs.

📌 **Deliverables:**

- AI Prototype (Scratch/Code.org)
- Debugging Report
- Short Demo Video (Screen recording)

**Rubric: AI Development & Coding**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>AI Logic &amp; Functionality</b>	AI assistant fully functional, handles multiple inputs	Mostly functional, some errors	Basic function, lacks dynamic responses	Non-functional or incomplete code
<b>Coding Structure</b>	Well-organized, follows best practices	Mostly structured, minor redundancies	Some structure, inefficient code	Poorly structured, lacks clarity

<b>Debugging &amp; Refinement</b>	Errors fixed, AI accuracy optimized	Some minor bugs remain	Some debugging attempted	No debugging, significant errors remain
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## Step 5: Branding & Community Engagement

**Objective:** Develop branding materials and promote the AI assistant.

**Tasks:**

1. Use **Canva** to create a logo and branding kit.
2. Design a **poster or social media campaign**.
3. Share the AI assistant with the school or local community.
4. Collect user feedback on branding effectiveness.

 **Deliverables:**

- Canva-based Branding Kit (Logo, Social Media Post)
- Promotional Video or Flyer
- Social Media Campaign Post

**Rubric: Branding & Community Engagement**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Branding Consistency</b>	Logo, colors, and messaging are aligned	Mostly consistent, minor adjustments needed	Basic branding, lacks cohesion	No branding materials included
<b>Social Media Promotion</b>	Engaging, well-designed campaign	Mostly clear, minor visual issues	Basic design, lacks engagement	No social media promotion created
<b>Community Interaction</b>	Successfully reached audience, collected feedback	Some engagement, basic feedback	Limited engagement, no feedback	No promotion or engagement

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## Step 6: Final Presentation & Reflection

**Objective:** Present the AI assistant, insights, and learning reflections.

**Tasks:**

1. Create a **Google Slides** presentation summarizing the project.
2. Include problem statement, AI features, data insights, branding elements.
3. Deliver a **5-minute presentation**.
4. Write a **reflection essay** on key learnings.

 **Deliverables:**

- Google Slides Presentation
- 5-Minute Video Presentation
- Final Reflection Essay

**Rubric: Final Presentation & Reflection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Presentation Structure</b>	Clear, well-organized, engaging visuals	Mostly clear, some structural issues	Basic slides, lacks flow	Poorly structured, minimal effort
<b>Delivery &amp; Speaking Skills</b>	Confident, clear speech, interactive	Mostly clear, minor hesitations	Needs more confidence, lacks clarity	Unclear delivery, minimal engagement
<b>Reflection Depth</b>	Thoughtful analysis, strong learning points	Good insights, some areas could be deeper	Basic reflections, lacks depth	No reflection, minimal engagement

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# EAD - AI Powered Kids Incubator

## Level 2 - (Grade 3 - 5)

**Guided Booklet for Schools / Teachers / Parents - Complete Day by Day Roadmap to include kids for AI powered PBL for kids**

(Recommended - At Least 2 Projects / Year for every Kid)

(20 Days - Day by Day Guided Tasks with 1 Project execution)

[\*\*Register Here\*\*](#) to get

- **Free 2025 Subscription on EAD AI-Powered Incubator Platform Level 2(Grade 3 - 5) and Level 3(Grade 6 - 8) Launch** to develop kids with AI and Entrepreneurship
- Teacher Training

Website - <https://technogroup.ai/>

LinkedIn - <https://www.linkedin.com/company/tgo-ead/>

Company Upwork Profile - <https://www.upwork.com/agencies/technogroup/>

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## Introduction

Welcome to **EarlyAgeDevelopment (EAD)**, an AI-powered Kids Incubator designed to prepare young minds for the world of tomorrow! This book is your guide to unlocking the potential of students in grades 3-5 through project-based learning (PBL) that blends core curriculum subjects with real-world problem-solving. By aligning critical thinking, creativity, and collaboration with essential skills, we aim to create an immersive, engaging learning experience that goes beyond traditional education.

At EAD, we believe that every child is capable of making a difference. By engaging in AI-driven projects, students not only gain practical skills but also explore industry applications, from understanding how data informs decisions to creating chatbots that enhance customer interactions. This journey empowers them with insights and tools to shape their future.

### Mission

Our mission at EarlyAgeDevelopment is to inspire and empower young learners with hands-on experiences in AI-driven roles, cultivating curiosity, creativity, and the skills needed to thrive in an ever-evolving world. Through aligned projects, we support both academic growth and real-world preparedness, ensuring students are equipped for the future of work where AI and technology drive every industry.

### Vision

We envision a world where students can bridge school learning with real-world applications seamlessly. Through AI-enhanced, project-based learning, we aspire to foster a generation of problem-solvers, innovators, and leaders who understand their potential across diverse fields. With a focus on creativity, sustainability, and future readiness, EAD provides a path for students to develop skills for tackling global challenges in an AI-powered landscape.

### Why Project-Based Learning (PBL)?

At EAD, we believe students learn best through active engagement. **Project-Based Learning (PBL)** connects academic subjects with industry-aligned, practical projects, making education relevant and exciting. Our projects are crafted to:

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- **Encourage Collaboration:** Students take on roles that reflect real-world, AI-powered careers, promoting teamwork and shared purpose.
- **Foster Critical Thinking:** By addressing industry-specific challenges, students learn to think critically and devise innovative solutions.
- **Promote Creativity:** Through design, development, and presentation, students exercise their creativity while exploring new ideas.

### AI-Powered Roles for Future-Ready Skills

AI is transforming careers across all industries, and our program introduces students to the following future-critical roles:

- **Market Researcher & Data Analyst (Problem Researcher and Data Analyst Kid):** Gathering insights and analyzing data to inform decisions and strategies.
- **AI-Based Solution Architect (Solution Designer Kid):** Using design thinking and development skills to build real-world solutions.
- **AI-Based Digital Marketer & Project Manager (Presenter Kid):** Learning to promote projects, manage timelines, and engage communities effectively.

By exposing students to these roles, we prepare them with an essential understanding of AI and its applications, better positioning them for the future workforce.

### How This Book Prepares Students for the Future

This book equips students to meet curriculum goals while gaining an understanding of how AI impacts industries. The skills they acquire—data analysis, design, development, and project management—are integral to thriving in tomorrow's careers. These projects, designed to be both enjoyable and meaningful, make learning an exciting journey with real impact.

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## How to Use This Book

This guide is designed for teachers, parents, and students, offering a hands-on, project-based learning (PBL) experience tailored for grades 3-5. Each project connects real-world problems with AI-powered roles, engaging students in activities that build problem-solving and critical thinking. The three core roles—Market Researcher & Data Analyst, Designer & Developer, and Digital Marketer & Project Manager—integrate STEM, language arts, and environmental science.

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Projects align with educational curriculums like the US Common Core, UK Curriculum, Cambridge, and IB, so students build essential academic and practical skills.

Parents and teachers can use this book to:

- Facilitate collaboration on meaningful projects.
- Help students build a foundation in AI-powered roles to prepare for future careers.
- Integrate interactive tools like Canva, Figma, Trello, ChatGPT, Google Forms, and more.

## Guided Project Path

The book includes two structured learning sections:

1. **Introduction to AI and Technology Basics (First 10 Lessons):**
  - In the first 10 Lessons, students build foundational knowledge with lessons on key concepts in AI, data collection, and project management.
  - **Lessons 1-5:** Interactive activities introduce students to technology basics—data collection, coding, and teamwork tools like Google Forms, Scratch Junior, and Trello.
  - **Lessons 6-10:** Students deepen their understanding of specific roles through hands-on practice in data analysis, solution design, and digital marketing.
2. **Industry-Focused Project (10 More Lessons):**
  - After the initial preparation, students engage in a curriculum-aligned project that connects academic learning with practical skills, demonstrating how AI roles solve real-world problems across industries.

This book is more than a learning guide—it's a launchpad for future-ready skills that students will carry forward in their academic and professional lives. Dive in and let EAD inspire your child's journey to becoming an AI-enabled problem-solver and innovator of tomorrow.

## Industry-Aligned Projects

Each project addresses real-world problems mapped to the curriculum, with AI-based solutions to prepare kids for future AI-driven roles. These projects are freely available on our public website for students to explore independently or with guided support.

# 10 Lessons - Introduction to AI, Data Science and Technology Basics, Project Based Learning

## Preparing Kids to do AI Based Projects

### Lesson 1: Introduction to AI and Technology Basics

Objective:

On Lesson 1, students will get a broad overview of AI, its impact across different industries, and the essential technological concepts they need to understand. By the end of the Lesson, students will have a general understanding of how AI works, its key applications, and how technology is transforming various fields.

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Step-by-Step Instructions:

#### 1. Welcome and Overview of Technology (10 minutes)

- **Teacher Explanation:**

Begin with a brief introduction to the importance of technology in today's world. Explain how technology has revolutionized every field, from healthcare to agriculture to entertainment.

- **Discussion:**

Ask the students: "What kind of technology do you use every day? How do you think technology makes things easier for us?"

Let students share their thoughts to get them comfortable with the topic.

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#### 2. Introduction to AI and its Role in Different Industries (20 minutes)

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- **Teacher Explanation:**

Explain what **Artificial Intelligence (AI)** is, and give a simple definition: “AI is when machines or computers can do tasks that normally need human intelligence—like learning, problem-solving, or even recognizing pictures and words.”

- **Examples of AI in Different Industries:**

- **Healthcare:** AI can help doctors diagnose diseases faster and more accurately.
- **Agriculture:** AI helps farmers monitor their crops and predict the weather.
- **Retail:** AI gives us personalized shopping experiences by recommending products.
- **Transportation:** AI is used in self-driving cars and traffic management systems.

- **Activity:**

Show students a few short videos or clips that illustrate these AI applications. Discuss how AI is being used in each field.

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### 3. Hands-on AI Interaction Using Chatbots or Virtual Assistants (30 minutes)

- **Materials Needed:**

Devices with access to simple AI tools, such as **ChatGPT** or **Google Assistant**.

- **Activity:**

Have students interact with a basic AI-powered virtual assistant or chatbot. Each student can ask a question or try to have the assistant complete a simple task (e.g., ask it to tell a joke or give a weather report).

- **Teacher Explanation:**

After the activity, explain how chatbots and virtual assistants use AI to understand language and provide responses.

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### 4. Understanding Technology Basics (30 minutes)

- **Materials Needed:**

Interactive presentation or handouts about basic technology concepts: hardware, software, the internet, data, and coding.

- **Activity:**  
Divide students into small groups and assign each group one basic concept to explore:
    - **Hardware:** What are computers and devices made of?
    - **Software:** What are apps, games, and programs?
    - **Internet:** How does the internet connect people around the world?
    - **Data:** What is data, and how is it used in AI?
    - **Coding:** How do we tell computers what to do?
  - Each group will spend time researching their topic using simple resources provided by the teacher and will present their understanding to the class.
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## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**  
Ask students to reflect on the different industries where AI is being used. What industry interested them the most, and why? How do they think technology will change in the next 10 years?
  - **Homework Assignment:**  
Ask students to bring in an example of technology they interact with at home (e.g., a smart device, app, or a website they use frequently) and write a paragraph explaining how it helps them.
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## End of Lesson 1

By the end of Lesson 1, students will have a general understanding of technology and AI, how it works in different industries, and how to interact with AI systems like chatbots. This lays the foundation for the rest of the week where they will dive deeper into AI and technology concepts.

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## Lesson 2: Exploring AI Roles and Problem-Solving in Technology

### Objective:

On Lesson 2, students will be introduced to the different roles involved in AI-driven projects (Problem Researcher, Data Analyst, AI Solution Designer, Solution Developer,

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and Digital Marketer). The focus will be on understanding the importance of these roles and how they work together to solve real-world problems.

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#### Step-by-Step Instructions:

##### 1. Recap of Lesson 1 and Introduction to Lesson 2 Objectives (10 minutes)

- **Teacher Explanation:**

Recap what students learned about AI and technology basics from Lesson 1. Introduce today's objective: learning about the different roles in AI projects and how each role contributes to solving a problem.

- **Discussion:**

Ask students: "Have you ever worked on a group project before? What roles do people usually take on in group projects?"

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##### 2. Introduction to AI-Powered Roles (25 minutes)

- **Teacher Explanation:**

Describe the five key roles in AI projects:

- **Problem Researcher:** Gathers information and defines the problem.
- **Data Analyst:** Works with data to find patterns and insights related to the problem.
- **AI Solution Designer:** Designs the AI solution and creates a blueprint for how it will work.
- **Solution Developer:** Develops the actual AI model using programming or coding.
- **Digital Marketer:** Promotes the solution and helps people understand its value.

- **Examples:**

- For a project on **improving traffic management**, the **Problem Researcher** finds the traffic issues, the **Data Analyst** looks at traffic patterns, the **AI Solution Designer** creates a plan for a smart traffic system, the **Solution Developer** builds the AI that runs the traffic lights, and the **Digital Marketer** promotes the benefits to the community.
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### 3. Team Activity: Role Play and Problem Identification (30 minutes)

- **Materials Needed:**

Whiteboards, markers, and access to simple industry problems (e.g., traffic management, waste management, or water conservation).

- **Activity:**

Split students into small groups, with each group assigned a different industry problem (e.g., water conservation, waste management). Each student in the group will take on one of the five roles:

- **Problem Researcher:** Gathers key information about the problem.
- **Data Analyst:** Looks at the data provided or finds data to understand the scale of the problem.
- **AI Solution Designer:** Starts to think about what kind of AI system could help solve the problem.
- **Solution Developer:** Considers what code or program might be needed.
- **Digital Marketer:** Thinks about how to promote the solution to the public.

- After 20 minutes, each group presents a rough outline of the problem they are trying to solve and how they would use AI.

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### 4. Tool Exploration for Roles (30 minutes)

- **Materials Needed:**

Devices with access to basic tools like Google Scholar (for research), Excel (for data analysis), Figma (for design), and Canva (for marketing).

- **Activity:** Introduce students to the tools they will use for their roles:

- **Problem Researchers:** Use **Google Scholar** to find articles related to the industry problem.
- **Data Analysts:** Start learning how to use **Excel** for basic data input and chart creation.
- **AI Solution Designers:** Explore **Figma** to begin thinking about designing AI solutions.
- **Solution Developers:** Set up a basic coding environment and explore introductory coding concepts.
- **Digital Marketers:** Learn how to use **Canva** to create simple promotional materials.

- Let each student spend 15-20 minutes practicing with their assigned tool.

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**

Ask each student to reflect on the role they explored. Do they think they would enjoy doing this role in real life? How do they think their role will help solve the problem their group is working on?

- **Homework Assignment:**

Each student will write a short paragraph about the role they took on today and one thing they learned about using their assigned tool.

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## End of Lesson 2

By the end of **Lesson 2**, students will have a clearer understanding of the different roles in AI-driven projects and will have started exploring the tools associated with each role. They will begin to grasp how these roles work together to solve real-world problems, setting them up for the deeper exploration of AI in the coming days.

## Lesson 3: Introduction to Data Analysis (1-2 hours)

### Objective:

Introduce students to the basics of data analysis, focusing on how data is collected, interpreted, and visualized. Students will learn to input data, create simple charts, and understand the importance of data in decision-making.

### Materials Needed:

- Survey results from Lesson 2 (Google Forms data)
  - Computers/tablets with access to **Google Sheets**
  - Whiteboard and markers for explanations
- 

### Step-by-Step Instructions:

#### 1. Review Data Collected from Surveys (10 minutes)

- **Teacher Explanation:**

Begin by reviewing the survey results that students collected on Lesson 2. Explain how surveys collect data that can be analyzed to identify trends and insights.

- **Discussion:**

Ask students what they found surprising in their survey responses. Did the results match their predictions? Why is collecting data important in making decisions?

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## 2. Input Data into Google Sheets (15-20 minutes)

- **Activity:**

Demonstrate how to input the survey data into **Google Sheets**. Guide the students as they enter their survey responses (e.g., favorite color, favorite animal) into a table format.

- **Example:**

- Column A: Survey question (e.g., "What's your favorite color?")
    - Column B: Response (e.g., "Blue," "Red," etc.)

- **Teacher Guidance:**

Help students organize their data properly and ensure that it's correctly formatted for analysis. Explain that this step is crucial because messy or unorganized data can lead to mistakes.

---

## 3. Create a Chart to Visualize Data (15-20 minutes)

- **Activity:**

Demonstrate how to select the data in Google Sheets and create a simple bar chart or pie chart. Show students how visualizing data can help them better understand and communicate results.

- **Example:**

Create a bar chart to show the most popular favorite colors among survey respondents.

- **Discussion:**

Ask students how their chart makes the data easier to understand. Discuss why businesses, scientists, and other professionals use data charts to make decisions.

#### 4. Data Interpretation and Patterns (15 minutes)

- **Teacher Explanation:**

Explain that after data is collected and visualized, the next step is **data interpretation**. Show students how to look for patterns in the charts they've created.

- **Example:**

"If 70% of your class picked blue as their favorite color, what does that tell us about color preferences?"

- **Group Discussion:**

In groups, have students discuss the patterns they found in their data. What does the data suggest about their survey topic? How might this information be used in real-world situations (e.g., for product design or marketing)?

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of data analysis. Ask students: "How does data help us make better decisions? Can you think of a time when understanding data would be helpful?"

- **Homework Assignment:**

Each student will collect data from a simple observation (e.g., how many cars pass their street in 10 minutes, how many different animals they see outside) and create a chart to present to the class on Lesson 4.

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#### End of Lesson 3

By the end of Lesson 3, students will understand the process of collecting, entering, and visualizing data using Google Sheets. They will have created simple charts to represent their survey results and begun interpreting data to understand trends and patterns.

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#### **Lesson 4: Introduction to Data Visualization and Problem Solving with AI (1-2 hours)**

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**Objective:**

Teach students how to create data visualizations to better understand information and introduce the role of AI in problem-solving. Students will also explore how AI can use data to make predictions and solve real-world problems.

**Materials Needed:**

- Completed homework (observed data from Lesson 3)
  - Computers/tablets with access to **Google Sheets** or **Google Charts**
  - Whiteboard and markers for explanations
- 

**Step-by-Step Instructions:****1. Review Homework and Discuss Data Observations (10 minutes)**

- **Teacher Explanation:**

Begin by reviewing students' homework. Ask a few students to share the data they collected (e.g., how many cars passed, how many animals they saw, etc.).

- **Discussion:**

Encourage students to reflect on the data they collected. What patterns did they notice? Was the data different from what they expected?

---

**2. Visualizing Data Collected from Homework (20 minutes)**

- **Activity:**

Have students input their homework data into **Google Sheets**. Demonstrate how to create a chart from their data (e.g., bar charts or line graphs).

- **Example:**

If a student counted cars passing their house, they could create a **bar chart** showing the number of cars observed over time.

- **Teacher Guidance:**

Guide students through the chart creation process and ensure they understand how visualizations help in presenting data clearly.

---

### 3. Introduction to Problem Solving with AI (15 minutes)

- **Teacher Explanation:**

Explain that **AI** is like a very smart tool that can look at data and help solve problems. AI systems can predict things, help make decisions, and even come up with new ideas.

- **Example:**

“AI can look at the weather and predict if it’s going to rain tomorrow, or it can look at traffic data and tell us the best way to get to school.”

- **Discussion:**

Ask students how they think AI might use the data they collected. Could AI help predict how many cars will pass by tomorrow, or which color will be most popular next month?

---

### 4. Fun Activity: Predicting the Future with Data (15 minutes)

- **Activity:**

Have students use the data they collected to make a prediction. For example, if a student counted how many cars passed their house, they could predict how many cars will pass tomorrow based on today’s data.

- **Example:**

“If 10 cars passed in 10 minutes today, how many cars do you think will pass tomorrow at the same time?”

- **Teacher Explanation:**

Explain that AI does something similar—it uses data from today to predict what will happen tomorrow. This is called **data-driven decision-making**.

---

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how AI helps people make predictions using data. Ask students: “What are some other ways we could use data to predict things? How could AI help farmers, doctors, or teachers?”

- **Homework Assignment:**

Each student will choose a problem they think AI could help solve. They will write

a paragraph about the problem and how they think AI could use data to find a solution.

---

## End of Lesson 4

By the end of Lesson 4, students will understand how data can be visualized to make it easier to understand and how AI uses data to solve problems and make predictions. They will also have explored how AI could help with real-world problems based on the data they have collected.

## **Lesson 5: Introduction to Project Management and Collaboration (1-2 hours)**

### Objective:

Introduce students to the basics of project management and team collaboration using tools like Trello. The aim is to help them understand how professionals organize tasks and work together effectively in a project.

### Materials Needed:

- Access to Trello (or a similar project management tool) on tablets or computers.
  - Whiteboard and markers for visual demonstration.
- 

### Step-by-Step Instructions:

#### 1. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain that **project management** is the process of organizing tasks to complete a project efficiently. Compare it to planning a party: before the party can happen, tasks like sending invitations, buying decorations, and preparing food need to be done in the right order.

- **Examples of Project Management:**

- Building a house (you can't put on the roof before the walls).
- Planning a class event (choosing a theme, sending invitations, decorating).

## 2. Introducing Trello (15 minutes)

- **Materials Needed:**

Trello or an equivalent project management tool, pre-set project board for demonstration.

- **Teacher Demonstration:**

Show students how **Trello** works by demonstrating the basics: how to create boards, lists, and task cards.

- **Board:** Represents the entire project (e.g., creating an app, completing a recycling campaign).
  - **Lists:** Organize tasks into categories (e.g., "To Do," "In Progress," "Done").
  - **Cards:** Represent specific tasks (e.g., "Design logo," "Collect survey data").
- 

## 3. Hands-on Activity: Creating a Trello Board (20 minutes)

- **Activity:**

Have students work in groups to create their own **Trello boards** for a class project. Assign each group a project, such as "Building a Recycling App" or "Creating a School Newsletter."

- **Step 1:** Create a board for the project.
- **Step 2:** Create lists like "To Do," "In Progress," and "Done."
- **Step 3:** Add task cards to each list (e.g., "Research recycling facts," "Design app interface," "Write article for newsletter").

- **Group Discussion:**

Ask students how organizing tasks in this way can help them keep track of progress. How does it feel to see tasks move from "To Do" to "Done"?

---

## 4. Fun Challenge: Moving Cards Across Lists (15 minutes)

- **Activity:**

Let students complete a few simple tasks (e.g., design a simple logo in Canva,

collect data from their surveys) and **move cards from "To Do" to "Done"** on Trello.

- This will give them a sense of accomplishment as they visually see their progress.
- 

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Discuss how professionals use project management tools to stay organized in the workplace. Ask students:

"How do you think using a tool like Trello will help us when we start working on our projects next week?"

- **Homework Assignment:**

Students should complete a task related to their role (e.g., finish collecting data for their project or create a draft of their design) and move their task card in Trello from "To Do" to "In Progress."

---

## End of Lesson 5

By the end of Lesson 5, students will have a clear understanding of **project management** and how to use tools like **Trello** to organize tasks and work collaboratively. They will have created their own project boards and started moving tasks along the workflow, preparing them for future project work.

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## Lesson 6: AI-Powered Market Researcher (1-2 hours)

### Objective:

Introduce students to the role of a **Market Researcher** in AI-driven projects. Students will learn how data collection and analysis are used by businesses to understand customer preferences and make decisions.

### Materials Needed:

- Access to Google Forms and Google Sheets.

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- Computers/tablets with internet access.
  - Example data (if needed).
- 

### Step-by-Step Instructions:

#### 1. Introduction to Market Research (10 minutes)

- **Teacher Explanation:**

Explain that a **Market Researcher** helps businesses learn what people like and don't like. They collect information (data) by asking people questions, and then analyze it to help companies decide what products to make or improve.

- **Example:**

A Market Researcher might survey people to find out what flavor of ice cream they like best, or what new toys children are interested in.

---

#### 2. Creating a Simple Survey (15-20 minutes)

- **Materials Needed:**

Google Forms on a computer or tablet.

- **Activity:**

Demonstrate how to create a basic survey using **Google Forms**. Each student will create a short survey with 3-4 questions (e.g., "What's your favorite snack?", "What's your favorite hobby?").

- Have students share the survey link with family members, friends, or classmates to collect responses.

- **Teacher Guidance:**

Help students design clear, easy-to-answer questions. Remind them that the information they gather will be used to help make decisions, just like a real market researcher.

---

#### 3. Predicting the Survey Results (15 minutes)

- **Activity:**

Before the survey responses come in, have students predict what the most

popular answers will be. For example, they might guess that “chocolate” will be the most popular snack or that “video games” will be the most popular hobby.

- Have a brief class discussion about their predictions.
- 

#### 4. Analyzing Survey Data (20 minutes)

- **Materials Needed:**

Google Sheets on computers or tablets.

- **Activity:**

Once survey responses are collected, students will input the data into **Google Sheets**. Demonstrate how to create a simple **bar chart** or **pie chart** from the data.

- **Example:**

If the survey asked about favorite snacks, create a bar chart to show how many people picked “chocolate” versus “chips.”

- **Teacher Explanation:**

Explain how businesses use these charts to make decisions. For example, if a survey shows that most people prefer chocolate, a company might decide to make more chocolate-flavored products.

---

#### 5. Group Discussion: How Does Data Help? (10 minutes)

- **Class Discussion:**

Ask students:

“How do the survey results help a company know what people like? How do you think AI can help businesses collect even more data to make better decisions?”

- Encourage students to think about how data is used to understand trends and preferences in the real world.
- 

#### 6. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the role of a **Market Researcher** and how AI plays a role in data collection and decision-making. Ask students:

"What's something new you learned today about how companies use data to make decisions?"

- **Homework Assignment:**

Ask students to think of one product or service they use regularly (e.g., a favorite toy, game, or snack). Have them write a short paragraph about how a company might use market research to improve that product.

---

End of Lesson 6

By the end of Lesson 6, students will have a solid understanding of the **Market Researcher** role, how data is collected using surveys, and how that data is analyzed to help businesses make informed decisions. They will have created their own surveys, predicted outcomes, and analyzed real-world data using charts.

## Lesson 7: AI-Driven Business and Data Analyst (1-2 hours)

Objective:

Introduce students to the role of a **Business and Data Analyst** and how data analysis is used to make informed decisions in various industries. Students will learn how businesses use data to identify trends and opportunities.

Materials Needed:

- Computers/tablets with access to **Google Sheets** or any spreadsheet software.
  - Sample dataset related to business (e.g., sales data, customer preferences).
- 

Step-by-Step Instructions:

### 1. Introduction to Business and Data Analysis (10 minutes)

- **Teacher Explanation:**

Explain the role of a **Business and Data Analyst**. They use data to help companies understand their customers, improve their products, and make better decisions.

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- **Example:**

A data analyst might look at the sales data of a store to see which products are most popular. They can use this information to decide which products to stock more of.

---

## 2. Activity: Analyzing Classroom Data (20-25 minutes)

- **Materials Needed:**

Google Sheets with a preloaded sample dataset (e.g., types of products sold and how many were purchased each day).

- **Activity:**

Have students input the data from the sample dataset into **Google Sheets**. The dataset could include details like:

- Products sold (e.g., books, pencils, snacks)
- Number of units sold each day
- Customer preferences (e.g., which products customers rated highly)

- Show students how to create a **bar chart** or **pie chart** from the data to visualize which product is the most popular.

- **Teacher Explanation:**

Explain how visualizing the data helps businesses quickly understand trends (e.g., which products are selling the most). Encourage students to think about how data analysis can help businesses decide what to stock and how much.

---

## 3. Discussion: Identifying Trends (15 minutes)

- **Teacher Guidance:**

Ask students to look at their charts and identify patterns. For example:

- "Are there certain days when more snacks are sold?"
- "Which product is the most popular?"

- Help students understand how finding trends in data helps businesses make smarter decisions. For example, if a certain product sells better on Fridays, businesses may want to stock more of it that day.

- **Group Discussion:**

Encourage students to discuss how the data they analyzed could be used to improve a store's sales strategy. How could a store owner use this data to plan for the future?

#### 4. Fun Task: Business Data Analyst for a Lesson (15 minutes)

- **Activity:**

Let students pretend they are a **Business Data Analyst** for a toy store. Based on their analysis of the sample dataset, they will write a short paragraph explaining which toys the store should stock more of and why. They can use the data and charts they created to support their argument.

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how businesses rely on data to make decisions. Ask students: “What is something new you learned today about how businesses use data to decide what products to sell?”

- **Homework Assignment:**

Students should look around their home or local stores and take note of what products are most popular. Have them write a paragraph predicting which items the store might need to restock based on what's sold out or in high demand.

---

#### End of Lesson 7

By the end of Lesson 7, students will have an understanding of the role of a **Business and Data Analyst** and how data is used to make business decisions. They will have analyzed a sample dataset, created visualizations, and used data to make business recommendations.

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### Lesson 8: Solution Developer (Basic AI Concepts) (1-2 hours)

Objective:

Introduce students to the role of a **Solution Developer**, with a focus on how AI can be used to solve real-world problems by building apps or tools. Students will engage with simple coding concepts and create a basic solution using Scratch Junior.

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## Materials Needed:

- Tablets/computers with **Scratch Junior** or **MIT App Inventor** installed.
- 

## Step-by-Step Instructions:

### 1. Introduction to AI-Powered Solution Development (10 minutes)

- **Teacher Explanation:**

Explain that a **Solution Developer** is responsible for building tools and apps that solve real-world problems using AI. They use coding and technology to create things like mobile apps, websites, or smart devices.

- **Example:**

A solution developer might build an app to help farmers monitor their crops or create a game that helps students practice math.

- **Discussion:**

Ask students what apps or games they use regularly. How do they think those apps were built? How do apps help solve problems in everyday life?

---

### 2. Activity: Building a Simple App with Scratch Junior (30-40 minutes)

- **Materials Needed:**

Scratch Junior or MIT App Inventor on tablets or computers.

- **Activity:**

Guide students in creating a basic app using **Scratch Junior**. The app could be a **simple schedule organizer** where users can input tasks (e.g., homework, chores) and mark them as complete.

- **Step 1:** Show students how to drag blocks to create characters and movement in Scratch Junior.
  - **Step 2:** Have students add buttons that allow users to add or remove tasks.
  - **Step 3:** Guide them in adding basic features like displaying the tasks and marking them as done.

- **Teacher Guidance:**

Help students troubleshoot any issues they encounter and encourage creativity in their app design.

### 3. Fun Challenge: Adding Extra Features (15 minutes)

- **Activity:**

Challenge students to add one or two additional features to their app. For example, they could add sound effects when tasks are completed, or a feature that allows users to set reminders for upcoming tasks.

- Encourage students to think about how additional features can make the app more helpful or fun for users.
- 

### 4. Group Discussion: How Do Apps Solve Problems? (10 minutes)

- **Class Discussion:**

Ask students how the app they created could help people in real life. For example, how would a **schedule organizer** help someone manage their time better? Discuss how apps and tools can make life easier by solving everyday problems.

- Encourage students to think about other apps they could create to solve different problems (e.g., an app to track homework assignments, a game to help people learn math, etc.).
- 

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how apps and tools created by developers help solve problems in different industries. Ask students:

“What’s an app or tool you wish existed? How could it help solve a problem?”

- **Homework Assignment:**

Ask students to come up with an idea for an app that solves a problem in their own life. They should write a short description of the app and explain how it would work.

---

### End of Lesson 8

By the end of Lesson 8, students will have a basic understanding of the **Solution Developer** role and how AI-powered apps are built to solve problems. They will have created a simple app using **Scratch Junior** and brainstormed ideas for other apps that could help solve real-world problems.

## Lesson 9: AI-Driven Digital Marketer (1-2 hours)

Objective:

Introduce students to the role of a **Digital Marketer**, focusing on how AI helps companies advertise their products, create branding, and promote their business. Students will design marketing materials using AI-powered tools to understand how digital marketing works in the real world.

Materials Needed:

- Tablets/computers with access to **Canva** or any other free design tool.
- Sample product (real or fictional) for students to market (e.g., a new toy, a school club, or a snack).

---

Step-by-Step Instructions:

### 1. Introduction to Digital Marketing (10 minutes)

- **Teacher Explanation:**

Explain that a **Digital Marketer** helps companies sell their products by creating ads, logos, social media posts, and other promotional materials. Digital marketers use AI to understand what customers want and how to best promote products to them.

- **Example:**

Explain how companies use AI to show ads to people based on their interests. For example, if someone watches a lot of videos about soccer, they might see ads for soccer gear or games.

- **Discussion:**

Ask students if they've ever seen ads on websites or social media. How do they think companies decide what ads to show?

## 2. Activity: Designing a Logo in Canva (30-40 minutes)

- **Materials Needed:**

Access to **Canva** or another design tool on tablets or computers.

- **Activity:**

Have students create a logo for a fictional product, school club, or business.

Guide them through using templates, adding colors, fonts, and images.

- **Step 1:** Show students how to choose a logo template in Canva.
- **Step 2:** Guide them through customizing the template (e.g., changing the name, adding colors, or choosing icons).
- **Step 3:** Have students think about how their logo represents their product or business (e.g., Does it show what the business does? Is it eye-catching?).

- **Teacher Guidance:**

Help students understand the importance of a clear, simple, and memorable logo. Encourage creativity and uniqueness in their designs.

---

## 3. Fun Challenge: Create a Social Media Ad (15 minutes)

- **Activity:**

After students have created their logos, ask them to design a simple social media ad (e.g., an Instagram post or Facebook ad) using Canva. The ad should promote the product or business they created a logo for.

- **Example:**

If a student created a logo for a "Junior Bakers Club," they might create an ad that invites new members to join the club. The ad could feature a fun slogan, an image of baked goods, and their new logo.

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## 4. Group Discussion: How AI Helps in Digital Marketing (10 minutes)

- **Class Discussion:**

Ask students how they think companies decide where to show their ads. Explain that **AI** helps companies understand what people like and shows ads to the right audience.

- **Example:**

A company might use AI to figure out which colors or slogans work best for their ads. AI can also tell companies which ads are getting the most clicks and which ones need improvement.

---

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of digital marketing. Ask students:  
“How does creating a logo and ad help a company or club stand out? How do you think AI can help companies improve their marketing?”

- **Homework Assignment:**

Students should design a second ad or promotional material for their product or business, using Canva or another tool. They can use this as part of their upcoming class presentation.

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## End of Lesson 9

By the end of Lesson 9, students will have learned the basics of **Digital Marketing** and the role of AI in helping companies advertise their products. They will have created logos and social media ads, gaining hands-on experience with design tools like Canva.

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## Lesson 10: Project Management Overview and Preparation for Actual Projects (1-2 hours)

### Objective:

Introduce students to **Project Management** and prepare them for their upcoming projects. Students will learn how to use Trello or another project management tool to organize tasks, set deadlines, and work collaboratively.

### Materials Needed:

- Access to **Trello** (or any project management tool) on computers or tablets.

- Predefined class projects (e.g., creating a recycling app, designing a community garden).
- 

### Step-by-Step Instructions:

#### 1. Recap of the Week and Introduction to Project Management (10 minutes)

- **Teacher Explanation:**

Start by recapping everything students have learned over the past week:

- AI roles: Market Researcher, Data Analyst, Solution Developer, Digital Marketer.
- Tools they've used: Google Sheets, Canva, Scratch Junior.

- Explain that today's focus will be on **organizing their projects** and preparing for real-world problem-solving using project management tools.

---

#### 2. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain the concept of **project management** and how professionals use tools like Trello to plan their work. Project management helps teams break down big projects into smaller, manageable tasks.

- **Example:**

When building a house, workers need to do things in the right order—first, lay the foundation, then build the walls, and finally put on the roof. The same idea applies to other projects.

- **Discussion:**

Ask students how they think managing tasks and deadlines could help them in their schoolwork or future projects.

---

#### 3. Introduction to Trello (15 minutes)

- **Materials Needed:**

Access to Trello on tablets or computers.

- **Teacher Demonstration:**

Demonstrate how to use Trello by setting up a **Trello board** for one of the class projects (e.g., designing a recycling app). Show students how to:

- Create **lists** (To Do, In Progress, Done).
  - Add **cards** for each task (e.g., “Research recycling facts,” “Design app interface”).
  - Assign **deadlines** and roles (e.g., assign one student to research and another to design).
- 

#### 4. Group Activity: Setting Up Their Trello Boards (25 minutes)

- **Activity:**

In their project teams, students will create their own **Trello boards** for the upcoming projects. Each group will:

- Create **three lists**: To Do, In Progress, Done.
- Add task **cards** under each list.
- Assign roles and set **deadlines** for each task (e.g., the Data Analyst needs to finish analyzing data by the end of the week, the Solution Developer needs to complete coding within two weeks).
- **Example Project:**  
For a project on designing a community garden, tasks might include:
  - Researching plant types.
  - Drawing garden designs.
  - Building a prototype model.

- **Teacher Guidance:**

Help students think through the tasks and break them down into smaller steps.

Encourage them to set reasonable deadlines and assign tasks based on their team members' strengths.

---

#### 5. Fun Activity: Moving Task Cards Across Lists (10 minutes)

- **Activity:**

Let students complete one small task (e.g., researching garden plants) and move their card from **To Do** to **Done**. This helps students see how project management tools help visualize progress.

## 6. Final Discussion: Preparing for Upcoming Projects (10 minutes)

- **Class Discussion:**

Discuss how students will use Trello to manage their projects over the next few weeks. Ask:

- “How does organizing tasks help us work better as a team?”
- “Why is it important to set deadlines for each part of the project?”

- **Teacher Guidance:**

Emphasize that project management helps teams stay on track, meet deadlines, and ensure that all tasks are completed in the right order.

---

## 7. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the week and how students will start their projects next week. Ask: “What are you most excited about for your upcoming project? How do you think Trello will help you stay organized?”

- **Homework Assignment:**

Each student should review their assigned tasks on Trello and begin preparing to work on their specific role in the project (e.g., researching, designing, developing).

---

## End of Lesson 10

By the end of Lesson 10, students will have a strong understanding of **Project Management** and how to organize their upcoming projects using **Trello**. They will have set up their Trello boards and prepared their project tasks, making them ready to start working on real-world projects the following week.



## Guided Project - Creating a Community Garden with Recycled Materials

**Project Roles:** 3 (“Market Researcher & Data Analyst”, “Solution Designer & Developer”, “Digital Marketer & Project Manager”)

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**Duration:** 10 Lessons (Initial introduction and setup)

### **Project Overview:**

In this project, students will work together to create a sustainable community garden using recycled materials. Each student will take on one of three roles: **Market Researcher & Data Analyst**, **Solution Designer & Developer**, or **Digital Marketer & Project Manager**. They will collaborate to gather community data, design the garden layout, and promote the project to their community. By the end, students will have created a detailed plan for the garden and presented their ideas to their classmates or local community members.

### **Learning Objectives:**

- **Collaboration:** Students will learn to work in teams, share responsibilities, and integrate their work into a cohesive project.
- **Real-World Application:** Students will apply their knowledge of sustainability and recycling to solve a real-world problem (creating a sustainable community garden).
- **Technology Integration:** Students will use tools like Google Forms, Canva, and Trello to manage their project, design promotional materials, and collect community feedback.

### **Curriculum Mapping:**

This project is mapped to multiple subject areas across **US Common Core**, **UK Curriculum**, **Cambridge**, **IB**, and **Pakistan National Curriculum**.

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### **US Common Core Curriculum Mapping:**

#### **1. English Language Arts (ELA):**

- **Writing (W.3.2, W.4.2, W.5.2):** Writing informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- **Speaking & Listening (SL.3.4, SL.4.4, SL.5.4):** Present information clearly, concisely, and logically, supporting main ideas with facts and descriptive details.

**2. Mathematics:**

- **Measurement & Data (MD.3.4, MD.4.4, MD.5.4):** Create and interpret data in graphs, focusing on community survey data and garden layout measurements.
- **Geometry (G.3.1, G.4.1, G.5.1):** Analyze and create garden layouts using geometric shapes and spatial understanding.

**3. Science:**

- **Earth and Human Activity (3-ESS3-1, 4-ESS3-1, 5-ESS3-1):** Focus on human impact on Earth's systems, the benefits of recycling, and sustainability through the creation of the garden.
- 

**UK National Curriculum Mapping:****1. English:**

- **Writing:** Plan, draft, and write clear and coherent informational texts (related to the research and findings from the project).
- **Speaking & Listening:** Develop effective presentation skills by presenting project findings.

**2. Mathematics:**

- **Data Handling:** Use bar charts, tally charts, and pie charts to represent survey data from the community on recycling habits.
- **Measurement:** Calculate the dimensions of the garden and the space needed for different sections, using units of measurement.

**3. Science:**

- **Living Things and Their Habitats:** Learn about plants and ecosystems, linking this to the importance of sustainable gardens and recycling materials.
- 

**Cambridge Curriculum Mapping:****1. English:**

- **Writing & Presenting Information:** Develop skills in writing reports and presenting findings through research and data collection.
- **Speaking & Listening:** Share ideas through discussions and formal presentations during the project.

**2. Mathematics:**

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- **Data Collection and Presentation:** Collect, analyze, and present data from community surveys about recycling and garden preferences.
  - **Geometry:** Use geometric concepts to design the layout of the community garden.
- 3. Science:**
- **Environmental Awareness:** Understand recycling and sustainability, focusing on their application in creating an eco-friendly garden.
- 

### **IB PYP Curriculum Mapping:**

- 1. Language:**
    - **Writing & Research:** Students will gather and present information about recycling and sustainable gardening practices.
    - **Communication:** Students will develop communication skills by presenting their findings to their classmates and community.
  - 2. Mathematics:**
    - **Data Handling:** Interpret survey results and present findings using appropriate visual aids (e.g., bar charts, graphs).
  - 3. Science:**
    - **Science in Society:** Explore how human actions (like recycling) can impact the environment positively, in line with sustainability principles.
- 

### **Pakistan National Curriculum Mapping:**

- 1. English:**
  - **Writing:** Writing informative texts and explanations of the community garden's purpose, sustainability goals, and design process.
  - **Oral Communication:** Present the project's findings to classmates and community members, explaining the importance of recycling and sustainability.
- 2. Mathematics:**
  - **Data Handling:** Collect and analyze survey data, presenting it through graphs and charts.
  - **Geometry:** Use measurement and spatial understanding to plan the layout of the garden.
- 3. Science:**

- **Environmental Science:** Learn about sustainable development, recycling, and human impacts on the environment through the design and creation of the community garden.
- 

## 10 Lessons Roadmap for Market Researcher / Data Analyst

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can recycling reduce waste and help create a sustainable community garden?

**Focus:** The **Market Researcher & Data Analyst** will gather data on community recycling habits, analyze trends, and collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to ensure the garden design aligns with community interests and promotes sustainability. The project will end with a branding effort to promote the initiative.

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#### Lesson 1: Defining the Problem & Creating a Research Plan (1-2 hours)

**Objective:** Understand the project's goals, define the research problem, and develop a data collection plan.

- **Tasks:**

- Use **AI tools** like **ChatGPT** or **Google AI** to research recycling and community gardens. Gather insights to inform survey creation.
- Collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to outline the research problem and define how data will support design and promotional strategies.
- Develop a research plan to collect data on recycling habits, materials available for reuse, and community interest in a garden.

**AI Tools:** ChatGPT, Google AI (for research and planning).

**Connection Points:**

- Share initial insights with the **Designer & Developer** to inform early design concepts.

- Align the research plan with the **Digital Marketer & Project Manager** for effective community engagement.
- 

## Lesson 2: Creating a Survey Using AI Tools (1-2 hours)

**Objective:** Create a survey to gather community data on recycling habits and garden participation.

- **Tasks:**

- Use **Google Forms Auto-Generate** or **ChatGPT** to design a survey with questions like, "How often do you recycle?" and "What recycled materials do you have at home?"
- Collaborate with the **Digital Marketer & Project Manager** to ensure the survey is distributed digitally and promoted within the community.
- Finalize the survey and start distributing it through various channels.

**AI Tools:** Google Forms Auto-Generate, ChatGPT (for survey creation).

**Connection Points:**

- Share the survey questions with the **Designer & Developer** to align community input with garden design.
  - Work with the **Digital Marketer & Project Manager** to distribute the survey.
- 

## Lesson 3: Data Collection (1-2 hours)

**Objective:** Collect survey responses and gather observations about recycling behaviors in the community.

- **Tasks:**

- Collect responses via Google Forms or manually with paper-based surveys.
- Observe recycling behaviors in your school or neighborhood (e.g., what materials are recycled and how often).
- Start sharing preliminary findings with the **Designer & Developer** to inform material selection.

**AI Tools:** Google Forms (for data collection).

**Connection Points:**

- Coordinate with the **Digital Marketer & Project Manager** to ensure the survey reaches the community.
  - Share early insights with the **Designer & Developer** for the garden design.
- 

## **Lesson 4: Organizing Data Using AI (1-2 hours)**

**Objective:** Input the collected data into a spreadsheet and begin using AI tools to organize it.

- **Tasks:**
  - Input the data from surveys into **Google Sheets** or **Excel** for easier manipulation.
  - Use **Google AI** or **Microsoft Power BI** to organize the data into categories, such as materials recycled, community awareness of recycling, and interest in the community garden.

**AI Tools:** Google Sheets, Google AI, Microsoft Power BI (for organizing data).

**Connection Points:**

- Share organized data with the **Designer & Developer** to ensure materials for the garden match the community's recycling habits.
- 

## **Lesson 5: Data Visualization & Initial Reporting (1-2 hours)**

**Objective:** Use AI tools to create visual representations of the data and begin reporting key findings.

- **Tasks:**
  - Use **Google AI** or **Power BI** to create charts, such as bar graphs and pie charts, that visualize the survey results (e.g., most commonly recycled materials).
  - Prepare a brief initial report to share with the team, summarizing key insights such as which materials are most available for the garden and the community's level of interest in participating.

**AI Tools:** Power BI, Google Sheets (for data visualization).

**Connection Points:**

- Share visual data with the **Designer & Developer** to ensure that garden design aligns with the community's recycling materials.
  - Work with the **Digital Marketer & Project Manager** to present early insights to the public, promoting interest in the garden project.
- 

### **Lesson 6: Data Analysis Using AI & Collaboration (1-2 hours)**

**Objective:** Analyze the survey data using AI tools to uncover trends and collaborate with the other roles.

**● Tasks:**

- Use **Google AI** or **Power BI** to conduct deeper analysis of the data, identifying trends like the most commonly recycled materials and which households are most engaged in recycling.
- Collaborate with the **Designer & Developer** to refine the material selection for the garden based on the data.
- Discuss insights with the **Digital Marketer & Project Manager** to plan the next phase of community engagement based on data trends.

**AI Tools:** Google AI, Power BI (for data analysis).

**Connection Points:**

- Collaborate closely with the **Designer & Developer** to finalize material choices.
  - Share data-driven insights with the **Digital Marketer & Project Manager** for use in promotional campaigns.
- 

### **Lesson 7: Writing the Final Report Using AI Tools (1-2 hours)**

**Objective:** Write a comprehensive report summarizing data findings and their implications for the project.

**● Tasks:**

- Use **Grammarly** or **ChatGPT** to draft a report summarizing the findings from the survey and data analysis. Include charts and graphs for visual support.
- Discuss the report with the other team members to ensure all roles have the data they need to move forward.

**AI Tools:** Grammarly (for report writing), ChatGPT (for summarizing findings).

**Connection Points:**

- Share the final report with the **Designer & Developer** to finalize material choices for the garden.
  - Provide the report to the **Digital Marketer & Project Manager** to inform promotional materials and campaigns.
- 

### **Lesson 8: Finalizing Recycled Materials List & Collaboration (1-2 hours)**

**Objective:** Collaborate with the team to finalize the list of recycled materials for the garden.

● **Tasks:**

- Work with the **Designer & Developer** to confirm which recycled materials will be used for the garden, based on the survey results and data analysis.
- Ensure the materials are easily accessible in the community and sustainable for the long-term.
- Begin planning how the data can be used in the branding effort, highlighting the environmental impact.

**AI Tools:** Google Sheets, Power BI (for finalizing materials and visualizing data).

**Connection Points:**

- Collaborate with the **Designer & Developer** to finalize the materials and design.
  - Work with the **Digital Marketer & Project Manager** to use data-driven insights in the final promotional materials.
- 

### **Lesson 9: Branding the Project & Preparing for the Final Presentation (1-2 hours)**

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**Objective:** Contribute to the branding effort by sharing data insights that highlight community involvement and sustainability.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to create branding elements (e.g., slogans, logos) that emphasize sustainability and community engagement.
- Use the data collected throughout the project to show how the community's recycling efforts are contributing to the garden.
- Help create a presentation that highlights the key data points, using AI-generated visualizations to support the branding effort.

**AI Tools:** Canva, Power BI (for branding and data visualization).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to finalize the promotional materials.
- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden's design.

---

## Lesson 10: Final Presentation & Community Engagement (1-2 hours)

**Objective:** Present the findings to the class or community and contribute to the final branding and community engagement effort.

- **Tasks:**

- Present the final report, showcasing the survey results, data analysis, and the impact of recycling on the garden.
- Work with the **Digital Marketer & Project Manager** to deliver the branding campaign to the community, using data to encourage participation in the garden.
- Conclude the project by discussing the long-term benefits of community engagement in sustainability.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Designer & Developer** and the **Digital Marketer & Project Manager** to deliver a cohesive final presentation.

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- Ensure the branding and data insights are shared with the community to encourage ongoing participation.
- 

## Assessment at Project Level:

### 1. Industry Understanding

- **Assessment Criteria:** Evaluate the student's understanding of the recycling industry, community sustainability efforts, and how data plays a crucial role in environmental decision-making.
- **Questions:**
  - How well does the student understand the impact of recycling on environmental sustainability?
  - Can they explain the connection between recycled materials and their use in the community garden?
  - Have they demonstrated a clear understanding of how data can inform decisions in real-world environmental projects?

### 2. Concept Understanding

- **Assessment Criteria:** Assess the student's grasp of the core concepts, such as data collection, analysis, and visualization, and their ability to apply these concepts in the project.
- **Questions:**
  - How effectively did the student collect and analyze data on recycling habits?
  - Were they able to create clear, accurate visualizations that helped inform the garden's design?
  - Can they explain the process of turning data into actionable insights?

### 3. Role Performance

- **Assessment Criteria:** Measure the student's success in fulfilling the responsibilities of the **Market Researcher & Data Analyst** role, including collaboration with other roles.
- **Questions:**
  - Did the student successfully collect and analyze data to support the garden design and promotional campaign?

- How well did they communicate their findings with the **Designer & Developer** and the **Digital Marketer & Project Manager**?
- Did they contribute effectively to the final report and presentation?

#### 4. Collaboration & Communication

- **Assessment Criteria:** Evaluate how well the student collaborated with their peers and communicated their findings.
- **Questions:**
  - How effectively did the student share insights with other roles throughout the project?
  - Did they collaborate well with the **Designer & Developer** to ensure data-driven design choices?
  - Were they able to communicate data findings clearly to support the **Digital Marketer & Project Manager** in the branding efforts?

#### 5. Branding & Final Presentation

- **Assessment Criteria:** Assess the student's involvement in the final branding and presentation efforts.
- **Questions:**
  - How well did the student use data to contribute to the project's branding, emphasizing community involvement and sustainability?
  - Were they able to present the final findings and demonstrate the impact of the project to the class or community?
  - How effectively did they support the **Digital Marketer & Project Manager** in the promotional campaign?

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#### Learning Outcomes for the Entire Project

- **Industry Understanding:** The student will demonstrate a deep understanding of recycling, sustainability, and how data-driven insights inform real-world projects.
- **Data Skills:** They will acquire skills in using AI tools for data collection, analysis, and visualization, creating clear and actionable insights from raw data.
- **Collaboration:** The student will learn how to effectively collaborate with peers, ensuring the data supports design and marketing efforts.
- **Branding:** The student will contribute to the branding of the community garden project, using data to highlight the impact of recycling and sustainability.

- **Communication:** By presenting their findings, the student will improve their ability to communicate data insights clearly and effectively.

Here's the **10-Lesson detailed plan** for the **Designer & Developer** role in the **Grade 3 Project: Creating a Community Garden with Recycled Materials**, integrating AI tools and connecting with the other roles like **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager**. This plan focuses on the tasks of designing the garden and developing digital components where needed. The project will end with a final presentation, including branding and showcasing the garden's design.

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## 10 Lessons Roadmap for Solution Designer / Developer

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Designer & Developer** will be responsible for designing the community garden based on the research conducted by the **Market Researcher & Data Analyst**, and developing digital components or models that can represent the garden.

Collaboration with the **Digital Marketer & Project Manager** will be essential for branding and final presentation efforts.

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### Lesson 1: Understanding the Project & Gathering Design Inputs (1-2 hours)

**Objective:** Understand the project goals and begin gathering design ideas from the team.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** to understand the community's preferences for recycling and sustainable gardening based on the initial research and data collection plan.
- Review preliminary data about materials available for the garden.
- Begin brainstorming design ideas for how recycled materials can be used effectively in the garden layout.

**AI Tools:** ChatGPT or DALL·E (to generate initial garden design ideas and layouts).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to understand the types of materials available and the community's recycling behaviors.
  - Align with the **Digital Marketer & Project Manager** on initial branding concepts that align with the garden's design and sustainability goals.
- 

## **Lesson 2: Sketching Initial Designs (1-2 hours)**

**Objective:** Create initial design sketches for the community garden using input from the research team.

- **Tasks:**
  - Using **Figma** or **Canva**, create initial sketches of the garden layout, focusing on how different recycled materials (plastic bottles, cardboard) can be incorporated into planters, pathways, and other elements.
  - Collaborate with the **Market Researcher & Data Analyst** to ensure that the design reflects community preferences, based on the survey data.
  - Prepare a few different layout options to present to the team for feedback.

**AI Tools:** Figma, Canva, or DALL·E (for garden design and layout ideas).

**Connection Points:**

- Review the initial sketches with the **Market Researcher & Data Analyst** to ensure that the materials align with the data.
  - Begin discussing the designs with the **Digital Marketer & Project Manager** to align branding with design concepts.
- 

## **Lesson 3: Finalizing the Garden Layout & Material Use (1-2 hours)**

**Objective:** Finalize the layout for the community garden and decide on the use of recycled materials.

- **Tasks:**

- Refine the initial garden sketches based on team feedback, incorporating any additional ideas or materials suggested by the **Market Researcher & Data Analyst**.
- Finalize the list of recycled materials that will be used in the garden design and ensure that all elements are sustainable and practical.
- Begin outlining the specific design elements for each section of the garden, such as planter designs, seating areas, and pathways made from recycled materials.

**AI Tools:** Figma (for finalizing designs), Google Sheets (for organizing the materials list).

#### Connection Points:

- Collaborate closely with the **Market Researcher & Data Analyst** to finalize material choices.
  - Work with the **Digital Marketer & Project Manager** to ensure that the garden's design can be easily branded and promoted.
- 

### Lesson 4: Developing Digital Components & Visual Models (1-2 hours)

**Objective:** Create digital models or visual representations of the community garden.

#### ● Tasks:

- Use **Figma** or **Canva** to create a digital mockup of the garden, showing how the recycled materials will be incorporated into the final design.
- Create a visual model of the garden that can be used in the final presentation and promotional materials. This model should clearly represent the layout, materials, and overall aesthetic of the garden.
- Ensure that the model is easy to understand and visually appealing, as it will be part of the final presentation to the community.

**AI Tools:** Figma, Canva, Google SketchUp (for digital modeling and mockups).

#### Connection Points:

- Share the digital model with the **Market Researcher & Data Analyst** to ensure all materials are represented accurately.
- Work with the **Digital Marketer & Project Manager** to use the visual models in promotional campaigns.

## Lesson 5: Preparing Visual Design & Feedback Integration (1-2 hours)

**Objective:** Prepare the visual design and gather feedback from the team.

- **Tasks:**

- Present the digital model and design sketches to the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** for feedback.
- Make any necessary adjustments based on team feedback, ensuring that the design aligns with community preferences and promotional goals.
- Begin planning how the design will be presented to the community, considering visual elements that highlight the use of recycled materials.

**AI Tools:** Figma, Canva (for revisions based on feedback).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to refine the design and ensure that all elements are data-driven.
  - Work with the **Digital Marketer & Project Manager** to plan how the final design will be showcased to the community.
- 

## Lesson 6: Branding the Garden Design (1-2 hours)

**Objective:** Work with the **Digital Marketer & Project Manager** to create branding elements for the garden.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to develop branding materials, such as logos, slogans, and promotional designs, that reflect the sustainability and community-driven aspects of the garden.
- Ensure that the visual design aligns with the branding elements and that the garden's message of sustainability is clear in all promotional materials.
- Use AI tools like **Canva** to create visual assets for social media and other marketing channels.

**AI Tools:** Canva (for branding and promotional materials).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to ensure the branding is visually consistent with the garden design.
  - Collaborate with the **Market Researcher & Data Analyst** to include data-driven messaging in the branding materials.
- 

## Lesson 7: Refining Digital Models & Preparing for Final Presentation (1-2 hours)

**Objective:** Refine the digital models and prepare for the final presentation.

- **Tasks:**
  - Refine the digital model based on team feedback and ensure that it is ready for the final presentation.
  - Begin preparing slides or visual aids for the final presentation, showcasing the design process, the recycled materials used, and how the garden will benefit the community.
  - Work closely with the **Market Researcher & Data Analyst** to integrate data insights into the presentation.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to include data insights in the presentation.
  - Work with the **Digital Marketer & Project Manager** to ensure that the presentation aligns with the branding strategy.
- 

## Lesson 8: Finalizing the Garden Design & Preparing Presentation Materials (1-2 hours)

**Objective:** Finalize the garden design and prepare materials for the final presentation.

- **Tasks:**
  - Finalize all visual materials, including digital models, posters, and any other design elements that will be used in the final presentation.
  - Ensure that the final design is visually appealing and accurately represents the garden layout, including the use of recycled materials.

- Share the final design with the **Digital Marketer & Project Manager** to ensure alignment with the overall branding effort.

**AI Tools:** Figma, Canva (for finalizing visual materials).

**Connection Points:**

- Work with the **Market Researcher & Data Analyst** to ensure the final design reflects community input.
  - Collaborate with the **Digital Marketer & Project Manager** to ensure that the branding materials are consistent with the design.
- 

### **Lesson 9: Presenting the Final Garden Design to the Community (1-2 hours)**

**Objective:** Present the final garden design and explain how recycled materials are used in the garden.

- **Tasks:**
  - Present the final design to the class or community, showcasing how recycled materials have been incorporated into the garden layout.
  - Work with the **Digital Marketer & Project Manager** to ensure that the branding message is clear and that the presentation highlights the community's involvement in the project.
  - Use AI tools to create visual aids that make the design easy to understand for the audience.

**AI Tools:** Google Slides, Canva (for final presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure that data-driven insights are included in the presentation.
  - Work with the **Digital Marketer & Project Manager** to deliver a cohesive branding message during the presentation.
- 

### **Lesson 10: Final Branding and Post-Project Collaboration (1-2 hours)**

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**Objective:** Collaborate with the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** to promote the project through branding and share the project's success story with the community.

- **Tasks:**

- Finalize the project presentation and branding effort, ensuring the design reflects the community's involvement and promotes environmental sustainability.
- Participate in a final team discussion to reflect on the project, discussing what worked well and what can be improved for future projects.
- Help create a social media campaign or blog post to share the project's success story with a broader audience, highlighting how the garden project supports environmental sustainability and community involvement.

**AI Tools:** **Canva** (for creating promotional materials), **Grammarly** (for writing social media posts or blog content).

**Connection Points:**

- Collaborate with the **Digital Marketer & Project Manager** to ensure the project is branded and promoted effectively.
- Share the final project design and branding with the community through digital platforms or in-person presentations.

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**Final Assessment at Project Level (for the Designer & Developer Role):**

- **Industry Understanding:**

- Can the student explain how recycled materials were used to design the community garden?
- How well does the student understand the impact of design on environmental sustainability and community engagement?

- **Concept Understanding:**

- Evaluate the student's ability to apply design concepts in creating a sustainable garden layout.
- Did the student use recycled materials effectively and creatively?

- **Role Performance:**

- Did the student fulfill the responsibilities of the **Designer & Developer** role, including creating digital models and refining the garden design?

- How well did the student collaborate with the **Market Researcher & Data Analyst** to incorporate data insights into the design?
  - **Collaboration:**
    - Did the student communicate effectively with the other roles and integrate their input into the final design?
    - How well did the student contribute to the final presentation and branding effort?
  - **Branding & Final Presentation:**
    - Did the student contribute to the branding and promotion of the project, using their design skills to create visually appealing materials?
    - How effectively did the student participate in the final presentation, showcasing the design and promoting the project to the community?
- 

### Learning Outcomes for the Entire Project:

- **Design & Development Skills:** The student will develop skills in using AI tools like **Figma** and **Canva** to create designs and digital models.
- **Industry Knowledge:** The student will gain a deeper understanding of sustainable design and how to incorporate recycled materials into real-world projects.
- **Collaboration & Communication:** The student will improve their ability to work with other roles, ensuring that data and branding are integrated into the design process.
- **Branding & Presentation:** The student will contribute to branding efforts and learn how to present their design in a professional, visually appealing manner.

This 10-Lesson plan focuses on ensuring the **Designer & Developer** role is integrated with the other roles, using AI tools and collaborative feedback to create a sustainable, community-driven garden design. The plan culminates in a final presentation and branding effort that promotes the project's impact.

## 10 Lessons Roadmap for Project Manager / Digital Marketer

Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Digital Marketer & Project Manager** will handle project organization and branding. This includes creating promotional materials, managing timelines using Trello, and working with other roles like the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure the project's success.

---

### Lesson 1: Understanding the Project & Setting Up Project Management (1-2 hours)

**Objective:** Understand the project's goals, set up the project management system, and begin organizing the project timeline.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** and the **Designer & Developer** to understand their roles and align on the project's overall goals.
- Set up a **Trello** board to organize the project tasks. Create lists for "To-Do," "In Progress," and "Completed."
- Assign tasks for each role and create a project timeline, including deadlines for survey creation, design feedback, branding, and the final presentation.

**AI Tools:** **Trello, Google Calendar** (for project management).

**Connection Points:**

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- Collaborate with the **Market Researcher & Data Analyst** to schedule tasks related to survey creation and data analysis.
  - Coordinate with the **Designer & Developer** to schedule design feedback and finalize the garden layout.
- 

## Lesson 2: Creating a Branding Strategy (1-2 hours)

**Objective:** Develop a branding strategy for the community garden project, including logos, slogans, and promotional materials.

- **Tasks:**
  - Brainstorm branding ideas with the **Designer & Developer** to create a consistent theme that reflects the garden's sustainability and recycling message.
  - Use **Canva** to design a logo and select a color scheme that represents the community garden's values.
  - Create a simple slogan for the project, emphasizing sustainability and community involvement (e.g., "Grow Green, Recycle Smart").

**AI Tools:** Canva, Adobe Spark (for branding materials).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden design.
  - Work with the **Market Researcher & Data Analyst** to include data insights (such as community interest in recycling) in the branding strategy.
- 

## Lesson 3: Promoting the Survey & Engaging the Community (1-2 hours)

**Objective:** Help distribute the survey created by the **Market Researcher & Data Analyst** and engage the community.

- **Tasks:**
  - Use **social media platforms** or school-based networks to distribute the survey to the community, promoting it as part of the sustainable garden initiative.

- Post on platforms like **ClassDojo** or school newsletters, explaining how community feedback will shape the garden.
- Track survey responses using Trello, updating the board as the community engages.

**AI Tools:** Facebook, Instagram, ClassDojo (for promoting surveys).

**Connection Points:**

- Coordinate with the **Market Researcher & Data Analyst** to ensure survey responses are collected efficiently.
  - Share community engagement data with the **Designer & Developer** for design feedback.
- 

## Lesson 4: Tracking Progress & Adjusting the Timeline (1-2 hours)

**Objective:** Review the project's progress and adjust the timeline if necessary.

- **Tasks:**
  - Use **Trello** to track the completion of tasks, including survey creation, data collection, and initial design sketches.
  - Hold a quick meeting with the team to check if any adjustments are needed for the timeline (e.g., more time for data collection or design revisions).
  - Update the project timeline based on team feedback, ensuring all tasks stay on track for completion by Lesson 10.

**AI Tools:** Trello, Google Calendar (for timeline adjustments).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure enough time is allocated for data analysis.
  - Work with the **Designer & Developer** to adjust the design schedule if needed.
- 

## Lesson 5: Creating Social Media Content for Promotion (1-2 hours)

**Objective:** Create and schedule social media content to promote the community garden project and encourage more participation.

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- **Tasks:**

- Use **Canva** to design promotional posts that highlight the garden's sustainability goals and the use of recycled materials.
- Work with the **Market Researcher & Data Analyst** to include data from the survey, such as what materials the community recycles most.
- Schedule social media posts to go live on specific days leading up to the final presentation, using tools like **Hootsuite**.

**AI Tools:** **Canva, Hootsuite, Facebook, Instagram** (for social media content and scheduling).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to use data insights in social media posts.
  - Work with the **Designer & Developer** to ensure the branding and visuals are consistent with the garden design.
- 

## Lesson 6: Refining the Branding & Promotional Campaign (1-2 hours)

**Objective:** Refine the branding strategy based on community feedback and prepare for the final promotional push.

- **Tasks:**

- Review the branding materials with the **Designer & Developer** to ensure they align with the final garden design.
- Use feedback from the community to adjust slogans, logos, or promotional content if needed.
- Prepare a final promotional push for social media, encouraging community members to attend the presentation or contribute to the garden.

**AI Tools:** **Canva, Google Sheets** (for organizing feedback and refining branding).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure branding and design remain aligned.
  - Use insights from the **Market Researcher & Data Analyst** to refine the promotional message.
-

## Lesson 7: Preparing for the Final Presentation (1-2 hours)

**Objective:** Begin preparing materials for the final presentation, including slides and talking points.

- **Tasks:**

- Use **Google Slides** or **PowerPoint** to start creating the final presentation, which will showcase the project's progress, data insights, and design.
- Include branding elements (logos, slogans) and key visuals from the **Designer & Developer**.
- Work with the **Market Researcher & Data Analyst** to include data-driven insights in the presentation, such as survey results and recycling data.

**AI Tools:** Google Slides, PowerPoint, Canva (for creating the presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure the data is visually presented in the slides.
- Ensure that branding elements from the **Designer & Developer** are included in the presentation.

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## Lesson 8: Finalizing the Presentation & Promotional Strategy (1-2 hours)

**Objective:** Finalize the presentation and promotional strategy for the community garden project.

- **Tasks:**

- Review the presentation with the team and make any necessary revisions.
- Prepare a final promotional post or email to invite community members to the presentation.
- Ensure that the branding is consistent across all promotional materials and presentation slides.

**AI Tools:** Google Slides, Canva (for finalizing presentation and promotional content).

**Connection Points:**

- Work with the **Designer & Developer** and **Market Researcher & Data Analyst** to ensure the presentation is cohesive and reflects the project's goals.

## Lesson 9: Final Presentation Preparation & Rehearsal (1-2 hours)

**Objective:** Rehearse the final presentation and ensure that all materials are ready for delivery.

- **Tasks:**

- Conduct a rehearsal with the team to ensure each role is prepared to present their part of the project.
- Finalize the promotional strategy and ensure that the community is aware of the presentation.
- Check the branding materials and visuals to ensure consistency throughout the presentation.

**AI Tools:** Google Slides, Canva (for final rehearsal and checking visuals).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure everyone is aligned for the presentation.
- 

## Lesson 10: Delivering the Final Presentation & Branding Campaign (1-2 hours)

**Objective:** Deliver the final presentation and launch the final branding campaign.

- **Tasks:**

- Present the community garden project to the class or community, highlighting how recycling has been integrated into the garden's design.
- Launch the final branding campaign on social media or school platforms, using the content created throughout the project.
- Discuss the impact of the project on the community and encourage further participation in sustainable initiatives.

**AI Tools:** Google Slides, Canva, Facebook, Instagram (for delivering the presentation and launching the branding campaign).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to deliver a cohesive final presentation.

# Teacher Guidelines to Conduct AI Based Projects

## Teacher Guideline 1 - Detailed Tool Instructions

This guide provides teachers with step-by-step instructions on using essential tools for the 10-Lesson Introduction to AI, Data Science, and Technology Basics. It includes screenshots, QR code links to short instructional videos, and sample exercises to make it easy for teachers to practice before introducing these tools to students.

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### Tool 1: Canva (Graphic Design Basics)

- **Purpose:** Canva allows students to create visuals like posters, reports, and presentation slides, which they can use to showcase project findings.
  - **Quick-Start Steps:**
    - **Open Canva:** Go to [canva.com](https://canva.com) and create a free account.
    - **Choose a Template:** Select “Create a Design” and choose a template, like “Poster” or “Presentation.”
    - **Customize Design:** Encourage students to add text, images, and icons. They can drag elements to adjust positions, change colors, and edit fonts.
    - **Save & Download:** When finished, click “Download” to save the design as a PDF or image.
  - **Sample Exercise:** Create a digital poster titled “How AI Helps Us Every Day” with a simple layout and two to three icons or images related to technology.
- 

### Tool 2: Google Forms (Data Collection)

- **Purpose:** Google Forms allows students to create surveys, gather responses, and analyze basic data, such as preferences or community feedback.
- **Quick-Start Steps:**
  - **Access Google Forms:** Go to [forms.google.com](https://forms.google.com) and log in with a Google account.
  - **Start a New Form:** Click “Blank” to start a new form or use a pre-made template.

- **Add Questions:** Select “+” to add different question types (multiple choice, short answer, etc.). Teachers can guide students to add three to five questions for practice.
  - **Share the Form:** Click “Send” and choose the “Link” option to copy and share the form with students or family members for responses.
  - **Review Responses:** Click “Responses” to view and analyze results.
  - **Sample Exercise:** Create a form titled “Favorite School Activities” with questions like “What’s your favorite subject?” and “Which club would you join?”
- 

### Tool 3: Scratch Jr. / Scratch (Basic Coding Concepts)

- **Purpose:** Scratch Jr. (for younger students) and Scratch teach basic coding logic through drag-and-drop programming, helping students understand how computers follow instructions.
  - **Quick-Start Steps:**
    - **Access Scratch:** Go to [scratch.mit.edu](https://scratch.mit.edu) for Scratch or download **Scratch Jr.** on tablets.
    - **Start a New Project:** Click “Create” on Scratch (or open Scratch Jr.) and introduce the interface (sprite area, code blocks).
    - **Add Movements:** Drag “Motion” blocks like “Move 10 Steps” to make the character move.
    - **Add Dialogue:** Use “Looks” blocks like “Say [Hello!]” to add dialogue to the characters.
  - **Sample Exercise:** Create a short animation where a character says “Hello!” and moves across the screen.
- 

### Tool 4: Trello (Simple Project Management)

- **Purpose:** Trello is a simple project management tool that organizes tasks and allows students to track project progress in a visual “board” format.
- **Quick-Start Steps:**
  - **Access Trello:** Go to [trello.com](https://trello.com) and sign up for a free account.
  - **Create a New Board:** Click “Create New Board” and name it according to the project (e.g., “Community Garden Project”).
  - **Add Lists:** Create three lists titled “To Do,” “In Progress,” and “Done.”

- **Add Task Cards:** Under “To Do,” add tasks as cards (e.g., “Research recycling materials” or “Design garden layout”).
  - **Move Cards Across Lists:** Drag cards to “In Progress” when a task starts and to “Done” upon completion.
  - **Sample Exercise:** Set up a simple Trello board for the “Community Garden Project,” with three cards under “To Do.”
- 

### Tool 5: Google Sheets (Data Analysis Basics)

- **Purpose:** Google Sheets introduces students to basic data handling, allowing them to enter data, create charts, and interpret findings.
- **Quick-Start Steps:**
  - **Access Google Sheets:** Go to [sheets.google.com](https://sheets.google.com) and start a new blank spreadsheet.
  - **Enter Data:** Demonstrate entering data in columns (e.g., “Activity” and “Number of Students”).
  - **Create a Chart:** Highlight data, click “Insert,” then “Chart.” Google Sheets will generate a chart based on selected data.
  - **Customize Chart:** Adjust the chart’s appearance by changing colors, titles, and labels.
- **Sample Exercise:** Input survey data on “Favorite School Activities” and create a bar chart showing the results.

### Teacher Guideline 2: Simplified Technical Explanations & Essential Skills Overview

This section offers **easy-to-understand explanations** for complex concepts in AI and data science, along with an overview of essential skills for each role. Teachers can use these simplified definitions and skill descriptions to introduce foundational concepts and set expectations for the skills students will build across the activities.

### Core AI & Data Science Concepts

- **AI (Artificial Intelligence):**

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- **Simple Explanation:** AI is a “smart helper” that can learn and make decisions, much like how people do.
  - **Example:** Just as Netflix recommends movies based on past viewing habits, AI learns from patterns to give us what we might like.
  - **Machine Learning:**
    - **Simple Explanation:** Machine learning is when computers learn by looking at examples and improving with practice.
    - **Example:** Like learning to recognize different breeds of dogs by seeing many examples, a machine learns to make predictions based on data.
  - **Data:**
    - **Simple Explanation:** Data is information that we can collect, analyze, and use to make decisions.
    - **Example:** Schools collect data on attendance and grades to understand how students are doing.
  - **Coding:**
    - **Simple Explanation:** Coding is giving instructions to a computer to perform specific tasks.
    - **Example:** Just like following a recipe to bake a cake, coding gives step-by-step instructions to make things happen on a computer.
- 

## Essential Skills for Each Role

- **AI-Powered Market Researcher:**
  - **Skills Developed:** Survey creation, data collection, data analysis.
  - **Practical Application:** Learning to gather information from people and analyze trends, such as classmates’ favorite activities.
- **AI-Powered Data Analyst:**
  - **Skills Developed:** Data interpretation, data visualization, basic statistics.
  - **Practical Application:** Using data charts to understand patterns, like which snacks are most popular.
- **AI-Based Solution Designer:**
  - **Skills Developed:** Design thinking, creative problem-solving, prototyping.
  - **Practical Application:** Developing and presenting ideas for real-world problems, like designing a sustainable garden layout.
- **AI-Based Solution Developer:**
  - **Skills Developed:** Coding basics, creating simple applications, understanding logic sequences.

- **Practical Application:** Creating digital animations or simple apps that demonstrate problem-solving, such as coding an animation in Scratch Jr.
  - **AI-Powered Digital Marketer:**
    - **Skills Developed:** Digital content creation, branding basics, public speaking.
    - **Practical Application:** Making posters and presentations to promote projects, helping students learn how to communicate ideas effectively.
- 

## Glossary of Key Terms

- **Artificial Intelligence (AI):** Technology that enables computers to perform tasks that require human-like thinking.
  - **Data:** Information collected for analysis, like survey responses or numerical figures.
  - **Machine Learning:** A branch of AI where computers learn patterns from data to make predictions.
  - **Coding:** Writing instructions in a language computers understand to perform specific tasks.
  - **Project Management:** The process of organizing tasks and tracking progress to complete a project.
- 

## Using This Section

- **Introduce Concepts in Context:** Present these terms and skills in context, relating them to daily project tasks so students understand their practical importance.
  - **Skill Building Across Activities:** Emphasize how each activity will help students gain and practice these skills, which are fundamental for future projects and career paths.
  - **Quick Reference Glossary:** Keep this glossary accessible throughout the project to help both teachers and students reinforce their understanding of new terms.
- 

## Teacher Guideline 3: Flexible Options for Lower-Tech Classrooms

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This section provides **non-digital alternatives** for each project and activity, helping teachers adapt projects to classrooms with limited technology resources. Each activity includes an **offline option** using common classroom materials or low-tech tools, allowing teachers to achieve the same learning goals without relying heavily on computers or internet access.

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## 1. Canva (Graphic Design Basics)

- **Purpose:** Instead of Canva, students can use **colored paper, markers, and glue** to create posters or designs by hand.
  - **Alternative Steps:**
    1. **Brainstorm & Sketch:** Have students sketch their design ideas on paper first, planning colors, shapes, and text.
    2. **Create the Poster:** Provide colored paper, markers, scissors, and glue for students to create a poster or design.
    3. **Present:** Students present their designs to the class, explaining their choices just as they would if created digitally.
  - **Goal Achieved:** Students learn basic design principles, practice creativity, and share their work, just as they would on Canva.
- 

## 2. Google Forms (Data Collection)

- **Purpose:** For data collection, use **paper surveys** instead of Google Forms.
  - **Alternative Steps:**
    1. **Create a Survey:** Write survey questions on a large sheet of paper or chalkboard. Students copy questions onto their own papers or teachers provide printed handouts.
    2. **Collect Responses:** Each student asks family or classmates to answer the survey questions and records responses by hand.
    3. **Discuss Results:** Students tally responses and analyze results as a class, discussing patterns and trends.
  - **Goal Achieved:** Students learn the basics of data collection, develop survey questions, and analyze responses without needing an online form.
- 

## 3. Scratch Jr. / Scratch (Basic Coding Concepts)

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- **Purpose:** Instead of using Scratch, introduce **coding concepts with role-playing or written instructions.**
- **Alternative Steps:**
  1. **Define “Instructions”:** Explain that coding involves giving clear instructions, just like following a recipe.
  2. **Create a Simple “Code”:** Write simple instructions for students to follow, such as “Move 2 steps forward, turn left, jump.” This simulates basic coding commands.
  3. **Role-Playing Game:** Assign students to be “computers” and “programmers” and have them follow each other’s instructions to understand coding.
- **Goal Achieved:** Students understand basic coding principles (sequences, commands) through role-play, preparing them for digital coding later on.

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#### 4. Trello (Project Management)

- **Purpose:** Replace Trello with a **physical task board** in the classroom.
- **Alternative Steps:**
  1. **Set Up a Task Board:** Divide a whiteboard, corkboard, or wall into sections: “To Do,” “In Progress,” and “Done.”
  2. **Create Task Cards:** Write tasks on sticky notes or index cards and place them under “To Do.”
  3. **Move Tasks Physically:** As tasks are completed, students move the sticky notes to “In Progress” and then “Done,” visually tracking project progress.
- **Goal Achieved:** Students learn project management basics with a physical board, gaining the same organizational skills they would on Trello.

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#### 5. Google Sheets (Data Analysis Basics)

- **Purpose:** For data visualization, use **graph paper and markers** instead of Google Sheets.
- **Alternative Steps:**
  1. **Record Data by Hand:** Students list data (e.g., favorite animals or colors) on paper.

2. **Create a Graph:** On graph paper, students create a bar chart or pie chart representing the data they collected.
  3. **Discuss Findings:** Students share their hand-drawn graphs with the class, explaining what the data shows.
- **Goal Achieved:** Students practice data visualization and interpretation skills using manual tools, allowing them to analyze and present data without digital software.
- 

### How to Use These Alternatives

- **Flexible Planning:** Teachers can choose to follow digital or non-digital versions based on classroom resources. These options allow for flexible lesson planning and ensure each student can fully participate.
  - **Encouraging Creativity:** Using hands-on materials like paper, markers, and role-play introduces new elements of creativity, helping students relate abstract concepts to tangible experiences.
  - **Achieving Learning Goals:** Whether digital or physical, these alternatives achieve the same learning objectives in each project, ensuring that all students gain valuable skills in data collection, analysis, design, and project management.
- 

By providing these **low-tech options**, teachers can adapt each project and activity to the resources available, making the content accessible to all classrooms.

Next, we'll move to the **Clear Role Descriptions for Teachers and Students** section, which defines specific responsibilities for each Lesson's activity.

### Teacher Guideline 4 - Student Motivation and Engagement Tips

This section offers **practical strategies** to help teachers keep students engaged and motivated as they explore AI, data science, and project-based learning. From setting small goals to celebrating achievements, these tips focus on making learning enjoyable and helping students build confidence as they develop new skills.

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## 1. Use Gamification Techniques

- **Create Mini-Challenges:** Turn activities into small challenges, such as a “Data Detective” day where students have to uncover patterns in a dataset or a “Design Sprint” where they brainstorm solutions quickly.
- **Reward Progress:** Offer digital badges or certificates for completing key milestones (e.g., “Survey Creator,” “Data Visualizer”), which can be printed or displayed in the classroom.
- **Make It Collaborative:** Allow students to earn points as teams, motivating them to work together and encourage each other.

## 2. Set Clear, Achievable Goals

- **Daily and Weekly Goals:** Break down the 10-Lesson program into daily goals so students know what to expect and can celebrate small wins.
- **Visual Progress Tracker:** Use a board to track the class’s progress, where students can move a marker or add a sticker when a Lesson’s tasks are complete, creating a sense of collective accomplishment.

## 3. Foster Curiosity and Relevance

- **Relate Projects to Real Life:** Show students how each activity is relevant to their lives, like explaining how data collection helps companies decide on new toy designs.
- **Encourage Questions:** Create an “Ask Anything” box where students can submit questions about AI, data science, or any topic that piques their interest. Spend a few minutes each day addressing these questions.
- **Introduce Real-World Examples:** Share age-appropriate examples of AI in action, like how Google Maps uses data to predict traffic or how Netflix suggests movies based on viewing history.

## 4. Celebrate Progress and Effort, Not Just Results

- **Acknowledge Effort:** Highlight students’ hard work and creativity, especially when they try something new or face challenges, reinforcing a growth mindset.
- **Showcase Student Work:** Create a “Student Spotlight” wall or virtual board to display projects, survey results, and designs, celebrating each student’s contributions.

- **Share Success Stories:** Occasionally share stories about young inventors, tech entrepreneurs, or environmental activists who made a difference with creative ideas, inspiring students to think about their potential.

## 5. Encourage Reflection and Self-Assessment

- **End-of-Lesson Reflections:** Have students write or share one thing they learned and one question they have after each Lesson's activity, helping them process what they've gained.
- **Weekly Journaling:** Encourage students to keep a weekly journal of their experiences, including what they enjoyed, what they found challenging, and what they're excited to try next.
- **Peer Feedback:** Create moments for students to share and receive constructive feedback from peers, fostering collaboration and growth.

## 6. Make Learning Fun with Hands-On Activities

- **Incorporate Art and Creativity:** Allow students to incorporate drawings, crafts, or physical models in their projects, especially for roles like the Solution Designer or Digital Marketer.
- **Allow Free Exploration:** Give students "exploration days" where they can use tools like Canva or Scratch for their own mini-projects, letting them practice skills in a low-pressure setting.
- **Involve the Class in Problem-Solving:** Let students take ownership of small project decisions, like choosing survey topics or deciding on themes for presentations, fostering autonomy and pride in their work.

## 7. Create an Inclusive and Supportive Environment

- **Encourage Teamwork:** Pair students with different strengths so they can support each other, learning from each other's skills and experiences.
- **Celebrate Diversity:** Recognize and appreciate diverse ideas, reinforcing that every perspective adds value to the project.
- **Provide Extra Support:** For students who may need extra help with digital tools or understanding concepts, set aside time for one-on-one assistance or pair them with a more confident peer.

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### Using These Tips in the Classroom

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- **Daily Check-Ins:** Begin each day with a brief check-in, asking students how they're feeling about the project and addressing any concerns. This builds rapport and shows students their engagement matters.
- **Make Learning Visible:** Use visual progress trackers, displays, or badges so students can see and celebrate their growth.
- **Feedback Loop:** Use the reflections and self-assessments to adjust the pacing or focus of activities as needed, keeping students motivated.

With these **motivation and engagement tips**, teachers can make each activity dynamic, enjoyable, and meaningful for students, encouraging sustained enthusiasm and participation throughout the 10-Lesson program.

## Teacher Guideline 5 - Assessment Guidelines

This section provides **structured assessment criteria** to help teachers evaluate students' learning progress and engagement throughout each project. Assessments are designed to be **flexible and holistic**, with a focus on skills, creativity, and teamwork rather than just final results.

### 1. Assessment Categories

- **Knowledge and Understanding:** Measures students' grasp of AI, data science, and technology basics.
- **Skills Development:** Evaluates hands-on skills like data collection, coding, and digital design.
- **Engagement and Participation:** Assesses each student's level of involvement, curiosity, and teamwork.
- **Creativity and Problem-Solving:** Looks at students' ability to innovate, think critically, and adapt to challenges.
- **Ethical and Moral Development:** Observes students' understanding of ethical considerations, teamwork, and social responsibility in their projects.

### 2. Suggested Assessment Criteria by Role

Each role has specific criteria to assess students' skill development and contribution to the project.

- **AI-Powered Market Researcher**
  - **Data Collection Quality:** Accuracy and relevance of survey questions and data collection.

- **Interpretation:** Ability to identify trends or patterns in data and articulate findings.
- **Presentation:** Clarity and effectiveness in presenting research results.
- **AI-Powered Data Analyst**
  - **Data Organization:** Completeness and organization of data entries.
  - **Visualization:** Effectiveness of graphs and charts in representing data insights.
  - **Analysis:** Depth of interpretation, including spotting patterns and summarizing key findings.
- **AI-Based Solution Designer**
  - **Creativity:** Originality and practicality of design ideas.
  - **Functionality:** Relevance of design in addressing the project problem.
  - **Presentation Skills:** Ability to clearly explain the design choices and project plan.
- **AI-Based Solution Developer**
  - **Coding Basics:** Proficiency in basic coding commands, sequences, and logic.
  - **Technical Understanding:** Ability to debug, improve, and complete simple code.
  - **Project Application:** How well the code contributes to solving the problem.
- **AI-Powered Digital Marketer**
  - **Creativity in Marketing:** Innovation and appeal of digital content, logos, or posters.
  - **Audience Engagement:** Ability to design materials that capture interest.
  - **Communication Skills:** Clarity in expressing project goals and impact.

### 3. Sample Rubric for Holistic Assessment

Category	Criteria	Excellent	Satisfactory	Needs Improvement
<b>Knowledge and Understanding</b>	Understanding of concepts	Demonstrates thorough understanding of AI and data concepts	Shows general understanding of key concepts	Limited understanding, needs more support

<b>Skills Development</b>	Hands-on ability	Completes tasks with minimal guidance, applies tools effectively	Completes most tasks with guidance	Requires frequent help, lacks confidence
<b>Engagement and Participation</b>	Involvement in activities	Actively participates, takes initiative	Participates in most tasks, shows interest	Low engagement, needs encouragement
<b>Creativity and Problem-Solving</b>	Innovative thinking	Produces creative solutions, adapts to challenges	Produces workable solutions, accepts feedback	Limited creativity, struggles with problem-solving
<b>Ethical and Moral Development</b>	Teamwork and ethics	Consistently demonstrates responsibility and teamwork	Generally responsible, works well with others	Needs guidance to understand teamwork and ethics

#### 4. Reflective Self-Assessment

Encourage students to assess their own progress at the end of each week. Self-assessment questions could include:

- “What was the most interesting thing I learned this week?”
- “What skill am I most proud of practicing?”
- “What would I like to improve in the next project?”

#### Using These Assessment Guidelines

- **Flexible Application:** Teachers can use the rubric and criteria flexibly, adapting them to individual students' progress and needs.
- **Encouragement-Focused:** Emphasis is placed on effort, curiosity, and growth, encouraging students to enjoy the learning process.

- **Feedback Opportunities:** These assessments provide insights for teachers to give constructive feedback, helping students build confidence and refine their skills.

With these **Assessment Guidelines**, teachers have a clear framework to evaluate student progress, celebrate achievements, and offer constructive guidance throughout each project.



## Some of More Real life Problems mapped with Curriculum Concepts using AI and Industry Roles

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### 1. Community Garden with Recycled Materials - Grade 3,4

- **Industry:** Environmental Science
- **Problem:** How can we create a sustainable community garden using recycled materials to reduce waste?

- **Proposed Solution:** Design a community garden where all materials used are sourced from recycling, and develop a system to track material usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Collect data on recycling habits, garden layouts, and analyze the effectiveness of recycled materials.
  - **AI-Based Solution Designer & Developer:** Design the garden layout using digital tools, focusing on sustainability and innovative design.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project timeline, create promotional materials for the community, and raise awareness on environmental benefits.

## Assessments

### Curriculum Assessment:

- **Science:** Understanding plant life cycles, ecosystems, recycling, and environmental sustainability.
- **Math:** Measurement (garden dimensions), data handling (tracking material usage).
- **English:** Writing reports on the design, recycling processes, and presenting findings to the class or community.
- **Social Studies:** Understanding community involvement and the role of individuals in environmental responsibility.

### Ethical & Moral Development:

- Promoting sustainability, resource conservation, and teamwork.

### Industry Interest:

- Developing interest in environmental science and sustainability.

### Role Performance:

- **Market Researcher:** Data collection and analysis accuracy.
- **Solution Designer:** Creativity and practicality in garden design.
- **Digital Marketer:** Effectiveness in promotion and project management.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie.

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## 2. Designing a Solar-Powered Device - Grade 3,4

- **Industry:** Renewable Energy
- **Problem:** How can we use solar energy more efficiently in homes and schools?
- **Proposed Solution:** Design a solar-powered device (e.g., a small fan or light) and track its energy usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Research solar energy usage in homes and schools, analyze data on energy efficiency.
  - **AI-Based Solution Designer & Developer:** Design a functional solar-powered device and develop a visual prototype.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project, create awareness campaigns on solar energy benefits, and coordinate tasks.

### Assessment:

#### Curriculum Assessment:

- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy tracking) and data analysis (efficiency calculations).
- **English:** Writing manuals on how the solar-powered device works and presenting findings.
- **Technology:** Introduction to basic electronics and renewable energy systems.

#### Ethical & Moral Development:

- Promoting responsible energy use and clean energy.

#### Industry Interest:

- Sparking interest in renewable energy technologies.

#### Role Performance:

- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Creativity and innovation in solar device design.
- **Digital Marketer:** Effectiveness in promoting solar energy usage.

Tools: Canva, Figma, Google Sheets, Google Docs, Microsoft Excel, Trello, ChatGPT, CallAnnie.

### 3. Animal Habitat Conservation Project - Grade 3,4

- **Industry:** Wildlife Conservation
- **Problem:** How can we protect animal habitats and promote conservation?
- **Proposed Solution:** Create a model of an animal habitat and propose solutions to protect the species living there.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research animal habitats and analyze data on endangered species.
- **AI-Based Solution Designer & Developer:** Create a model of an animal habitat using recycled materials.
- **AI-Based Digital Marketer & Project Manager:** Create educational materials and campaigns to raise awareness about animal conservation.

#### Grade 3 Curriculum Assessment:

- **Science:** Animal habitats, ecosystems, conservation.
- **Math:** Data collection and graphing on animal populations.
- **English:** Writing reports on endangered species and creating presentations on conservation.
- **Social Studies:** Understanding the impact of human activities on wildlife.

#### Ethical & Moral Development:

- Understanding environmental responsibility and protecting wildlife.

#### Industry Interest:

- Interest in wildlife conservation and environmental protection.

#### Role Performance:

- **Market Researcher:** Quality of research on animal habitats.
- **Solution Designer:** Creativity in designing the habitat model.
- **Digital Marketer:** Effectiveness in promoting awareness campaigns.

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**Tools:**

- Canva, Figma, Google Docs, Google Forms, Trello, Microsoft Excel, ChatGPT, CallAnnie.

**4. Building a Water Filtration System - Grade 3,4**

- **Industry:** Environmental Engineering
- **Problem:** How can we create a simple, effective water filtration system to provide clean water?
- **Proposed Solution:** Design and build a basic water filtration system using accessible materials.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the effectiveness of water filtration systems and collect data on clean water access.
- **AI-Based Solution Designer & Developer:** Design and build the water filtration system using simple materials.
- **AI-Based Digital Marketer & Project Manager:** Create campaigns to educate the community on water filtration and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Water filtration processes, the water cycle.
- **Math:** Measurement (volume of water filtered) and comparison of water quality data.
- **English:** Writing reports on the water filtration process and results.
- **Social Studies:** Understanding the importance of clean water access.

**Ethical & Moral Development:**

- Promoting sustainability, water conservation, and clean water access.

**Industry Interest:**

- Interest in environmental engineering and public health solutions.

**Role Performance:**

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- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Practicality of the water filtration system.
- **Digital Marketer:** Clarity in educational campaigns on clean water access.

**Tools:**

- **Canva, Trello, Google Sheets, Microsoft Excel, Figma, Google Forms, ChatGPT, CallAnnie.**

**5. Creating a Basic Weather Station - Grade 3,4**

- **Industry:** Meteorology
- **Problem:** How can we monitor local weather and make predictions based on collected data?
- **Proposed Solution:** Build a simple weather station and collect data on temperature, rainfall, and wind patterns.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research weather patterns and analyze local weather data.
- **AI-Based Solution Designer & Developer:** Design and build a basic weather station using available materials.
- **AI-Based Digital Marketer & Project Manager:** Create weather reports and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Weather patterns, atmospheric changes.
- **Math:** Recording and analyzing weather data.
- **English:** Writing weather reports and documenting data findings.
- **Technology:** Using sensors to monitor weather conditions.

**Ethical & Moral Development:**

- Understanding weather patterns and environmental preparedness.

**Industry Interest:**

- Interest in meteorology and climate science.

**Role Performance:**

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- **Market Researcher:** Accuracy in data collection.
- **Solution Designer:** Functionality of the weather station design.
- **Digital Marketer:** Effectiveness in promoting weather awareness.

#### Tools:

- **Google Sheets, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

## 6. Designing a Recycled Art Exhibition - Grade 3,4

- **Industry:** Creative Arts and Environmental Awareness
- **Problem:** How can we use art to promote recycling and sustainability?
- **Proposed Solution:** Design and create art pieces from recycled materials and hold an exhibition.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research the use of recycled materials in art and analyze environmental impacts.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create simple animations showcasing how recycled materials are transformed into art.
- **AI-Based Digital Marketer & Project Manager:** Promote the exhibition and manage the timeline, raising awareness of recycling through art.

#### Grade 3 Curriculum Assessment:

- **Science:** Recycling, material science.
- **Math:** Estimation, measurement of materials.
- **English:** Writing descriptions for the art pieces, creating promotional content.
- **Art:** Designing creative, sustainable art from recycled materials.

#### Ethical & Moral Development:

- Promoting environmental sustainability and creativity through recycling.

#### Industry Interest:

- Creative arts, design, and environmental awareness.

#### Role Performance:

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- **Market Researcher:** Effectiveness in researching the use of recycled materials.
- **Solution Designer:** Creativity in the design and transformation of recycled materials into art.
- **Digital Marketer:** Success in promoting the exhibition.

**Tools:**

- **Canva, Figma, Scratch Junior, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

**7. Community Helpers Documentary Project - Grade 3,4**

- **Industry:** Social Studies and Media
- **Problem:** How can we showcase the important roles of community helpers?
- **Proposed Solution:** Create a short documentary highlighting different community helpers and their contributions.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research various community helper roles and collect data on their contributions.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to create a simple app for learning about community helpers through interactive content.
- **AI-Based Digital Marketer & Project Manager:** Promote the documentary and app through social media campaigns and manage the project timeline.

**Grade 3 Curriculum Assessment:**

- **Social Studies:** Understanding the role of community helpers.
- **English:** Writing interview questions, documentary scripts.
- **Technology:** Using video editing software and **MIT App Inventor** for the project.
- **Art:** Creating visual aids and posters to promote the documentary.

**Ethical & Moral Development:**

- Promoting respect and appreciation for community helpers.

**Industry Interest:**

- Media production, journalism, and social services.

**Role Performance:**

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- **Market Researcher:** Depth and accuracy of research on community helpers.
- **Solution Designer:** Creativity in designing the interactive app.
- **Digital Marketer:** Effectiveness of promotional campaigns.

#### **Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Adobe Premiere Rush (for video editing), Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **8. Designing a School Recycling Program - Grade 3,4**

- **Industry:** Environmental Management
- **Problem:** How can we reduce waste at school by implementing a recycling program?
- **Proposed Solution:** Design a school-wide recycling program using **MIT App Inventor** to build an app that tracks recycling habits.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the school's current waste management practices and collect data on recycling efforts.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design an app that tracks recycling efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the recycling program through digital campaigns and manage the timeline.

#### **Grade 3 Curriculum Assessment:**

- **Science:** Waste management, recycling.
- **Math:** Data collection and analysis of waste reduction.
- **English:** Writing proposals and reports on recycling.
- **Social Studies:** Community responsibility for environmental protection.

#### **Ethical & Moral Development:**

- Promoting responsibility for environmental sustainability and reducing waste.

#### **Industry Interest:**

- Environmental management and sustainability.

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**Role Performance:**

- **Market Researcher:** Thoroughness in collecting and analyzing data on waste management.
- **Solution Designer:** Practicality and effectiveness of the recycling program app.
- **Digital Marketer:** Success in promoting recycling efforts.

**Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

**9. Creating a Basic Coding Project Using Scratch - Grade 3,4,5**

- **Industry:** Technology and Coding
- **Problem:** How can we use basic coding to create a fun, interactive project?
- **Proposed Solution:** Design a simple game or animation using **Scratch Junior**.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Analyze student preferences for coding projects, collect data on popular game themes.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to design and code the game or animation.
- **AI-Based Digital Marketer & Project Manager:** Promote the coding project to classmates, collect feedback on the game.

**Grade 3 Curriculum Assessment:**

- **Technology:** Introduction to coding and programming logic.
- **Math:** Logical sequencing and problem-solving.
- **English:** Writing instructions and documenting the coding process.
- **Art:** Designing characters and visual elements in the coding project.

**Ethical & Moral Development:**

- Promoting collaboration and responsible technology use.

**Industry Interest:**

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- Programming, game design, and technology development.

#### **Role Performance:**

- **Market Researcher:** Effectiveness in collecting and analyzing coding project preferences.
- **Solution Designer:** Creativity and functionality in the design of the game.
- **Digital Marketer:** Effectiveness in promoting the game.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

### **10. Local History and Culture Exploration - Grade 3,4**

- **Industry:** Social Studies and History
- **Problem:** How can we learn about the local history and culture of our community?
- **Proposed Solution:** Create a visual representation of local history using **Scratch Junior** to develop simple animations or interactive visuals.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research and collect data on local history and cultural events.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create interactive animations or visuals of historical events.
- **AI-Based Digital Marketer & Project Manager:** Promote the project and manage the research timeline.

#### **Grade 3 Curriculum Assessment:**

- **Social Studies:** Local history, traditions, and culture.
- **English:** Writing research reports and presenting findings.
- **Art:** Creating visual representations of historical events.
- **Technology:** Using online tools for research and design.

#### **Ethical & Moral Development:**

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- Promoting respect for cultural diversity and historical preservation.

#### **Industry Interest:**

- History, research, and digital storytelling.

#### **Role Performance:**

- **Market Researcher:** Thoroughness of research on local history.
- **Solution Designer:** Creativity in designing the historical timeline.
- **Digital Marketer:** Effectiveness in promoting cultural awareness.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **11. Smart Water Conservation System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can we use technology to reduce water waste in schools and homes?
- **Proposed Solution:** Design a system that monitors water usage and suggests ways to conserve water.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Collect data on water usage and analyze where most water is being wasted.
- **AI-Based Solution Designer & Developer:** Design a water conservation system using digital tools and sensors.
- **AI-Based Digital Marketer & Project Manager:** Manage the timeline and create awareness campaigns to promote water conservation.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Water cycle, water conservation, ecosystems.
  - **Math:** Measurement (tracking water usage), data handling.
  - **English:** Writing reports and presentations on water conservation.

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- **Social Studies:** Understanding global water issues and community involvement in conservation.

### Ethical & Moral Development:

- Teaching responsibility for conserving natural resources.

### Industry Interest:

- Fostering interest in environmental engineering and water management.

### Role Performance:

- **Market Researcher:** Accuracy in data collection on water usage.
- **Solution Designer:** Practicality of the water conservation system design.
- **Digital Marketer:** Effectiveness of water conservation promotion.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie, MIT App Inventor.

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## 12. Designing a Solar-Powered Classroom - Grade 4,5

- **Industry:** Renewable Energy
- **Problem:** How can we make classrooms more energy-efficient using solar power?
- **Proposed Solution:** Design a system that powers the classroom with solar panels and track energy savings.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research solar energy usage and analyze energy savings data.
- **AI-Based Solution Designer & Developer:** Design the solar-powered system for the classroom using digital tools.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to encourage solar power usage and manage the project.

### Assessments:

- **Curriculum Assessment:**

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- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy usage), data analysis.
- **English:** Writing reports on energy savings and presenting the solar system design.
- **Technology:** Understanding renewable energy technologies and systems.

### **Ethical & Moral Development:**

- Promoting responsible use of energy and sustainable living.

### **Industry Interest:**

- Renewable energy technology and environmental sciences.

### **Role Performance:**

- **Market Researcher:** Quality of research and data analysis.
- **Solution Designer:** Innovation in the solar power system design.
- **Digital Marketer:** Promotion effectiveness and project management.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

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## **13. Eco-Friendly Transportation Solutions - Grade 3,4,5**

- **Industry:** Transportation and Sustainability
- **Problem:** How can we create a transportation system that reduces pollution and energy usage?
- **Proposed Solution:** Design a transportation system (e.g., bicycles, electric buses) that minimizes pollution and energy consumption.

### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research current transportation methods and analyze their environmental impact.
- **AI-Based Solution Designer & Developer:** Design an eco-friendly transportation model.
- **AI-Based Digital Marketer & Project Manager:** Promote the benefits of eco-friendly transportation and manage project timelines.

## Assessments:

- **Curriculum Assessment:**
  - **Science:** Energy sources, pollution, and transportation systems.
  - **Math:** Data handling and analysis on energy use.
  - **English:** Writing proposals for the eco-friendly transportation system.
  - **Social Studies:** Understanding transportation's impact on society and the environment.

## Ethical & Moral Development:

- Promoting responsibility for reducing pollution and protecting the environment.

## Industry Interest:

- Sustainable transportation and environmental engineering.

## Role Performance:

- **Market Researcher:** Quality of research on transportation systems.
- **Solution Designer:** Creativity in designing eco-friendly transportation.
- **Digital Marketer:** Effectiveness in promoting the system and managing the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Google Docs, ChatGPT, CallAnnie.

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## 14. Virtual Health Clinic Simulation - Grade 4,5

- **Industry:** Health/Medicine
- **Problem:** How can we use technology to make healthcare more accessible and efficient?
- **Proposed Solution:** Design a virtual health clinic that uses AI to simulate patient consultations and monitor health metrics.

## AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze data on healthcare access and patient needs.

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- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design a virtual health clinic that offers AI-driven patient monitoring.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual clinic and manage project timelines.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Human body, healthcare, technology in medicine.
  - **Math:** Data analysis on patient health metrics.
  - **English:** Writing patient reports and presenting healthcare solutions.
  - **Technology:** Understanding AI applications in healthcare.

#### **Ethical & Moral Development:**

- Promoting empathy, access to healthcare, and patient privacy.

#### **Industry Interest:**

- Health technologies, telemedicine, and patient care.

#### **Role Performance:**

- **Market Researcher:** Accuracy in healthcare data analysis.
- **Solution Designer:** Innovation in creating a virtual health clinic.
- **Digital Marketer:** Success in promoting the clinic.

**Tools:** MIT App Inventor, Figma, Trello, Canva, Google Docs, ChatGPT, CallAnnie.

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#### **15. Climate Change Awareness Campaign - Grade 4,5**

- **Industry:** Environmental Science
- **Problem:** How can we raise awareness about climate change and its effects on our environment?
- **Proposed Solution:** Design an awareness campaign that educates the public about climate change through digital tools.

#### **AI-Based Roles:**

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- **AI-Based Market Researcher & Data Analyst:** Research climate change effects and collect data on public awareness.
- **AI-Based Solution Designer & Developer:** Create an interactive presentation or website to educate the public on climate change.
- **AI-Based Digital Marketer & Project Manager:** Manage the awareness campaign and promote it using digital tools.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Climate change, ecosystems, sustainability.
  - **Math:** Data analysis of climate trends.
  - **English:** Writing reports and creating climate awareness materials.
  - **Social Studies:** Understanding the societal impact of climate change.

#### **Ethical & Moral Development:**

- Promoting awareness of environmental responsibility and the impact of human activities on the planet.

#### **Industry Interest:**

- Climate science, environmental policy, and digital marketing.

#### **Role Performance:**

- **Market Researcher:** Depth of research on climate change.
- **Solution Designer:** Effectiveness of the digital campaign design.
- **Digital Marketer:** Impact of the awareness campaign and its reach.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

## **16. Designing a Smart Waste Management System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can cities optimize waste collection and reduce environmental impact?
- **Proposed Solution:** Develop a model that uses sensors and data analysis to optimize waste collection routes and schedules.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current waste management practices and analyze data on waste production.
- **AI-Based Solution Designer & Developer:** Design a system that uses sensors to track waste levels and optimize collection routes.
- **AI-Based Digital Marketer & Project Manager:** Manage the project timeline and create awareness materials to educate the community on waste management.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Waste management, environmental impact.
  - **Math:** Data analysis and route optimization.
  - **English:** Writing reports and presenting the waste management solution.
  - **Social Studies:** Understanding the societal and environmental impact of waste management.

### Ethical & Moral Development:

- Promoting environmental responsibility and efficient resource management.

### Industry Interest:

- Environmental engineering and waste management.

### Role Performance:

- **Market Researcher:** Quality of research on waste management systems.
- **Solution Designer:** Innovation and practicality in designing the waste management system.
- **Digital Marketer:** Success in promoting the solution.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, ChatGPT, CallAnnie.

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## 17. Creating a Local History and Culture Website - Grade 5,6

- **Industry:** Social Studies and Media

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- **Problem:** How can we preserve and showcase the local history and culture of our community?
- **Proposed Solution:** Create a website that presents key historical events, cultural artifacts, and traditions of the local community.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research local history and culture, analyze historical data.
- **AI-Based Solution Designer & Developer:** Design and build the website using digital tools to present local history.
- **AI-Based Digital Marketer & Project Manager:** Promote the website and manage the project timeline.

#### Assessments:

- **Curriculum Assessment:**
  - **Social Studies:** Local history, traditions, and community.
  - **English:** Writing articles and creating content for the website.
  - **Technology:** Website design and development.
  - **Art:** Designing the visual layout of the website.

#### Ethical & Moral Development:

- Teaching respect for cultural diversity and the importance of preserving local history.

#### Industry Interest:

- Media production, digital storytelling, and local history.

#### Role Performance:

- **Market Researcher:** Depth and accuracy of historical research.
- **Solution Designer:** Creativity in designing the website layout.
- **Digital Marketer:** Effectiveness in promoting the website.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

## 18. Designing an Eco-Friendly School Playground - Grade 4,5

- **Industry:** Environmental Science and Design
- **Problem:** How can we design a school playground that minimizes environmental impact and promotes sustainability?
- **Proposed Solution:** Design a playground using sustainable materials and renewable energy sources (e.g., solar-powered lights).

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research eco-friendly materials and playground designs.
- **AI-Based Solution Designer & Developer:** Design the playground layout using sustainable materials.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to raise awareness about the eco-friendly playground and manage project timelines.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Sustainable materials, renewable energy.
  - **Math:** Measurement and calculation of playground dimensions.
  - **English:** Writing proposals for the playground design.
  - **Art:** Designing the layout of the eco-friendly playground.

### Ethical & Moral Development:

- Promoting sustainability and environmental responsibility.

### Industry Interest:

- Environmental design, landscape architecture, and sustainability.

### Role Performance:

- **Market Researcher:** Accuracy in researching eco-friendly materials.
- **Solution Designer:** Creativity in designing the playground layout.
- **Digital Marketer:** Effectiveness in raising awareness about the playground.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Microsoft Excel, Google Forms, ChatGPT, CallAnnie.

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## 19. Building a Weather Station and Forecasting System - Grade 5,6

- **Industry:** Meteorology and Technology
- **Problem:** How can we create a weather station that helps monitor local weather conditions and forecast future trends?
- **Proposed Solution:** Build a simple weather station to monitor temperature, rainfall, and wind speed, and use data to create weather forecasts.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze weather data from the station.
- **AI-Based Solution Designer & Developer:** Design and build the weather station and integrate sensors for data collection.
- **AI-Based Digital Marketer & Project Manager:** Promote the weather station project and manage data presentation.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Weather systems, data collection, and analysis.
  - **Math:** Data handling and graphing weather data.
  - **English:** Writing weather reports and presenting findings.
  - **Technology:** Building and programming the weather station.

### Ethical & Moral Development:

- Promoting responsibility for environmental monitoring and preparedness.

### Industry Interest:

- Meteorology, climate science, and data analysis.

### Role Performance:

- **Market Researcher:** Thoroughness in collecting and analyzing weather data.
- **Solution Designer:** Effectiveness of the weather station design.
- **Digital Marketer:** Impact of promotional materials for the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

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## 20. Animal Habitat Preservation Project - Grade 5,6

- **Industry:** Wildlife Conservation and Environmental Science
- **Problem:** How can we protect endangered animal habitats and raise awareness about conservation efforts?
- **Proposed Solution:** Design a project that promotes habitat conservation and uses AI to monitor the health of local ecosystems.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research endangered species and analyze habitat loss data.
- **AI-Based Solution Designer & Developer:** Design an app or tool that tracks the health of animal habitats and promotes conservation efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the conservation project and manage community outreach.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Animal habitats, ecosystems, and conservation.
  - **Math:** Data analysis of habitat loss and species numbers.
  - **English:** Writing reports on conservation efforts and habitat protection.
  - **Social Studies:** Understanding human impact on the environment and the need for conservation.

### Ethical & Moral Development:

- Promoting respect for wildlife and the importance of conservation.

### Industry Interest:

- Wildlife conservation, environmental science, and technology.

### Role Performance:

- **Market Researcher:** Thoroughness in researching endangered species.

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- **Solution Designer:** Creativity in designing the conservation tool.
- **Digital Marketer:** Success in promoting conservation efforts.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

## 21. Designing an Eco-Friendly Sports Facility - Grade 5,6

- **Industry:** Environmental Science and Physical Education
- **Problem:** How can we design a sports facility that promotes physical activity and minimizes environmental impact?
- **Proposed Solution:** Create a layout for a sports facility that uses renewable energy, recycled materials, and water conservation practices.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current sports facility designs and analyze data on energy use and environmental impact.
- **AI-Based Solution Designer & Developer:** Design the facility layout using sustainable materials and renewable energy sources.
- **AI-Based Digital Marketer & Project Manager:** Create awareness campaigns promoting physical activity and environmental responsibility.

### Assessments:

- **Curriculum Assessment:**
  - **Physical Education:** Importance of physical activity and sports.
  - **Science:** Renewable energy, recycling, and environmental sustainability.
  - **Math:** Measurement and calculation of facility dimensions and energy savings.
  - **English:** Writing reports on the design and presenting it to the class or school community.

### Ethical & Moral Development:

- Promoting teamwork, physical activity, and environmental responsibility.

### Industry Interest:

- Physical education, environmental science, and sports management.

### Role Performance:

- **Market Researcher:** Quality of research on sports facility designs.
- **Solution Designer:** Creativity and practicality in designing the sports facility.
- **Digital Marketer:** Effectiveness in promoting the facility and encouraging physical activity.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 22. Creating a School Nutrition Program - Grade 5,6

- **Industry:** Health and Nutrition
- **Problem:** How can we improve student health through better nutrition?
- **Proposed Solution:** Design a healthy meal plan for the school cafeteria that considers balanced nutrition and promotes healthy eating habits.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research healthy meal plans and analyze data on student eating habits.
- **AI-Based Solution Designer & Developer:** Design a nutrition program for the school cafeteria, incorporating local, healthy food options.
- **AI-Based Digital Marketer & Project Manager:** Promote the nutrition program with educational campaigns on healthy eating.

### Assessments:

- **Curriculum Assessment:**
  - **Health Education:** Importance of balanced nutrition and healthy eating.
  - **Science:** Human body and nutrition.
  - **Math:** Measuring portion sizes, data analysis on food choices.
  - **English:** Writing reports on nutrition and presenting it to students and staff.

### Ethical & Moral Development:

- Promoting responsibility for personal health and well-being.

### Industry Interest:

- Nutrition, health sciences, and food management.

### Role Performance:

- **Market Researcher:** Quality of research on healthy food options.
- **Solution Designer:** Creativity and practicality in designing the meal plan.
- **Digital Marketer:** Success in promoting the program.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 23. Financial Literacy Market Simulation - Grade 4,5

- **Industry:** Business and Economics
- **Problem:** How can we teach students the basics of budgeting, saving, and spending?
- **Proposed Solution:** Create a virtual market where students simulate running a small business, including managing a budget and making financial decisions.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Analyze market trends and customer preferences.
- **AI-Based Solution Designer & Developer:** Design a virtual market simulation where students run a small business.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual market and manage business decisions.

### Assessments:

- **Curriculum Assessment:**
  - **Math:** Budgeting, financial planning, and data handling.
  - **English:** Writing reports and presenting business proposals.
  - **Social Studies:** Understanding economic principles and entrepreneurship.

### Ethical & Moral Development:

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- Teaching responsibility in financial decision-making and honesty in business practices.

#### Industry Interest:

- Business, economics, and entrepreneurship.

#### Role Performance:

- Market Researcher:** Effectiveness in researching market trends.
- Solution Designer:** Innovation and creativity in designing the business simulation.
- Digital Marketer:** Success in promoting the market.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 24. Building Instruments from Recycled Materials - Grade 3,4

- Industry:** Music and Performing Arts
- Problem:** How can we create musical instruments using recycled materials to promote sustainability and creativity?
- Proposed Solution:** Design and build musical instruments from recycled materials, then organize a school performance using these instruments.

#### AI-Based Roles:

- AI-Based Market Researcher & Data Analyst:** Research musical instruments made from recycled materials and analyze sound quality.
- AI-Based Solution Designer & Developer:** Design and build simple instruments using recycled materials.
- AI-Based Digital Marketer & Project Manager:** Organize and promote a school performance using the recycled instruments.

#### Assessments:

- Curriculum Assessment:**
  - Music:** Sound and music theory, performance skills.
  - Science:** Properties of materials, sound waves.

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- **Art:** Designing and building creative instruments.
- **English:** Writing descriptions of instruments and promoting the performance.

#### Ethical & Moral Development:

- Promoting creativity, resourcefulness, and environmental sustainability.

#### Industry Interest:

- Music, environmental science, and performing arts.

#### Role Performance:

- **Market Researcher:** Accuracy in researching recycled materials for instruments.
- **Solution Designer:** Creativity in instrument design.
- **Digital Marketer:** Effectiveness in promoting the performance.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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## 25. Peer Mentoring and Emotional Intelligence Program - Grade 3,4

- **Industry:** Social and Emotional Learning (SEL)
- **Problem:** How can we promote teamwork, leadership, and emotional intelligence in schools?
- **Proposed Solution:** Organize a peer mentoring program where older students help younger students solve academic or social challenges, fostering leadership and empathy.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect data on peer mentoring programs and analyze their effectiveness.
- **AI-Based Solution Designer & Developer:** Design a mentoring program that pairs students and includes emotional intelligence activities.
- **AI-Based Digital Marketer & Project Manager:** Promote the program within the school and manage the timeline.

#### Assessments:

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- **Curriculum Assessment:**

- **Social Studies:** Understanding leadership, teamwork, and community involvement.
- **English:** Writing reports and reflections on mentoring experiences.
- **Science:** Brain development and emotional intelligence.

### **Ethical & Moral Development:**

- Promoting empathy, leadership, and social responsibility.

### **Industry Interest:**

- Leadership development, education, and social services.

### **Role Performance:**

- **Market Researcher:** Quality of research on mentoring programs.
- **Solution Designer:** Creativity in designing emotional intelligence activities.
- **Digital Marketer:** Success in promoting the mentoring program.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie

# EAD Assessment Criteria

## Step 1 : Research & Data Collection

**Objective:** Gather real-world data related to the project using surveys and research.

**Tasks:**

1. Define the research problem and how AI can help solve it.
2. Design a **Google Forms** survey for data collection.
3. Distribute the survey to at least 10 people.
4. Collect and summarize responses.

 **Deliverables:**

- Research Report (1-page summary)
- Google Forms Survey (at least 10 responses)
- Short Video/Audio explaining findings

**Rubric: Research & Data Collection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Survey Structure</b>	Clear, well-organized, no bias, diverse questions	Mostly clear, some unclear wording	Basic structure, lacks variety in questions	Poorly structured, biased, or incomplete
<b>Data Collection</b>	10+ valid responses collected	7-9 responses, mostly valid	4-6 responses, some missing data	Less than 4 responses, missing critical data
<b>Research Depth</b>	Uses credible sources, includes AI integration	Good sources, some AI references	Limited sources, minimal AI discussion	No sources or AI discussion included

## Step 2.1: Data Analysis & Visualization

**Objective:** Organize and analyze collected data using charts and AI tools.

**Tasks:**

1. Input survey data into **Google Sheets**.
2. Use AI tools to identify patterns in the data.
3. Create visual representations (bar charts, pie charts, graphs).
4. Summarize findings in a short data analysis report.

 **Deliverables:**

- Data Spreadsheet (Google Sheets)
- AI-Generated Graphs/Charts
- Summary of Data Insights

**Rubric: Data Analysis & Visualization**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Data Organization</b>	Data is structured, accurate, and complete	Mostly structured, minor errors	Some organization issues, missing elements	Disorganized, missing major parts
<b>Visualization</b>	Graphs/charts are clear, well-labeled, insightful	Mostly clear, lacks full explanation	Basic graphs, limited insight	No graphs, unclear or missing labels
<b>Analysis Quality</b>	Identifies trends, includes AI insights	Identifies trends, some AI integration	Basic description, no AI insight	No analysis, data left unexplained

---

## Step 2.2: User Interface (UI) Design

**Objective:** Design the user interface of the AI assistant using Figma.

**Tasks:**

1. Sketch a user-friendly layout for the AI assistant.
2. Use **Figma** to create a digital wireframe.
3. Ensure buttons, text fields, and chatbot interactions are clear.
4. Conduct a basic **usability test** for improvements.

 **Deliverables:**

- Figma Wireframe
- AI Usability Testing Summary
- User Experience Feedback Report

**Rubric: UI/UX Design**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Wireframe Design</b>	UI well-structured, follows best practices	Mostly clear but some UI issues	Basic layout, lacks usability	No wireframe or unclear layout
<b>User Experience</b>	Intuitive, easy-to-use navigation	Mostly clear, needs minor improvements	Some confusing UI elements	Poorly structured, difficult to use
<b>Usability Testing</b>	Feedback collected, applied improvements	Some usability feedback incorporated	Limited feedback, minimal changes	No usability test performed

---

## Step 3: AI Development & Coding

**Objective:** Build an AI-powered prototype or chatbot for recycling assistance.

**Tasks:**

1. Use **Scratch/Code.org** to develop a chatbot or AI simulation.
2. Implement AI logic to classify recyclable materials.
3. Debug and refine the AI's response accuracy.
4. Test AI functionality through multiple inputs.

📌 **Deliverables:**

- AI Prototype (Scratch/Code.org)
- Debugging Report
- Short Demo Video (Screen recording)

**Rubric: AI Development & Coding**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>AI Logic &amp; Functionality</b>	AI assistant fully functional, handles multiple inputs	Mostly functional, some errors	Basic function, lacks dynamic responses	Non-functional or incomplete code
<b>Coding Structure</b>	Well-organized, follows best practices	Mostly structured, minor redundancies	Some structure, inefficient code	Poorly structured, lacks clarity

<b>Debugging &amp; Refinement</b>	Errors fixed, AI accuracy optimized	Some minor bugs remain	Some debugging attempted	No debugging, significant errors remain
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## Step 5: Branding & Community Engagement

**Objective:** Develop branding materials and promote the AI assistant.

**Tasks:**

1. Use **Canva** to create a logo and branding kit.
2. Design a **poster or social media campaign**.
3. Share the AI assistant with the school or local community.
4. Collect user feedback on branding effectiveness.

 **Deliverables:**

- Canva-based Branding Kit (Logo, Social Media Post)
- Promotional Video or Flyer
- Social Media Campaign Post

**Rubric: Branding & Community Engagement**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Branding Consistency</b>	Logo, colors, and messaging are aligned	Mostly consistent, minor adjustments needed	Basic branding, lacks cohesion	No branding materials included
<b>Social Media Promotion</b>	Engaging, well-designed campaign	Mostly clear, minor visual issues	Basic design, lacks engagement	No social media promotion created
<b>Community Interaction</b>	Successfully reached audience, collected feedback	Some engagement, basic feedback	Limited engagement, no feedback	No promotion or engagement

---

## Step 6: Final Presentation & Reflection

**Objective:** Present the AI assistant, insights, and learning reflections.

**Tasks:**

1. Create a **Google Slides** presentation summarizing the project.
2. Include problem statement, AI features, data insights, branding elements.
3. Deliver a **5-minute presentation**.
4. Write a **reflection essay** on key learnings.

 **Deliverables:**

- Google Slides Presentation
- 5-Minute Video Presentation
- Final Reflection Essay

**Rubric: Final Presentation & Reflection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Presentation Structure</b>	Clear, well-organized, engaging visuals	Mostly clear, some structural issues	Basic slides, lacks flow	Poorly structured, minimal effort
<b>Delivery &amp; Speaking Skills</b>	Confident, clear speech, interactive	Mostly clear, minor hesitations	Needs more confidence, lacks clarity	Unclear delivery, minimal engagement
<b>Reflection Depth</b>	Thoughtful analysis, strong learning points	Good insights, some areas could be deeper	Basic reflections, lacks depth	No reflection, minimal engagement

---

# EAD - AI Powered Kids Incubator

## Level 2 - (Grade 3 - 5)

**Guided Booklet for Schools / Teachers / Parents - Complete Day by Day Roadmap to include kids for AI powered PBL for kids**

(Recommended - At Least 2 Projects / Year for every Kid)

(20 Days - Day by Day Guided Tasks with 1 Project execution)

[\*\*Register Here\*\*](#) to get

- **Free 2025 Subscription on EAD AI-Powered Incubator Platform Level 2(Grade 3 - 5) and Level 3(Grade 6 - 8) Launch** to develop kids with AI and Entrepreneurship
- Teacher Training

Website - <https://technogroup.ai/>

LinkedIn - <https://www.linkedin.com/company/tgo-ead/>

Company Upwork Profile - <https://www.upwork.com/agencies/technogroup/>

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## Introduction

Welcome to **EarlyAgeDevelopment (EAD)**, an AI-powered Kids Incubator designed to prepare young minds for the world of tomorrow! This book is your guide to unlocking the potential of students in grades 3-5 through project-based learning (PBL) that blends core curriculum subjects with real-world problem-solving. By aligning critical thinking, creativity, and collaboration with essential skills, we aim to create an immersive, engaging learning experience that goes beyond traditional education.

At EAD, we believe that every child is capable of making a difference. By engaging in AI-driven projects, students not only gain practical skills but also explore industry applications, from understanding how data informs decisions to creating chatbots that enhance customer interactions. This journey empowers them with insights and tools to shape their future.

### Mission

Our mission at EarlyAgeDevelopment is to inspire and empower young learners with hands-on experiences in AI-driven roles, cultivating curiosity, creativity, and the skills needed to thrive in an ever-evolving world. Through aligned projects, we support both academic growth and real-world preparedness, ensuring students are equipped for the future of work where AI and technology drive every industry.

### Vision

We envision a world where students can bridge school learning with real-world applications seamlessly. Through AI-enhanced, project-based learning, we aspire to foster a generation of problem-solvers, innovators, and leaders who understand their potential across diverse fields. With a focus on creativity, sustainability, and future readiness, EAD provides a path for students to develop skills for tackling global challenges in an AI-powered landscape.

### Why Project-Based Learning (PBL)?

At EAD, we believe students learn best through active engagement. **Project-Based Learning (PBL)** connects academic subjects with industry-aligned, practical projects, making education relevant and exciting. Our projects are crafted to:

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- **Encourage Collaboration:** Students take on roles that reflect real-world, AI-powered careers, promoting teamwork and shared purpose.
- **Foster Critical Thinking:** By addressing industry-specific challenges, students learn to think critically and devise innovative solutions.
- **Promote Creativity:** Through design, development, and presentation, students exercise their creativity while exploring new ideas.

### AI-Powered Roles for Future-Ready Skills

AI is transforming careers across all industries, and our program introduces students to the following future-critical roles:

- **Market Researcher & Data Analyst (Problem Researcher and Data Analyst Kid):** Gathering insights and analyzing data to inform decisions and strategies.
- **AI-Based Solution Architect (Solution Designer Kid):** Using design thinking and development skills to build real-world solutions.
- **AI-Based Digital Marketer & Project Manager (Presenter Kid):** Learning to promote projects, manage timelines, and engage communities effectively.

By exposing students to these roles, we prepare them with an essential understanding of AI and its applications, better positioning them for the future workforce.

### How This Book Prepares Students for the Future

This book equips students to meet curriculum goals while gaining an understanding of how AI impacts industries. The skills they acquire—data analysis, design, development, and project management—are integral to thriving in tomorrow's careers. These projects, designed to be both enjoyable and meaningful, make learning an exciting journey with real impact.

---

## How to Use This Book

This guide is designed for teachers, parents, and students, offering a hands-on, project-based learning (PBL) experience tailored for grades 3-5. Each project connects real-world problems with AI-powered roles, engaging students in activities that build problem-solving and critical thinking. The three core roles—Market Researcher & Data Analyst, Designer & Developer, and Digital Marketer & Project Manager—integrate STEM, language arts, and environmental science.

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Projects align with educational curriculums like the US Common Core, UK Curriculum, Cambridge, and IB, so students build essential academic and practical skills.

Parents and teachers can use this book to:

- Facilitate collaboration on meaningful projects.
- Help students build a foundation in AI-powered roles to prepare for future careers.
- Integrate interactive tools like Canva, Figma, Trello, ChatGPT, Google Forms, and more.

## Guided Project Path

The book includes two structured learning sections:

1. **Introduction to AI and Technology Basics (First 10 Lessons):**
  - In the first 10 Lessons, students build foundational knowledge with lessons on key concepts in AI, data collection, and project management.
  - **Lessons 1-5:** Interactive activities introduce students to technology basics—data collection, coding, and teamwork tools like Google Forms, Scratch Junior, and Trello.
  - **Lessons 6-10:** Students deepen their understanding of specific roles through hands-on practice in data analysis, solution design, and digital marketing.
2. **Industry-Focused Project (10 More Lessons):**
  - After the initial preparation, students engage in a curriculum-aligned project that connects academic learning with practical skills, demonstrating how AI roles solve real-world problems across industries.

This book is more than a learning guide—it's a launchpad for future-ready skills that students will carry forward in their academic and professional lives. Dive in and let EAD inspire your child's journey to becoming an AI-enabled problem-solver and innovator of tomorrow.

## Industry-Aligned Projects

Each project addresses real-world problems mapped to the curriculum, with AI-based solutions to prepare kids for future AI-driven roles. These projects are freely available on our public website for students to explore independently or with guided support.

# 10 Lessons - Introduction to AI, Data Science and Technology Basics, Project Based Learning

## Preparing Kids to do AI Based Projects

### Lesson 1: Introduction to AI and Technology Basics

Objective:

On Lesson 1, students will get a broad overview of AI, its impact across different industries, and the essential technological concepts they need to understand. By the end of the Lesson, students will have a general understanding of how AI works, its key applications, and how technology is transforming various fields.

---

Step-by-Step Instructions:

#### 1. Welcome and Overview of Technology (10 minutes)

- **Teacher Explanation:**

Begin with a brief introduction to the importance of technology in today's world. Explain how technology has revolutionized every field, from healthcare to agriculture to entertainment.

- **Discussion:**

Ask the students: "What kind of technology do you use every day? How do you think technology makes things easier for us?"

Let students share their thoughts to get them comfortable with the topic.

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#### 2. Introduction to AI and its Role in Different Industries (20 minutes)

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- **Teacher Explanation:**

Explain what **Artificial Intelligence (AI)** is, and give a simple definition: “AI is when machines or computers can do tasks that normally need human intelligence—like learning, problem-solving, or even recognizing pictures and words.”

- **Examples of AI in Different Industries:**

- **Healthcare:** AI can help doctors diagnose diseases faster and more accurately.
- **Agriculture:** AI helps farmers monitor their crops and predict the weather.
- **Retail:** AI gives us personalized shopping experiences by recommending products.
- **Transportation:** AI is used in self-driving cars and traffic management systems.

- **Activity:**

Show students a few short videos or clips that illustrate these AI applications. Discuss how AI is being used in each field.

---

### 3. Hands-on AI Interaction Using Chatbots or Virtual Assistants (30 minutes)

- **Materials Needed:**

Devices with access to simple AI tools, such as **ChatGPT** or **Google Assistant**.

- **Activity:**

Have students interact with a basic AI-powered virtual assistant or chatbot. Each student can ask a question or try to have the assistant complete a simple task (e.g., ask it to tell a joke or give a weather report).

- **Teacher Explanation:**

After the activity, explain how chatbots and virtual assistants use AI to understand language and provide responses.

---

### 4. Understanding Technology Basics (30 minutes)

- **Materials Needed:**

Interactive presentation or handouts about basic technology concepts: hardware, software, the internet, data, and coding.

- **Activity:**  
Divide students into small groups and assign each group one basic concept to explore:
    - **Hardware:** What are computers and devices made of?
    - **Software:** What are apps, games, and programs?
    - **Internet:** How does the internet connect people around the world?
    - **Data:** What is data, and how is it used in AI?
    - **Coding:** How do we tell computers what to do?
  - Each group will spend time researching their topic using simple resources provided by the teacher and will present their understanding to the class.
- 

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**  
Ask students to reflect on the different industries where AI is being used. What industry interested them the most, and why? How do they think technology will change in the next 10 years?
  - **Homework Assignment:**  
Ask students to bring in an example of technology they interact with at home (e.g., a smart device, app, or a website they use frequently) and write a paragraph explaining how it helps them.
- 

## End of Lesson 1

By the end of Lesson 1, students will have a general understanding of technology and AI, how it works in different industries, and how to interact with AI systems like chatbots. This lays the foundation for the rest of the week where they will dive deeper into AI and technology concepts.

---

## Lesson 2: Exploring AI Roles and Problem-Solving in Technology

### Objective:

On Lesson 2, students will be introduced to the different roles involved in AI-driven projects (Problem Researcher, Data Analyst, AI Solution Designer, Solution Developer,

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and Digital Marketer). The focus will be on understanding the importance of these roles and how they work together to solve real-world problems.

---

#### Step-by-Step Instructions:

##### 1. Recap of Lesson 1 and Introduction to Lesson 2 Objectives (10 minutes)

- **Teacher Explanation:**

Recap what students learned about AI and technology basics from Lesson 1. Introduce today's objective: learning about the different roles in AI projects and how each role contributes to solving a problem.

- **Discussion:**

Ask students: "Have you ever worked on a group project before? What roles do people usually take on in group projects?"

---

##### 2. Introduction to AI-Powered Roles (25 minutes)

- **Teacher Explanation:**

Describe the five key roles in AI projects:

- **Problem Researcher:** Gathers information and defines the problem.
- **Data Analyst:** Works with data to find patterns and insights related to the problem.
- **AI Solution Designer:** Designs the AI solution and creates a blueprint for how it will work.
- **Solution Developer:** Develops the actual AI model using programming or coding.
- **Digital Marketer:** Promotes the solution and helps people understand its value.

- **Examples:**

- For a project on **improving traffic management**, the **Problem Researcher** finds the traffic issues, the **Data Analyst** looks at traffic patterns, the **AI Solution Designer** creates a plan for a smart traffic system, the **Solution Developer** builds the AI that runs the traffic lights, and the **Digital Marketer** promotes the benefits to the community.
-

### 3. Team Activity: Role Play and Problem Identification (30 minutes)

- **Materials Needed:**

Whiteboards, markers, and access to simple industry problems (e.g., traffic management, waste management, or water conservation).

- **Activity:**

Split students into small groups, with each group assigned a different industry problem (e.g., water conservation, waste management). Each student in the group will take on one of the five roles:

- **Problem Researcher:** Gathers key information about the problem.
- **Data Analyst:** Looks at the data provided or finds data to understand the scale of the problem.
- **AI Solution Designer:** Starts to think about what kind of AI system could help solve the problem.
- **Solution Developer:** Considers what code or program might be needed.
- **Digital Marketer:** Thinks about how to promote the solution to the public.

- After 20 minutes, each group presents a rough outline of the problem they are trying to solve and how they would use AI.

---

### 4. Tool Exploration for Roles (30 minutes)

- **Materials Needed:**

Devices with access to basic tools like Google Scholar (for research), Excel (for data analysis), Figma (for design), and Canva (for marketing).

- **Activity:** Introduce students to the tools they will use for their roles:

- **Problem Researchers:** Use **Google Scholar** to find articles related to the industry problem.
- **Data Analysts:** Start learning how to use **Excel** for basic data input and chart creation.
- **AI Solution Designers:** Explore **Figma** to begin thinking about designing AI solutions.
- **Solution Developers:** Set up a basic coding environment and explore introductory coding concepts.
- **Digital Marketers:** Learn how to use **Canva** to create simple promotional materials.

- Let each student spend 15-20 minutes practicing with their assigned tool.

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**

Ask each student to reflect on the role they explored. Do they think they would enjoy doing this role in real life? How do they think their role will help solve the problem their group is working on?

- **Homework Assignment:**

Each student will write a short paragraph about the role they took on today and one thing they learned about using their assigned tool.

---

## End of Lesson 2

By the end of **Lesson 2**, students will have a clearer understanding of the different roles in AI-driven projects and will have started exploring the tools associated with each role. They will begin to grasp how these roles work together to solve real-world problems, setting them up for the deeper exploration of AI in the coming days.

## Lesson 3: Introduction to Data Analysis (1-2 hours)

### Objective:

Introduce students to the basics of data analysis, focusing on how data is collected, interpreted, and visualized. Students will learn to input data, create simple charts, and understand the importance of data in decision-making.

### Materials Needed:

- Survey results from Lesson 2 (Google Forms data)
  - Computers/tablets with access to **Google Sheets**
  - Whiteboard and markers for explanations
- 

### Step-by-Step Instructions:

#### 1. Review Data Collected from Surveys (10 minutes)

- **Teacher Explanation:**

Begin by reviewing the survey results that students collected on Lesson 2. Explain how surveys collect data that can be analyzed to identify trends and insights.

- **Discussion:**

Ask students what they found surprising in their survey responses. Did the results match their predictions? Why is collecting data important in making decisions?

---

## 2. Input Data into Google Sheets (15-20 minutes)

- **Activity:**

Demonstrate how to input the survey data into **Google Sheets**. Guide the students as they enter their survey responses (e.g., favorite color, favorite animal) into a table format.

- **Example:**

- Column A: Survey question (e.g., "What's your favorite color?")
    - Column B: Response (e.g., "Blue," "Red," etc.)

- **Teacher Guidance:**

Help students organize their data properly and ensure that it's correctly formatted for analysis. Explain that this step is crucial because messy or unorganized data can lead to mistakes.

---

## 3. Create a Chart to Visualize Data (15-20 minutes)

- **Activity:**

Demonstrate how to select the data in Google Sheets and create a simple bar chart or pie chart. Show students how visualizing data can help them better understand and communicate results.

- **Example:**

Create a bar chart to show the most popular favorite colors among survey respondents.

- **Discussion:**

Ask students how their chart makes the data easier to understand. Discuss why businesses, scientists, and other professionals use data charts to make decisions.

#### 4. Data Interpretation and Patterns (15 minutes)

- **Teacher Explanation:**

Explain that after data is collected and visualized, the next step is **data interpretation**. Show students how to look for patterns in the charts they've created.

- **Example:**

"If 70% of your class picked blue as their favorite color, what does that tell us about color preferences?"

- **Group Discussion:**

In groups, have students discuss the patterns they found in their data. What does the data suggest about their survey topic? How might this information be used in real-world situations (e.g., for product design or marketing)?

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of data analysis. Ask students: "How does data help us make better decisions? Can you think of a time when understanding data would be helpful?"

- **Homework Assignment:**

Each student will collect data from a simple observation (e.g., how many cars pass their street in 10 minutes, how many different animals they see outside) and create a chart to present to the class on Lesson 4.

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#### End of Lesson 3

By the end of Lesson 3, students will understand the process of collecting, entering, and visualizing data using Google Sheets. They will have created simple charts to represent their survey results and begun interpreting data to understand trends and patterns.

---

#### **Lesson 4: Introduction to Data Visualization and Problem Solving with AI (1-2 hours)**

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**Objective:**

Teach students how to create data visualizations to better understand information and introduce the role of AI in problem-solving. Students will also explore how AI can use data to make predictions and solve real-world problems.

**Materials Needed:**

- Completed homework (observed data from Lesson 3)
  - Computers/tablets with access to **Google Sheets** or **Google Charts**
  - Whiteboard and markers for explanations
- 

**Step-by-Step Instructions:****1. Review Homework and Discuss Data Observations (10 minutes)**

- **Teacher Explanation:**

Begin by reviewing students' homework. Ask a few students to share the data they collected (e.g., how many cars passed, how many animals they saw, etc.).

- **Discussion:**

Encourage students to reflect on the data they collected. What patterns did they notice? Was the data different from what they expected?

---

**2. Visualizing Data Collected from Homework (20 minutes)**

- **Activity:**

Have students input their homework data into **Google Sheets**. Demonstrate how to create a chart from their data (e.g., bar charts or line graphs).

- **Example:**

If a student counted cars passing their house, they could create a **bar chart** showing the number of cars observed over time.

- **Teacher Guidance:**

Guide students through the chart creation process and ensure they understand how visualizations help in presenting data clearly.

---

### 3. Introduction to Problem Solving with AI (15 minutes)

- **Teacher Explanation:**

Explain that **AI** is like a very smart tool that can look at data and help solve problems. AI systems can predict things, help make decisions, and even come up with new ideas.

- **Example:**

“AI can look at the weather and predict if it’s going to rain tomorrow, or it can look at traffic data and tell us the best way to get to school.”

- **Discussion:**

Ask students how they think AI might use the data they collected. Could AI help predict how many cars will pass by tomorrow, or which color will be most popular next month?

---

### 4. Fun Activity: Predicting the Future with Data (15 minutes)

- **Activity:**

Have students use the data they collected to make a prediction. For example, if a student counted how many cars passed their house, they could predict how many cars will pass tomorrow based on today’s data.

- **Example:**

“If 10 cars passed in 10 minutes today, how many cars do you think will pass tomorrow at the same time?”

- **Teacher Explanation:**

Explain that AI does something similar—it uses data from today to predict what will happen tomorrow. This is called **data-driven decision-making**.

---

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how AI helps people make predictions using data. Ask students: “What are some other ways we could use data to predict things? How could AI help farmers, doctors, or teachers?”

- **Homework Assignment:**

Each student will choose a problem they think AI could help solve. They will write

a paragraph about the problem and how they think AI could use data to find a solution.

---

## End of Lesson 4

By the end of Lesson 4, students will understand how data can be visualized to make it easier to understand and how AI uses data to solve problems and make predictions. They will also have explored how AI could help with real-world problems based on the data they have collected.

## **Lesson 5: Introduction to Project Management and Collaboration (1-2 hours)**

### Objective:

Introduce students to the basics of project management and team collaboration using tools like Trello. The aim is to help them understand how professionals organize tasks and work together effectively in a project.

### Materials Needed:

- Access to Trello (or a similar project management tool) on tablets or computers.
  - Whiteboard and markers for visual demonstration.
- 

### Step-by-Step Instructions:

#### 1. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain that **project management** is the process of organizing tasks to complete a project efficiently. Compare it to planning a party: before the party can happen, tasks like sending invitations, buying decorations, and preparing food need to be done in the right order.

- **Examples of Project Management:**

- Building a house (you can't put on the roof before the walls).
- Planning a class event (choosing a theme, sending invitations, decorating).

## 2. Introducing Trello (15 minutes)

- **Materials Needed:**

Trello or an equivalent project management tool, pre-set project board for demonstration.

- **Teacher Demonstration:**

Show students how **Trello** works by demonstrating the basics: how to create boards, lists, and task cards.

- **Board:** Represents the entire project (e.g., creating an app, completing a recycling campaign).
  - **Lists:** Organize tasks into categories (e.g., "To Do," "In Progress," "Done").
  - **Cards:** Represent specific tasks (e.g., "Design logo," "Collect survey data").
- 

## 3. Hands-on Activity: Creating a Trello Board (20 minutes)

- **Activity:**

Have students work in groups to create their own **Trello boards** for a class project. Assign each group a project, such as "Building a Recycling App" or "Creating a School Newsletter."

- **Step 1:** Create a board for the project.
- **Step 2:** Create lists like "To Do," "In Progress," and "Done."
- **Step 3:** Add task cards to each list (e.g., "Research recycling facts," "Design app interface," "Write article for newsletter").

- **Group Discussion:**

Ask students how organizing tasks in this way can help them keep track of progress. How does it feel to see tasks move from "To Do" to "Done"?

---

## 4. Fun Challenge: Moving Cards Across Lists (15 minutes)

- **Activity:**

Let students complete a few simple tasks (e.g., design a simple logo in Canva,

collect data from their surveys) and **move cards from "To Do" to "Done"** on Trello.

- This will give them a sense of accomplishment as they visually see their progress.
- 

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Discuss how professionals use project management tools to stay organized in the workplace. Ask students:

"How do you think using a tool like Trello will help us when we start working on our projects next week?"

- **Homework Assignment:**

Students should complete a task related to their role (e.g., finish collecting data for their project or create a draft of their design) and move their task card in Trello from "To Do" to "In Progress."

---

## End of Lesson 5

By the end of Lesson 5, students will have a clear understanding of **project management** and how to use tools like **Trello** to organize tasks and work collaboratively. They will have created their own project boards and started moving tasks along the workflow, preparing them for future project work.

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## Lesson 6: AI-Powered Market Researcher (1-2 hours)

### Objective:

Introduce students to the role of a **Market Researcher** in AI-driven projects. Students will learn how data collection and analysis are used by businesses to understand customer preferences and make decisions.

### Materials Needed:

- Access to Google Forms and Google Sheets.

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- Computers/tablets with internet access.
  - Example data (if needed).
- 

### Step-by-Step Instructions:

#### 1. Introduction to Market Research (10 minutes)

- **Teacher Explanation:**

Explain that a **Market Researcher** helps businesses learn what people like and don't like. They collect information (data) by asking people questions, and then analyze it to help companies decide what products to make or improve.

- **Example:**

A Market Researcher might survey people to find out what flavor of ice cream they like best, or what new toys children are interested in.

---

#### 2. Creating a Simple Survey (15-20 minutes)

- **Materials Needed:**

Google Forms on a computer or tablet.

- **Activity:**

Demonstrate how to create a basic survey using **Google Forms**. Each student will create a short survey with 3-4 questions (e.g., "What's your favorite snack?", "What's your favorite hobby?").

- Have students share the survey link with family members, friends, or classmates to collect responses.

- **Teacher Guidance:**

Help students design clear, easy-to-answer questions. Remind them that the information they gather will be used to help make decisions, just like a real market researcher.

---

#### 3. Predicting the Survey Results (15 minutes)

- **Activity:**

Before the survey responses come in, have students predict what the most

popular answers will be. For example, they might guess that “chocolate” will be the most popular snack or that “video games” will be the most popular hobby.

- Have a brief class discussion about their predictions.
- 

#### 4. Analyzing Survey Data (20 minutes)

- **Materials Needed:**

Google Sheets on computers or tablets.

- **Activity:**

Once survey responses are collected, students will input the data into **Google Sheets**. Demonstrate how to create a simple **bar chart** or **pie chart** from the data.

- **Example:**

If the survey asked about favorite snacks, create a bar chart to show how many people picked “chocolate” versus “chips.”

- **Teacher Explanation:**

Explain how businesses use these charts to make decisions. For example, if a survey shows that most people prefer chocolate, a company might decide to make more chocolate-flavored products.

---

#### 5. Group Discussion: How Does Data Help? (10 minutes)

- **Class Discussion:**

Ask students:

“How do the survey results help a company know what people like? How do you think AI can help businesses collect even more data to make better decisions?”

- Encourage students to think about how data is used to understand trends and preferences in the real world.
- 

#### 6. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the role of a **Market Researcher** and how AI plays a role in data collection and decision-making. Ask students:

"What's something new you learned today about how companies use data to make decisions?"

- **Homework Assignment:**

Ask students to think of one product or service they use regularly (e.g., a favorite toy, game, or snack). Have them write a short paragraph about how a company might use market research to improve that product.

---

End of Lesson 6

By the end of Lesson 6, students will have a solid understanding of the **Market Researcher** role, how data is collected using surveys, and how that data is analyzed to help businesses make informed decisions. They will have created their own surveys, predicted outcomes, and analyzed real-world data using charts.

## Lesson 7: AI-Driven Business and Data Analyst (1-2 hours)

Objective:

Introduce students to the role of a **Business and Data Analyst** and how data analysis is used to make informed decisions in various industries. Students will learn how businesses use data to identify trends and opportunities.

Materials Needed:

- Computers/tablets with access to **Google Sheets** or any spreadsheet software.
  - Sample dataset related to business (e.g., sales data, customer preferences).
- 

Step-by-Step Instructions:

### 1. Introduction to Business and Data Analysis (10 minutes)

- **Teacher Explanation:**

Explain the role of a **Business and Data Analyst**. They use data to help companies understand their customers, improve their products, and make better decisions.

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- **Example:**

A data analyst might look at the sales data of a store to see which products are most popular. They can use this information to decide which products to stock more of.

---

## 2. Activity: Analyzing Classroom Data (20-25 minutes)

- **Materials Needed:**

Google Sheets with a preloaded sample dataset (e.g., types of products sold and how many were purchased each day).

- **Activity:**

Have students input the data from the sample dataset into **Google Sheets**. The dataset could include details like:

- Products sold (e.g., books, pencils, snacks)
- Number of units sold each day
- Customer preferences (e.g., which products customers rated highly)

- Show students how to create a **bar chart** or **pie chart** from the data to visualize which product is the most popular.

- **Teacher Explanation:**

Explain how visualizing the data helps businesses quickly understand trends (e.g., which products are selling the most). Encourage students to think about how data analysis can help businesses decide what to stock and how much.

---

## 3. Discussion: Identifying Trends (15 minutes)

- **Teacher Guidance:**

Ask students to look at their charts and identify patterns. For example:

- "Are there certain days when more snacks are sold?"
- "Which product is the most popular?"

- Help students understand how finding trends in data helps businesses make smarter decisions. For example, if a certain product sells better on Fridays, businesses may want to stock more of it that day.

- **Group Discussion:**

Encourage students to discuss how the data they analyzed could be used to improve a store's sales strategy. How could a store owner use this data to plan for the future?

#### 4. Fun Task: Business Data Analyst for a Lesson (15 minutes)

- **Activity:**

Let students pretend they are a **Business Data Analyst** for a toy store. Based on their analysis of the sample dataset, they will write a short paragraph explaining which toys the store should stock more of and why. They can use the data and charts they created to support their argument.

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how businesses rely on data to make decisions. Ask students: “What is something new you learned today about how businesses use data to decide what products to sell?”

- **Homework Assignment:**

Students should look around their home or local stores and take note of what products are most popular. Have them write a paragraph predicting which items the store might need to restock based on what's sold out or in high demand.

---

#### End of Lesson 7

By the end of Lesson 7, students will have an understanding of the role of a **Business and Data Analyst** and how data is used to make business decisions. They will have analyzed a sample dataset, created visualizations, and used data to make business recommendations.

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### Lesson 8: Solution Developer (Basic AI Concepts) (1-2 hours)

Objective:

Introduce students to the role of a **Solution Developer**, with a focus on how AI can be used to solve real-world problems by building apps or tools. Students will engage with simple coding concepts and create a basic solution using Scratch Junior.

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## Materials Needed:

- Tablets/computers with **Scratch Junior** or **MIT App Inventor** installed.
- 

## Step-by-Step Instructions:

### 1. Introduction to AI-Powered Solution Development (10 minutes)

- **Teacher Explanation:**

Explain that a **Solution Developer** is responsible for building tools and apps that solve real-world problems using AI. They use coding and technology to create things like mobile apps, websites, or smart devices.

- **Example:**

A solution developer might build an app to help farmers monitor their crops or create a game that helps students practice math.

- **Discussion:**

Ask students what apps or games they use regularly. How do they think those apps were built? How do apps help solve problems in everyday life?

---

### 2. Activity: Building a Simple App with Scratch Junior (30-40 minutes)

- **Materials Needed:**

Scratch Junior or MIT App Inventor on tablets or computers.

- **Activity:**

Guide students in creating a basic app using **Scratch Junior**. The app could be a **simple schedule organizer** where users can input tasks (e.g., homework, chores) and mark them as complete.

- **Step 1:** Show students how to drag blocks to create characters and movement in Scratch Junior.
  - **Step 2:** Have students add buttons that allow users to add or remove tasks.
  - **Step 3:** Guide them in adding basic features like displaying the tasks and marking them as done.

- **Teacher Guidance:**

Help students troubleshoot any issues they encounter and encourage creativity in their app design.

### 3. Fun Challenge: Adding Extra Features (15 minutes)

- **Activity:**

Challenge students to add one or two additional features to their app. For example, they could add sound effects when tasks are completed, or a feature that allows users to set reminders for upcoming tasks.

- Encourage students to think about how additional features can make the app more helpful or fun for users.
- 

### 4. Group Discussion: How Do Apps Solve Problems? (10 minutes)

- **Class Discussion:**

Ask students how the app they created could help people in real life. For example, how would a **schedule organizer** help someone manage their time better? Discuss how apps and tools can make life easier by solving everyday problems.

- Encourage students to think about other apps they could create to solve different problems (e.g., an app to track homework assignments, a game to help people learn math, etc.).
- 

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how apps and tools created by developers help solve problems in different industries. Ask students:

“What’s an app or tool you wish existed? How could it help solve a problem?”

- **Homework Assignment:**

Ask students to come up with an idea for an app that solves a problem in their own life. They should write a short description of the app and explain how it would work.

---

### End of Lesson 8

By the end of Lesson 8, students will have a basic understanding of the **Solution Developer** role and how AI-powered apps are built to solve problems. They will have created a simple app using **Scratch Junior** and brainstormed ideas for other apps that could help solve real-world problems.

## Lesson 9: AI-Driven Digital Marketer (1-2 hours)

Objective:

Introduce students to the role of a **Digital Marketer**, focusing on how AI helps companies advertise their products, create branding, and promote their business. Students will design marketing materials using AI-powered tools to understand how digital marketing works in the real world.

Materials Needed:

- Tablets/computers with access to **Canva** or any other free design tool.
- Sample product (real or fictional) for students to market (e.g., a new toy, a school club, or a snack).

---

Step-by-Step Instructions:

### 1. Introduction to Digital Marketing (10 minutes)

- **Teacher Explanation:**

Explain that a **Digital Marketer** helps companies sell their products by creating ads, logos, social media posts, and other promotional materials. Digital marketers use AI to understand what customers want and how to best promote products to them.

- **Example:**

Explain how companies use AI to show ads to people based on their interests. For example, if someone watches a lot of videos about soccer, they might see ads for soccer gear or games.

- **Discussion:**

Ask students if they've ever seen ads on websites or social media. How do they think companies decide what ads to show?

## 2. Activity: Designing a Logo in Canva (30-40 minutes)

- **Materials Needed:**

Access to **Canva** or another design tool on tablets or computers.

- **Activity:**

Have students create a logo for a fictional product, school club, or business.

Guide them through using templates, adding colors, fonts, and images.

- **Step 1:** Show students how to choose a logo template in Canva.
- **Step 2:** Guide them through customizing the template (e.g., changing the name, adding colors, or choosing icons).
- **Step 3:** Have students think about how their logo represents their product or business (e.g., Does it show what the business does? Is it eye-catching?).

- **Teacher Guidance:**

Help students understand the importance of a clear, simple, and memorable logo. Encourage creativity and uniqueness in their designs.

---

## 3. Fun Challenge: Create a Social Media Ad (15 minutes)

- **Activity:**

After students have created their logos, ask them to design a simple social media ad (e.g., an Instagram post or Facebook ad) using Canva. The ad should promote the product or business they created a logo for.

- **Example:**

If a student created a logo for a "Junior Bakers Club," they might create an ad that invites new members to join the club. The ad could feature a fun slogan, an image of baked goods, and their new logo.

---

## 4. Group Discussion: How AI Helps in Digital Marketing (10 minutes)

- **Class Discussion:**

Ask students how they think companies decide where to show their ads. Explain that **AI** helps companies understand what people like and shows ads to the right audience.

- **Example:**

A company might use AI to figure out which colors or slogans work best for their ads. AI can also tell companies which ads are getting the most clicks and which ones need improvement.

---

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of digital marketing. Ask students:  
“How does creating a logo and ad help a company or club stand out? How do you think AI can help companies improve their marketing?”

- **Homework Assignment:**

Students should design a second ad or promotional material for their product or business, using Canva or another tool. They can use this as part of their upcoming class presentation.

---

## End of Lesson 9

By the end of Lesson 9, students will have learned the basics of **Digital Marketing** and the role of AI in helping companies advertise their products. They will have created logos and social media ads, gaining hands-on experience with design tools like Canva.

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## Lesson 10: Project Management Overview and Preparation for Actual Projects (1-2 hours)

### Objective:

Introduce students to **Project Management** and prepare them for their upcoming projects. Students will learn how to use Trello or another project management tool to organize tasks, set deadlines, and work collaboratively.

### Materials Needed:

- Access to **Trello** (or any project management tool) on computers or tablets.

- Predefined class projects (e.g., creating a recycling app, designing a community garden).
- 

### Step-by-Step Instructions:

#### 1. Recap of the Week and Introduction to Project Management (10 minutes)

- **Teacher Explanation:**

Start by recapping everything students have learned over the past week:

- AI roles: Market Researcher, Data Analyst, Solution Developer, Digital Marketer.
- Tools they've used: Google Sheets, Canva, Scratch Junior.

- Explain that today's focus will be on **organizing their projects** and preparing for real-world problem-solving using project management tools.

---

#### 2. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain the concept of **project management** and how professionals use tools like Trello to plan their work. Project management helps teams break down big projects into smaller, manageable tasks.

- **Example:**

When building a house, workers need to do things in the right order—first, lay the foundation, then build the walls, and finally put on the roof. The same idea applies to other projects.

- **Discussion:**

Ask students how they think managing tasks and deadlines could help them in their schoolwork or future projects.

---

#### 3. Introduction to Trello (15 minutes)

- **Materials Needed:**

Access to Trello on tablets or computers.

- **Teacher Demonstration:**

Demonstrate how to use Trello by setting up a **Trello board** for one of the class projects (e.g., designing a recycling app). Show students how to:

- Create **lists** (To Do, In Progress, Done).
  - Add **cards** for each task (e.g., “Research recycling facts,” “Design app interface”).
  - Assign **deadlines** and roles (e.g., assign one student to research and another to design).
- 

#### 4. Group Activity: Setting Up Their Trello Boards (25 minutes)

- **Activity:**

In their project teams, students will create their own **Trello boards** for the upcoming projects. Each group will:

- Create **three lists**: To Do, In Progress, Done.
- Add task **cards** under each list.
- Assign roles and set **deadlines** for each task (e.g., the Data Analyst needs to finish analyzing data by the end of the week, the Solution Developer needs to complete coding within two weeks).
- **Example Project:**  
For a project on designing a community garden, tasks might include:
  - Researching plant types.
  - Drawing garden designs.
  - Building a prototype model.

- **Teacher Guidance:**

Help students think through the tasks and break them down into smaller steps.

Encourage them to set reasonable deadlines and assign tasks based on their team members' strengths.

---

#### 5. Fun Activity: Moving Task Cards Across Lists (10 minutes)

- **Activity:**

Let students complete one small task (e.g., researching garden plants) and move their card from **To Do** to **Done**. This helps students see how project management tools help visualize progress.

## 6. Final Discussion: Preparing for Upcoming Projects (10 minutes)

- **Class Discussion:**

Discuss how students will use Trello to manage their projects over the next few weeks. Ask:

- “How does organizing tasks help us work better as a team?”
- “Why is it important to set deadlines for each part of the project?”

- **Teacher Guidance:**

Emphasize that project management helps teams stay on track, meet deadlines, and ensure that all tasks are completed in the right order.

---

## 7. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the week and how students will start their projects next week. Ask: “What are you most excited about for your upcoming project? How do you think Trello will help you stay organized?”

- **Homework Assignment:**

Each student should review their assigned tasks on Trello and begin preparing to work on their specific role in the project (e.g., researching, designing, developing).

---

## End of Lesson 10

By the end of Lesson 10, students will have a strong understanding of **Project Management** and how to organize their upcoming projects using **Trello**. They will have set up their Trello boards and prepared their project tasks, making them ready to start working on real-world projects the following week.



## Guided Project - Creating a Community Garden with Recycled Materials

**Project Roles:** 3 (“Market Researcher & Data Analyst”, “Solution Designer & Developer”, “Digital Marketer & Project Manager”)

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**Duration:** 10 Lessons (Initial introduction and setup)

### **Project Overview:**

In this project, students will work together to create a sustainable community garden using recycled materials. Each student will take on one of three roles: **Market Researcher & Data Analyst**, **Solution Designer & Developer**, or **Digital Marketer & Project Manager**. They will collaborate to gather community data, design the garden layout, and promote the project to their community. By the end, students will have created a detailed plan for the garden and presented their ideas to their classmates or local community members.

### **Learning Objectives:**

- **Collaboration:** Students will learn to work in teams, share responsibilities, and integrate their work into a cohesive project.
- **Real-World Application:** Students will apply their knowledge of sustainability and recycling to solve a real-world problem (creating a sustainable community garden).
- **Technology Integration:** Students will use tools like Google Forms, Canva, and Trello to manage their project, design promotional materials, and collect community feedback.

### **Curriculum Mapping:**

This project is mapped to multiple subject areas across **US Common Core**, **UK Curriculum**, **Cambridge**, **IB**, and **Pakistan National Curriculum**.

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### **US Common Core Curriculum Mapping:**

#### **1. English Language Arts (ELA):**

- **Writing (W.3.2, W.4.2, W.5.2):** Writing informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- **Speaking & Listening (SL.3.4, SL.4.4, SL.5.4):** Present information clearly, concisely, and logically, supporting main ideas with facts and descriptive details.

**2. Mathematics:**

- **Measurement & Data (MD.3.4, MD.4.4, MD.5.4):** Create and interpret data in graphs, focusing on community survey data and garden layout measurements.
- **Geometry (G.3.1, G.4.1, G.5.1):** Analyze and create garden layouts using geometric shapes and spatial understanding.

**3. Science:**

- **Earth and Human Activity (3-ESS3-1, 4-ESS3-1, 5-ESS3-1):** Focus on human impact on Earth's systems, the benefits of recycling, and sustainability through the creation of the garden.
- 

**UK National Curriculum Mapping:****1. English:**

- **Writing:** Plan, draft, and write clear and coherent informational texts (related to the research and findings from the project).
- **Speaking & Listening:** Develop effective presentation skills by presenting project findings.

**2. Mathematics:**

- **Data Handling:** Use bar charts, tally charts, and pie charts to represent survey data from the community on recycling habits.
- **Measurement:** Calculate the dimensions of the garden and the space needed for different sections, using units of measurement.

**3. Science:**

- **Living Things and Their Habitats:** Learn about plants and ecosystems, linking this to the importance of sustainable gardens and recycling materials.
- 

**Cambridge Curriculum Mapping:****1. English:**

- **Writing & Presenting Information:** Develop skills in writing reports and presenting findings through research and data collection.
- **Speaking & Listening:** Share ideas through discussions and formal presentations during the project.

**2. Mathematics:**

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- **Data Collection and Presentation:** Collect, analyze, and present data from community surveys about recycling and garden preferences.
  - **Geometry:** Use geometric concepts to design the layout of the community garden.
- 3. Science:**
- **Environmental Awareness:** Understand recycling and sustainability, focusing on their application in creating an eco-friendly garden.
- 

### **IB PYP Curriculum Mapping:**

- 1. Language:**
    - **Writing & Research:** Students will gather and present information about recycling and sustainable gardening practices.
    - **Communication:** Students will develop communication skills by presenting their findings to their classmates and community.
  - 2. Mathematics:**
    - **Data Handling:** Interpret survey results and present findings using appropriate visual aids (e.g., bar charts, graphs).
  - 3. Science:**
    - **Science in Society:** Explore how human actions (like recycling) can impact the environment positively, in line with sustainability principles.
- 

### **Pakistan National Curriculum Mapping:**

- 1. English:**
  - **Writing:** Writing informative texts and explanations of the community garden's purpose, sustainability goals, and design process.
  - **Oral Communication:** Present the project's findings to classmates and community members, explaining the importance of recycling and sustainability.
- 2. Mathematics:**
  - **Data Handling:** Collect and analyze survey data, presenting it through graphs and charts.
  - **Geometry:** Use measurement and spatial understanding to plan the layout of the garden.
- 3. Science:**

- **Environmental Science:** Learn about sustainable development, recycling, and human impacts on the environment through the design and creation of the community garden.
- 

## 10 Lessons Roadmap for Market Researcher / Data Analyst

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can recycling reduce waste and help create a sustainable community garden?

**Focus:** The **Market Researcher & Data Analyst** will gather data on community recycling habits, analyze trends, and collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to ensure the garden design aligns with community interests and promotes sustainability. The project will end with a branding effort to promote the initiative.

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#### Lesson 1: Defining the Problem & Creating a Research Plan (1-2 hours)

**Objective:** Understand the project's goals, define the research problem, and develop a data collection plan.

- **Tasks:**

- Use **AI tools** like **ChatGPT** or **Google AI** to research recycling and community gardens. Gather insights to inform survey creation.
- Collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to outline the research problem and define how data will support design and promotional strategies.
- Develop a research plan to collect data on recycling habits, materials available for reuse, and community interest in a garden.

**AI Tools:** ChatGPT, Google AI (for research and planning).

**Connection Points:**

- Share initial insights with the **Designer & Developer** to inform early design concepts.

- Align the research plan with the **Digital Marketer & Project Manager** for effective community engagement.
- 

## Lesson 2: Creating a Survey Using AI Tools (1-2 hours)

**Objective:** Create a survey to gather community data on recycling habits and garden participation.

- **Tasks:**

- Use **Google Forms Auto-Generate** or **ChatGPT** to design a survey with questions like, "How often do you recycle?" and "What recycled materials do you have at home?"
- Collaborate with the **Digital Marketer & Project Manager** to ensure the survey is distributed digitally and promoted within the community.
- Finalize the survey and start distributing it through various channels.

**AI Tools:** Google Forms Auto-Generate, ChatGPT (for survey creation).

**Connection Points:**

- Share the survey questions with the **Designer & Developer** to align community input with garden design.
  - Work with the **Digital Marketer & Project Manager** to distribute the survey.
- 

## Lesson 3: Data Collection (1-2 hours)

**Objective:** Collect survey responses and gather observations about recycling behaviors in the community.

- **Tasks:**

- Collect responses via Google Forms or manually with paper-based surveys.
- Observe recycling behaviors in your school or neighborhood (e.g., what materials are recycled and how often).
- Start sharing preliminary findings with the **Designer & Developer** to inform material selection.

**AI Tools:** Google Forms (for data collection).

**Connection Points:**

- Coordinate with the **Digital Marketer & Project Manager** to ensure the survey reaches the community.
  - Share early insights with the **Designer & Developer** for the garden design.
- 

## **Lesson 4: Organizing Data Using AI (1-2 hours)**

**Objective:** Input the collected data into a spreadsheet and begin using AI tools to organize it.

- **Tasks:**
  - Input the data from surveys into **Google Sheets** or **Excel** for easier manipulation.
  - Use **Google AI** or **Microsoft Power BI** to organize the data into categories, such as materials recycled, community awareness of recycling, and interest in the community garden.

**AI Tools:** Google Sheets, Google AI, Microsoft Power BI (for organizing data).

**Connection Points:**

- Share organized data with the **Designer & Developer** to ensure materials for the garden match the community's recycling habits.
- 

## **Lesson 5: Data Visualization & Initial Reporting (1-2 hours)**

**Objective:** Use AI tools to create visual representations of the data and begin reporting key findings.

- **Tasks:**
  - Use **Google AI** or **Power BI** to create charts, such as bar graphs and pie charts, that visualize the survey results (e.g., most commonly recycled materials).
  - Prepare a brief initial report to share with the team, summarizing key insights such as which materials are most available for the garden and the community's level of interest in participating.

**AI Tools:** Power BI, Google Sheets (for data visualization).

**Connection Points:**

- Share visual data with the **Designer & Developer** to ensure that garden design aligns with the community's recycling materials.
  - Work with the **Digital Marketer & Project Manager** to present early insights to the public, promoting interest in the garden project.
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### **Lesson 6: Data Analysis Using AI & Collaboration (1-2 hours)**

**Objective:** Analyze the survey data using AI tools to uncover trends and collaborate with the other roles.

**● Tasks:**

- Use **Google AI** or **Power BI** to conduct deeper analysis of the data, identifying trends like the most commonly recycled materials and which households are most engaged in recycling.
- Collaborate with the **Designer & Developer** to refine the material selection for the garden based on the data.
- Discuss insights with the **Digital Marketer & Project Manager** to plan the next phase of community engagement based on data trends.

**AI Tools:** Google AI, Power BI (for data analysis).

**Connection Points:**

- Collaborate closely with the **Designer & Developer** to finalize material choices.
  - Share data-driven insights with the **Digital Marketer & Project Manager** for use in promotional campaigns.
- 

### **Lesson 7: Writing the Final Report Using AI Tools (1-2 hours)**

**Objective:** Write a comprehensive report summarizing data findings and their implications for the project.

**● Tasks:**

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- Use **Grammarly** or **ChatGPT** to draft a report summarizing the findings from the survey and data analysis. Include charts and graphs for visual support.
- Discuss the report with the other team members to ensure all roles have the data they need to move forward.

**AI Tools:** Grammarly (for report writing), ChatGPT (for summarizing findings).

**Connection Points:**

- Share the final report with the **Designer & Developer** to finalize material choices for the garden.
  - Provide the report to the **Digital Marketer & Project Manager** to inform promotional materials and campaigns.
- 

### **Lesson 8: Finalizing Recycled Materials List & Collaboration (1-2 hours)**

**Objective:** Collaborate with the team to finalize the list of recycled materials for the garden.

● **Tasks:**

- Work with the **Designer & Developer** to confirm which recycled materials will be used for the garden, based on the survey results and data analysis.
- Ensure the materials are easily accessible in the community and sustainable for the long-term.
- Begin planning how the data can be used in the branding effort, highlighting the environmental impact.

**AI Tools:** Google Sheets, Power BI (for finalizing materials and visualizing data).

**Connection Points:**

- Collaborate with the **Designer & Developer** to finalize the materials and design.
  - Work with the **Digital Marketer & Project Manager** to use data-driven insights in the final promotional materials.
- 

### **Lesson 9: Branding the Project & Preparing for the Final Presentation (1-2 hours)**

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**Objective:** Contribute to the branding effort by sharing data insights that highlight community involvement and sustainability.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to create branding elements (e.g., slogans, logos) that emphasize sustainability and community engagement.
- Use the data collected throughout the project to show how the community's recycling efforts are contributing to the garden.
- Help create a presentation that highlights the key data points, using AI-generated visualizations to support the branding effort.

**AI Tools:** Canva, Power BI (for branding and data visualization).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to finalize the promotional materials.
- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden's design.

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## Lesson 10: Final Presentation & Community Engagement (1-2 hours)

**Objective:** Present the findings to the class or community and contribute to the final branding and community engagement effort.

- **Tasks:**

- Present the final report, showcasing the survey results, data analysis, and the impact of recycling on the garden.
- Work with the **Digital Marketer & Project Manager** to deliver the branding campaign to the community, using data to encourage participation in the garden.
- Conclude the project by discussing the long-term benefits of community engagement in sustainability.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Designer & Developer** and the **Digital Marketer & Project Manager** to deliver a cohesive final presentation.

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- Ensure the branding and data insights are shared with the community to encourage ongoing participation.
- 

## Assessment at Project Level:

### 1. Industry Understanding

- **Assessment Criteria:** Evaluate the student's understanding of the recycling industry, community sustainability efforts, and how data plays a crucial role in environmental decision-making.
- **Questions:**
  - How well does the student understand the impact of recycling on environmental sustainability?
  - Can they explain the connection between recycled materials and their use in the community garden?
  - Have they demonstrated a clear understanding of how data can inform decisions in real-world environmental projects?

### 2. Concept Understanding

- **Assessment Criteria:** Assess the student's grasp of the core concepts, such as data collection, analysis, and visualization, and their ability to apply these concepts in the project.
- **Questions:**
  - How effectively did the student collect and analyze data on recycling habits?
  - Were they able to create clear, accurate visualizations that helped inform the garden's design?
  - Can they explain the process of turning data into actionable insights?

### 3. Role Performance

- **Assessment Criteria:** Measure the student's success in fulfilling the responsibilities of the **Market Researcher & Data Analyst** role, including collaboration with other roles.
- **Questions:**
  - Did the student successfully collect and analyze data to support the garden design and promotional campaign?

- How well did they communicate their findings with the **Designer & Developer** and the **Digital Marketer & Project Manager**?
- Did they contribute effectively to the final report and presentation?

#### 4. Collaboration & Communication

- **Assessment Criteria:** Evaluate how well the student collaborated with their peers and communicated their findings.
- **Questions:**
  - How effectively did the student share insights with other roles throughout the project?
  - Did they collaborate well with the **Designer & Developer** to ensure data-driven design choices?
  - Were they able to communicate data findings clearly to support the **Digital Marketer & Project Manager** in the branding efforts?

#### 5. Branding & Final Presentation

- **Assessment Criteria:** Assess the student's involvement in the final branding and presentation efforts.
- **Questions:**
  - How well did the student use data to contribute to the project's branding, emphasizing community involvement and sustainability?
  - Were they able to present the final findings and demonstrate the impact of the project to the class or community?
  - How effectively did they support the **Digital Marketer & Project Manager** in the promotional campaign?

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#### Learning Outcomes for the Entire Project

- **Industry Understanding:** The student will demonstrate a deep understanding of recycling, sustainability, and how data-driven insights inform real-world projects.
- **Data Skills:** They will acquire skills in using AI tools for data collection, analysis, and visualization, creating clear and actionable insights from raw data.
- **Collaboration:** The student will learn how to effectively collaborate with peers, ensuring the data supports design and marketing efforts.
- **Branding:** The student will contribute to the branding of the community garden project, using data to highlight the impact of recycling and sustainability.

- **Communication:** By presenting their findings, the student will improve their ability to communicate data insights clearly and effectively.

Here's the **10-Lesson detailed plan** for the **Designer & Developer** role in the **Grade 3 Project: Creating a Community Garden with Recycled Materials**, integrating AI tools and connecting with the other roles like **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager**. This plan focuses on the tasks of designing the garden and developing digital components where needed. The project will end with a final presentation, including branding and showcasing the garden's design.

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## 10 Lessons Roadmap for Solution Designer / Developer

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Designer & Developer** will be responsible for designing the community garden based on the research conducted by the **Market Researcher & Data Analyst**, and developing digital components or models that can represent the garden.

Collaboration with the **Digital Marketer & Project Manager** will be essential for branding and final presentation efforts.

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### Lesson 1: Understanding the Project & Gathering Design Inputs (1-2 hours)

**Objective:** Understand the project goals and begin gathering design ideas from the team.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** to understand the community's preferences for recycling and sustainable gardening based on the initial research and data collection plan.
- Review preliminary data about materials available for the garden.
- Begin brainstorming design ideas for how recycled materials can be used effectively in the garden layout.

**AI Tools:** ChatGPT or DALL·E (to generate initial garden design ideas and layouts).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to understand the types of materials available and the community's recycling behaviors.
  - Align with the **Digital Marketer & Project Manager** on initial branding concepts that align with the garden's design and sustainability goals.
- 

## **Lesson 2: Sketching Initial Designs (1-2 hours)**

**Objective:** Create initial design sketches for the community garden using input from the research team.

- **Tasks:**
  - Using **Figma** or **Canva**, create initial sketches of the garden layout, focusing on how different recycled materials (plastic bottles, cardboard) can be incorporated into planters, pathways, and other elements.
  - Collaborate with the **Market Researcher & Data Analyst** to ensure that the design reflects community preferences, based on the survey data.
  - Prepare a few different layout options to present to the team for feedback.

**AI Tools:** Figma, Canva, or DALL·E (for garden design and layout ideas).

**Connection Points:**

- Review the initial sketches with the **Market Researcher & Data Analyst** to ensure that the materials align with the data.
  - Begin discussing the designs with the **Digital Marketer & Project Manager** to align branding with design concepts.
- 

## **Lesson 3: Finalizing the Garden Layout & Material Use (1-2 hours)**

**Objective:** Finalize the layout for the community garden and decide on the use of recycled materials.

- **Tasks:**

- Refine the initial garden sketches based on team feedback, incorporating any additional ideas or materials suggested by the **Market Researcher & Data Analyst**.
- Finalize the list of recycled materials that will be used in the garden design and ensure that all elements are sustainable and practical.
- Begin outlining the specific design elements for each section of the garden, such as planter designs, seating areas, and pathways made from recycled materials.

**AI Tools:** Figma (for finalizing designs), Google Sheets (for organizing the materials list).

#### Connection Points:

- Collaborate closely with the **Market Researcher & Data Analyst** to finalize material choices.
  - Work with the **Digital Marketer & Project Manager** to ensure that the garden's design can be easily branded and promoted.
- 

### Lesson 4: Developing Digital Components & Visual Models (1-2 hours)

**Objective:** Create digital models or visual representations of the community garden.

#### ● Tasks:

- Use **Figma** or **Canva** to create a digital mockup of the garden, showing how the recycled materials will be incorporated into the final design.
- Create a visual model of the garden that can be used in the final presentation and promotional materials. This model should clearly represent the layout, materials, and overall aesthetic of the garden.
- Ensure that the model is easy to understand and visually appealing, as it will be part of the final presentation to the community.

**AI Tools:** Figma, Canva, Google SketchUp (for digital modeling and mockups).

#### Connection Points:

- Share the digital model with the **Market Researcher & Data Analyst** to ensure all materials are represented accurately.
- Work with the **Digital Marketer & Project Manager** to use the visual models in promotional campaigns.

## Lesson 5: Preparing Visual Design & Feedback Integration (1-2 hours)

**Objective:** Prepare the visual design and gather feedback from the team.

- **Tasks:**

- Present the digital model and design sketches to the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** for feedback.
- Make any necessary adjustments based on team feedback, ensuring that the design aligns with community preferences and promotional goals.
- Begin planning how the design will be presented to the community, considering visual elements that highlight the use of recycled materials.

**AI Tools:** Figma, Canva (for revisions based on feedback).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to refine the design and ensure that all elements are data-driven.
  - Work with the **Digital Marketer & Project Manager** to plan how the final design will be showcased to the community.
- 

## Lesson 6: Branding the Garden Design (1-2 hours)

**Objective:** Work with the **Digital Marketer & Project Manager** to create branding elements for the garden.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to develop branding materials, such as logos, slogans, and promotional designs, that reflect the sustainability and community-driven aspects of the garden.
- Ensure that the visual design aligns with the branding elements and that the garden's message of sustainability is clear in all promotional materials.
- Use AI tools like **Canva** to create visual assets for social media and other marketing channels.

**AI Tools:** Canva (for branding and promotional materials).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to ensure the branding is visually consistent with the garden design.
  - Collaborate with the **Market Researcher & Data Analyst** to include data-driven messaging in the branding materials.
- 

## Lesson 7: Refining Digital Models & Preparing for Final Presentation (1-2 hours)

**Objective:** Refine the digital models and prepare for the final presentation.

- **Tasks:**
  - Refine the digital model based on team feedback and ensure that it is ready for the final presentation.
  - Begin preparing slides or visual aids for the final presentation, showcasing the design process, the recycled materials used, and how the garden will benefit the community.
  - Work closely with the **Market Researcher & Data Analyst** to integrate data insights into the presentation.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to include data insights in the presentation.
  - Work with the **Digital Marketer & Project Manager** to ensure that the presentation aligns with the branding strategy.
- 

## Lesson 8: Finalizing the Garden Design & Preparing Presentation Materials (1-2 hours)

**Objective:** Finalize the garden design and prepare materials for the final presentation.

- **Tasks:**
  - Finalize all visual materials, including digital models, posters, and any other design elements that will be used in the final presentation.
  - Ensure that the final design is visually appealing and accurately represents the garden layout, including the use of recycled materials.

- Share the final design with the **Digital Marketer & Project Manager** to ensure alignment with the overall branding effort.

**AI Tools:** Figma, Canva (for finalizing visual materials).

**Connection Points:**

- Work with the **Market Researcher & Data Analyst** to ensure the final design reflects community input.
  - Collaborate with the **Digital Marketer & Project Manager** to ensure that the branding materials are consistent with the design.
- 

### Lesson 9: Presenting the Final Garden Design to the Community (1-2 hours)

**Objective:** Present the final garden design and explain how recycled materials are used in the garden.

- **Tasks:**
  - Present the final design to the class or community, showcasing how recycled materials have been incorporated into the garden layout.
  - Work with the **Digital Marketer & Project Manager** to ensure that the branding message is clear and that the presentation highlights the community's involvement in the project.
  - Use AI tools to create visual aids that make the design easy to understand for the audience.

**AI Tools:** Google Slides, Canva (for final presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure that data-driven insights are included in the presentation.
  - Work with the **Digital Marketer & Project Manager** to deliver a cohesive branding message during the presentation.
- 

### Lesson 10: Final Branding and Post-Project Collaboration (1-2 hours)

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**Objective:** Collaborate with the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** to promote the project through branding and share the project's success story with the community.

- **Tasks:**

- Finalize the project presentation and branding effort, ensuring the design reflects the community's involvement and promotes environmental sustainability.
- Participate in a final team discussion to reflect on the project, discussing what worked well and what can be improved for future projects.
- Help create a social media campaign or blog post to share the project's success story with a broader audience, highlighting how the garden project supports environmental sustainability and community involvement.

**AI Tools:** **Canva** (for creating promotional materials), **Grammarly** (for writing social media posts or blog content).

**Connection Points:**

- Collaborate with the **Digital Marketer & Project Manager** to ensure the project is branded and promoted effectively.
- Share the final project design and branding with the community through digital platforms or in-person presentations.

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**Final Assessment at Project Level (for the Designer & Developer Role):**

- **Industry Understanding:**

- Can the student explain how recycled materials were used to design the community garden?
- How well does the student understand the impact of design on environmental sustainability and community engagement?

- **Concept Understanding:**

- Evaluate the student's ability to apply design concepts in creating a sustainable garden layout.
- Did the student use recycled materials effectively and creatively?

- **Role Performance:**

- Did the student fulfill the responsibilities of the **Designer & Developer** role, including creating digital models and refining the garden design?

- How well did the student collaborate with the **Market Researcher & Data Analyst** to incorporate data insights into the design?
  - **Collaboration:**
    - Did the student communicate effectively with the other roles and integrate their input into the final design?
    - How well did the student contribute to the final presentation and branding effort?
  - **Branding & Final Presentation:**
    - Did the student contribute to the branding and promotion of the project, using their design skills to create visually appealing materials?
    - How effectively did the student participate in the final presentation, showcasing the design and promoting the project to the community?
- 

### Learning Outcomes for the Entire Project:

- **Design & Development Skills:** The student will develop skills in using AI tools like **Figma** and **Canva** to create designs and digital models.
- **Industry Knowledge:** The student will gain a deeper understanding of sustainable design and how to incorporate recycled materials into real-world projects.
- **Collaboration & Communication:** The student will improve their ability to work with other roles, ensuring that data and branding are integrated into the design process.
- **Branding & Presentation:** The student will contribute to branding efforts and learn how to present their design in a professional, visually appealing manner.

This 10-Lesson plan focuses on ensuring the **Designer & Developer** role is integrated with the other roles, using AI tools and collaborative feedback to create a sustainable, community-driven garden design. The plan culminates in a final presentation and branding effort that promotes the project's impact.

## 10 Lessons Roadmap for Project Manager / Digital Marketer

Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Digital Marketer & Project Manager** will handle project organization and branding. This includes creating promotional materials, managing timelines using Trello, and working with other roles like the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure the project's success.

---

### Lesson 1: Understanding the Project & Setting Up Project Management (1-2 hours)

**Objective:** Understand the project's goals, set up the project management system, and begin organizing the project timeline.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** and the **Designer & Developer** to understand their roles and align on the project's overall goals.
- Set up a **Trello** board to organize the project tasks. Create lists for "To-Do," "In Progress," and "Completed."
- Assign tasks for each role and create a project timeline, including deadlines for survey creation, design feedback, branding, and the final presentation.

**AI Tools:** **Trello, Google Calendar** (for project management).

**Connection Points:**

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- Collaborate with the **Market Researcher & Data Analyst** to schedule tasks related to survey creation and data analysis.
  - Coordinate with the **Designer & Developer** to schedule design feedback and finalize the garden layout.
- 

## Lesson 2: Creating a Branding Strategy (1-2 hours)

**Objective:** Develop a branding strategy for the community garden project, including logos, slogans, and promotional materials.

- **Tasks:**
  - Brainstorm branding ideas with the **Designer & Developer** to create a consistent theme that reflects the garden's sustainability and recycling message.
  - Use **Canva** to design a logo and select a color scheme that represents the community garden's values.
  - Create a simple slogan for the project, emphasizing sustainability and community involvement (e.g., "Grow Green, Recycle Smart").

**AI Tools:** Canva, Adobe Spark (for branding materials).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden design.
  - Work with the **Market Researcher & Data Analyst** to include data insights (such as community interest in recycling) in the branding strategy.
- 

## Lesson 3: Promoting the Survey & Engaging the Community (1-2 hours)

**Objective:** Help distribute the survey created by the **Market Researcher & Data Analyst** and engage the community.

- **Tasks:**
  - Use **social media platforms** or school-based networks to distribute the survey to the community, promoting it as part of the sustainable garden initiative.

- Post on platforms like **ClassDojo** or school newsletters, explaining how community feedback will shape the garden.
- Track survey responses using Trello, updating the board as the community engages.

**AI Tools:** Facebook, Instagram, ClassDojo (for promoting surveys).

**Connection Points:**

- Coordinate with the **Market Researcher & Data Analyst** to ensure survey responses are collected efficiently.
  - Share community engagement data with the **Designer & Developer** for design feedback.
- 

## Lesson 4: Tracking Progress & Adjusting the Timeline (1-2 hours)

**Objective:** Review the project's progress and adjust the timeline if necessary.

- **Tasks:**
  - Use **Trello** to track the completion of tasks, including survey creation, data collection, and initial design sketches.
  - Hold a quick meeting with the team to check if any adjustments are needed for the timeline (e.g., more time for data collection or design revisions).
  - Update the project timeline based on team feedback, ensuring all tasks stay on track for completion by Lesson 10.

**AI Tools:** Trello, Google Calendar (for timeline adjustments).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure enough time is allocated for data analysis.
  - Work with the **Designer & Developer** to adjust the design schedule if needed.
- 

## Lesson 5: Creating Social Media Content for Promotion (1-2 hours)

**Objective:** Create and schedule social media content to promote the community garden project and encourage more participation.

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- **Tasks:**

- Use **Canva** to design promotional posts that highlight the garden's sustainability goals and the use of recycled materials.
- Work with the **Market Researcher & Data Analyst** to include data from the survey, such as what materials the community recycles most.
- Schedule social media posts to go live on specific days leading up to the final presentation, using tools like **Hootsuite**.

**AI Tools:** **Canva, Hootsuite, Facebook, Instagram** (for social media content and scheduling).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to use data insights in social media posts.
  - Work with the **Designer & Developer** to ensure the branding and visuals are consistent with the garden design.
- 

## Lesson 6: Refining the Branding & Promotional Campaign (1-2 hours)

**Objective:** Refine the branding strategy based on community feedback and prepare for the final promotional push.

- **Tasks:**

- Review the branding materials with the **Designer & Developer** to ensure they align with the final garden design.
- Use feedback from the community to adjust slogans, logos, or promotional content if needed.
- Prepare a final promotional push for social media, encouraging community members to attend the presentation or contribute to the garden.

**AI Tools:** **Canva, Google Sheets** (for organizing feedback and refining branding).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure branding and design remain aligned.
  - Use insights from the **Market Researcher & Data Analyst** to refine the promotional message.
-

## Lesson 7: Preparing for the Final Presentation (1-2 hours)

**Objective:** Begin preparing materials for the final presentation, including slides and talking points.

- **Tasks:**

- Use **Google Slides** or **PowerPoint** to start creating the final presentation, which will showcase the project's progress, data insights, and design.
- Include branding elements (logos, slogans) and key visuals from the **Designer & Developer**.
- Work with the **Market Researcher & Data Analyst** to include data-driven insights in the presentation, such as survey results and recycling data.

**AI Tools:** Google Slides, PowerPoint, Canva (for creating the presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure the data is visually presented in the slides.
- Ensure that branding elements from the **Designer & Developer** are included in the presentation.

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## Lesson 8: Finalizing the Presentation & Promotional Strategy (1-2 hours)

**Objective:** Finalize the presentation and promotional strategy for the community garden project.

- **Tasks:**

- Review the presentation with the team and make any necessary revisions.
- Prepare a final promotional post or email to invite community members to the presentation.
- Ensure that the branding is consistent across all promotional materials and presentation slides.

**AI Tools:** Google Slides, Canva (for finalizing presentation and promotional content).

**Connection Points:**

- Work with the **Designer & Developer** and **Market Researcher & Data Analyst** to ensure the presentation is cohesive and reflects the project's goals.

## Lesson 9: Final Presentation Preparation & Rehearsal (1-2 hours)

**Objective:** Rehearse the final presentation and ensure that all materials are ready for delivery.

- **Tasks:**

- Conduct a rehearsal with the team to ensure each role is prepared to present their part of the project.
- Finalize the promotional strategy and ensure that the community is aware of the presentation.
- Check the branding materials and visuals to ensure consistency throughout the presentation.

**AI Tools:** Google Slides, Canva (for final rehearsal and checking visuals).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure everyone is aligned for the presentation.
- 

## Lesson 10: Delivering the Final Presentation & Branding Campaign (1-2 hours)

**Objective:** Deliver the final presentation and launch the final branding campaign.

- **Tasks:**

- Present the community garden project to the class or community, highlighting how recycling has been integrated into the garden's design.
- Launch the final branding campaign on social media or school platforms, using the content created throughout the project.
- Discuss the impact of the project on the community and encourage further participation in sustainable initiatives.

**AI Tools:** Google Slides, Canva, Facebook, Instagram (for delivering the presentation and launching the branding campaign).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to deliver a cohesive final presentation.

# Teacher Guidelines to Conduct AI Based Projects

## Teacher Guideline 1 - Detailed Tool Instructions

This guide provides teachers with step-by-step instructions on using essential tools for the 10-Lesson Introduction to AI, Data Science, and Technology Basics. It includes screenshots, QR code links to short instructional videos, and sample exercises to make it easy for teachers to practice before introducing these tools to students.

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### Tool 1: Canva (Graphic Design Basics)

- **Purpose:** Canva allows students to create visuals like posters, reports, and presentation slides, which they can use to showcase project findings.
  - **Quick-Start Steps:**
    - **Open Canva:** Go to [canva.com](https://canva.com) and create a free account.
    - **Choose a Template:** Select “Create a Design” and choose a template, like “Poster” or “Presentation.”
    - **Customize Design:** Encourage students to add text, images, and icons. They can drag elements to adjust positions, change colors, and edit fonts.
    - **Save & Download:** When finished, click “Download” to save the design as a PDF or image.
  - **Sample Exercise:** Create a digital poster titled “How AI Helps Us Every Day” with a simple layout and two to three icons or images related to technology.
- 

### Tool 2: Google Forms (Data Collection)

- **Purpose:** Google Forms allows students to create surveys, gather responses, and analyze basic data, such as preferences or community feedback.
- **Quick-Start Steps:**
  - **Access Google Forms:** Go to [forms.google.com](https://forms.google.com) and log in with a Google account.
  - **Start a New Form:** Click “Blank” to start a new form or use a pre-made template.

- **Add Questions:** Select “+” to add different question types (multiple choice, short answer, etc.). Teachers can guide students to add three to five questions for practice.
  - **Share the Form:** Click “Send” and choose the “Link” option to copy and share the form with students or family members for responses.
  - **Review Responses:** Click “Responses” to view and analyze results.
  - **Sample Exercise:** Create a form titled “Favorite School Activities” with questions like “What’s your favorite subject?” and “Which club would you join?”
- 

### Tool 3: Scratch Jr. / Scratch (Basic Coding Concepts)

- **Purpose:** Scratch Jr. (for younger students) and Scratch teach basic coding logic through drag-and-drop programming, helping students understand how computers follow instructions.
  - **Quick-Start Steps:**
    - **Access Scratch:** Go to [scratch.mit.edu](https://scratch.mit.edu) for Scratch or download **Scratch Jr.** on tablets.
    - **Start a New Project:** Click “Create” on Scratch (or open Scratch Jr.) and introduce the interface (sprite area, code blocks).
    - **Add Movements:** Drag “Motion” blocks like “Move 10 Steps” to make the character move.
    - **Add Dialogue:** Use “Looks” blocks like “Say [Hello!]” to add dialogue to the characters.
  - **Sample Exercise:** Create a short animation where a character says “Hello!” and moves across the screen.
- 

### Tool 4: Trello (Simple Project Management)

- **Purpose:** Trello is a simple project management tool that organizes tasks and allows students to track project progress in a visual “board” format.
- **Quick-Start Steps:**
  - **Access Trello:** Go to [trello.com](https://trello.com) and sign up for a free account.
  - **Create a New Board:** Click “Create New Board” and name it according to the project (e.g., “Community Garden Project”).
  - **Add Lists:** Create three lists titled “To Do,” “In Progress,” and “Done.”

- **Add Task Cards:** Under “To Do,” add tasks as cards (e.g., “Research recycling materials” or “Design garden layout”).
  - **Move Cards Across Lists:** Drag cards to “In Progress” when a task starts and to “Done” upon completion.
  - **Sample Exercise:** Set up a simple Trello board for the “Community Garden Project,” with three cards under “To Do.”
- 

### Tool 5: Google Sheets (Data Analysis Basics)

- **Purpose:** Google Sheets introduces students to basic data handling, allowing them to enter data, create charts, and interpret findings.
- **Quick-Start Steps:**
  - **Access Google Sheets:** Go to [sheets.google.com](https://sheets.google.com) and start a new blank spreadsheet.
  - **Enter Data:** Demonstrate entering data in columns (e.g., “Activity” and “Number of Students”).
  - **Create a Chart:** Highlight data, click “Insert,” then “Chart.” Google Sheets will generate a chart based on selected data.
  - **Customize Chart:** Adjust the chart’s appearance by changing colors, titles, and labels.
- **Sample Exercise:** Input survey data on “Favorite School Activities” and create a bar chart showing the results.

### Teacher Guideline 2: Simplified Technical Explanations & Essential Skills Overview

This section offers **easy-to-understand explanations** for complex concepts in AI and data science, along with an overview of essential skills for each role. Teachers can use these simplified definitions and skill descriptions to introduce foundational concepts and set expectations for the skills students will build across the activities.

### Core AI & Data Science Concepts

- **AI (Artificial Intelligence):**

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- **Simple Explanation:** AI is a “smart helper” that can learn and make decisions, much like how people do.
  - **Example:** Just as Netflix recommends movies based on past viewing habits, AI learns from patterns to give us what we might like.
  - **Machine Learning:**
    - **Simple Explanation:** Machine learning is when computers learn by looking at examples and improving with practice.
    - **Example:** Like learning to recognize different breeds of dogs by seeing many examples, a machine learns to make predictions based on data.
  - **Data:**
    - **Simple Explanation:** Data is information that we can collect, analyze, and use to make decisions.
    - **Example:** Schools collect data on attendance and grades to understand how students are doing.
  - **Coding:**
    - **Simple Explanation:** Coding is giving instructions to a computer to perform specific tasks.
    - **Example:** Just like following a recipe to bake a cake, coding gives step-by-step instructions to make things happen on a computer.
- 

## Essential Skills for Each Role

- **AI-Powered Market Researcher:**
  - **Skills Developed:** Survey creation, data collection, data analysis.
  - **Practical Application:** Learning to gather information from people and analyze trends, such as classmates’ favorite activities.
- **AI-Powered Data Analyst:**
  - **Skills Developed:** Data interpretation, data visualization, basic statistics.
  - **Practical Application:** Using data charts to understand patterns, like which snacks are most popular.
- **AI-Based Solution Designer:**
  - **Skills Developed:** Design thinking, creative problem-solving, prototyping.
  - **Practical Application:** Developing and presenting ideas for real-world problems, like designing a sustainable garden layout.
- **AI-Based Solution Developer:**
  - **Skills Developed:** Coding basics, creating simple applications, understanding logic sequences.

- **Practical Application:** Creating digital animations or simple apps that demonstrate problem-solving, such as coding an animation in Scratch Jr.
  - **AI-Powered Digital Marketer:**
    - **Skills Developed:** Digital content creation, branding basics, public speaking.
    - **Practical Application:** Making posters and presentations to promote projects, helping students learn how to communicate ideas effectively.
- 

## Glossary of Key Terms

- **Artificial Intelligence (AI):** Technology that enables computers to perform tasks that require human-like thinking.
  - **Data:** Information collected for analysis, like survey responses or numerical figures.
  - **Machine Learning:** A branch of AI where computers learn patterns from data to make predictions.
  - **Coding:** Writing instructions in a language computers understand to perform specific tasks.
  - **Project Management:** The process of organizing tasks and tracking progress to complete a project.
- 

## Using This Section

- **Introduce Concepts in Context:** Present these terms and skills in context, relating them to daily project tasks so students understand their practical importance.
  - **Skill Building Across Activities:** Emphasize how each activity will help students gain and practice these skills, which are fundamental for future projects and career paths.
  - **Quick Reference Glossary:** Keep this glossary accessible throughout the project to help both teachers and students reinforce their understanding of new terms.
- 

## Teacher Guideline 3: Flexible Options for Lower-Tech Classrooms

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This section provides **non-digital alternatives** for each project and activity, helping teachers adapt projects to classrooms with limited technology resources. Each activity includes an **offline option** using common classroom materials or low-tech tools, allowing teachers to achieve the same learning goals without relying heavily on computers or internet access.

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## 1. Canva (Graphic Design Basics)

- **Purpose:** Instead of Canva, students can use **colored paper, markers, and glue** to create posters or designs by hand.
  - **Alternative Steps:**
    1. **Brainstorm & Sketch:** Have students sketch their design ideas on paper first, planning colors, shapes, and text.
    2. **Create the Poster:** Provide colored paper, markers, scissors, and glue for students to create a poster or design.
    3. **Present:** Students present their designs to the class, explaining their choices just as they would if created digitally.
  - **Goal Achieved:** Students learn basic design principles, practice creativity, and share their work, just as they would on Canva.
- 

## 2. Google Forms (Data Collection)

- **Purpose:** For data collection, use **paper surveys** instead of Google Forms.
  - **Alternative Steps:**
    1. **Create a Survey:** Write survey questions on a large sheet of paper or chalkboard. Students copy questions onto their own papers or teachers provide printed handouts.
    2. **Collect Responses:** Each student asks family or classmates to answer the survey questions and records responses by hand.
    3. **Discuss Results:** Students tally responses and analyze results as a class, discussing patterns and trends.
  - **Goal Achieved:** Students learn the basics of data collection, develop survey questions, and analyze responses without needing an online form.
- 

## 3. Scratch Jr. / Scratch (Basic Coding Concepts)

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- **Purpose:** Instead of using Scratch, introduce **coding concepts with role-playing or written instructions.**
  - **Alternative Steps:**
    1. **Define “Instructions”:** Explain that coding involves giving clear instructions, just like following a recipe.
    2. **Create a Simple “Code”:** Write simple instructions for students to follow, such as “Move 2 steps forward, turn left, jump.” This simulates basic coding commands.
    3. **Role-Playing Game:** Assign students to be “computers” and “programmers” and have them follow each other’s instructions to understand coding.
  - **Goal Achieved:** Students understand basic coding principles (sequences, commands) through role-play, preparing them for digital coding later on.
- 

#### 4. Trello (Project Management)

- **Purpose:** Replace Trello with a **physical task board** in the classroom.
  - **Alternative Steps:**
    1. **Set Up a Task Board:** Divide a whiteboard, corkboard, or wall into sections: “To Do,” “In Progress,” and “Done.”
    2. **Create Task Cards:** Write tasks on sticky notes or index cards and place them under “To Do.”
    3. **Move Tasks Physically:** As tasks are completed, students move the sticky notes to “In Progress” and then “Done,” visually tracking project progress.
  - **Goal Achieved:** Students learn project management basics with a physical board, gaining the same organizational skills they would on Trello.
- 

#### 5. Google Sheets (Data Analysis Basics)

- **Purpose:** For data visualization, use **graph paper and markers** instead of Google Sheets.
- **Alternative Steps:**
  1. **Record Data by Hand:** Students list data (e.g., favorite animals or colors) on paper.

2. **Create a Graph:** On graph paper, students create a bar chart or pie chart representing the data they collected.
  3. **Discuss Findings:** Students share their hand-drawn graphs with the class, explaining what the data shows.
- **Goal Achieved:** Students practice data visualization and interpretation skills using manual tools, allowing them to analyze and present data without digital software.
- 

### How to Use These Alternatives

- **Flexible Planning:** Teachers can choose to follow digital or non-digital versions based on classroom resources. These options allow for flexible lesson planning and ensure each student can fully participate.
  - **Encouraging Creativity:** Using hands-on materials like paper, markers, and role-play introduces new elements of creativity, helping students relate abstract concepts to tangible experiences.
  - **Achieving Learning Goals:** Whether digital or physical, these alternatives achieve the same learning objectives in each project, ensuring that all students gain valuable skills in data collection, analysis, design, and project management.
- 

By providing these **low-tech options**, teachers can adapt each project and activity to the resources available, making the content accessible to all classrooms.

Next, we'll move to the **Clear Role Descriptions for Teachers and Students** section, which defines specific responsibilities for each Lesson's activity.

### Teacher Guideline 4 - Student Motivation and Engagement Tips

This section offers **practical strategies** to help teachers keep students engaged and motivated as they explore AI, data science, and project-based learning. From setting small goals to celebrating achievements, these tips focus on making learning enjoyable and helping students build confidence as they develop new skills.

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## 1. Use Gamification Techniques

- **Create Mini-Challenges:** Turn activities into small challenges, such as a “Data Detective” day where students have to uncover patterns in a dataset or a “Design Sprint” where they brainstorm solutions quickly.
- **Reward Progress:** Offer digital badges or certificates for completing key milestones (e.g., “Survey Creator,” “Data Visualizer”), which can be printed or displayed in the classroom.
- **Make It Collaborative:** Allow students to earn points as teams, motivating them to work together and encourage each other.

## 2. Set Clear, Achievable Goals

- **Daily and Weekly Goals:** Break down the 10-Lesson program into daily goals so students know what to expect and can celebrate small wins.
- **Visual Progress Tracker:** Use a board to track the class’s progress, where students can move a marker or add a sticker when a Lesson’s tasks are complete, creating a sense of collective accomplishment.

## 3. Foster Curiosity and Relevance

- **Relate Projects to Real Life:** Show students how each activity is relevant to their lives, like explaining how data collection helps companies decide on new toy designs.
- **Encourage Questions:** Create an “Ask Anything” box where students can submit questions about AI, data science, or any topic that piques their interest. Spend a few minutes each day addressing these questions.
- **Introduce Real-World Examples:** Share age-appropriate examples of AI in action, like how Google Maps uses data to predict traffic or how Netflix suggests movies based on viewing history.

## 4. Celebrate Progress and Effort, Not Just Results

- **Acknowledge Effort:** Highlight students’ hard work and creativity, especially when they try something new or face challenges, reinforcing a growth mindset.
- **Showcase Student Work:** Create a “Student Spotlight” wall or virtual board to display projects, survey results, and designs, celebrating each student’s contributions.

- **Share Success Stories:** Occasionally share stories about young inventors, tech entrepreneurs, or environmental activists who made a difference with creative ideas, inspiring students to think about their potential.

## 5. Encourage Reflection and Self-Assessment

- **End-of-Lesson Reflections:** Have students write or share one thing they learned and one question they have after each Lesson's activity, helping them process what they've gained.
- **Weekly Journaling:** Encourage students to keep a weekly journal of their experiences, including what they enjoyed, what they found challenging, and what they're excited to try next.
- **Peer Feedback:** Create moments for students to share and receive constructive feedback from peers, fostering collaboration and growth.

## 6. Make Learning Fun with Hands-On Activities

- **Incorporate Art and Creativity:** Allow students to incorporate drawings, crafts, or physical models in their projects, especially for roles like the Solution Designer or Digital Marketer.
- **Allow Free Exploration:** Give students "exploration days" where they can use tools like Canva or Scratch for their own mini-projects, letting them practice skills in a low-pressure setting.
- **Involve the Class in Problem-Solving:** Let students take ownership of small project decisions, like choosing survey topics or deciding on themes for presentations, fostering autonomy and pride in their work.

## 7. Create an Inclusive and Supportive Environment

- **Encourage Teamwork:** Pair students with different strengths so they can support each other, learning from each other's skills and experiences.
- **Celebrate Diversity:** Recognize and appreciate diverse ideas, reinforcing that every perspective adds value to the project.
- **Provide Extra Support:** For students who may need extra help with digital tools or understanding concepts, set aside time for one-on-one assistance or pair them with a more confident peer.

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### Using These Tips in the Classroom

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- **Daily Check-Ins:** Begin each day with a brief check-in, asking students how they're feeling about the project and addressing any concerns. This builds rapport and shows students their engagement matters.
- **Make Learning Visible:** Use visual progress trackers, displays, or badges so students can see and celebrate their growth.
- **Feedback Loop:** Use the reflections and self-assessments to adjust the pacing or focus of activities as needed, keeping students motivated.

With these **motivation and engagement tips**, teachers can make each activity dynamic, enjoyable, and meaningful for students, encouraging sustained enthusiasm and participation throughout the 10-Lesson program.

## Teacher Guideline 5 - Assessment Guidelines

This section provides **structured assessment criteria** to help teachers evaluate students' learning progress and engagement throughout each project. Assessments are designed to be **flexible and holistic**, with a focus on skills, creativity, and teamwork rather than just final results.

### 1. Assessment Categories

- **Knowledge and Understanding:** Measures students' grasp of AI, data science, and technology basics.
- **Skills Development:** Evaluates hands-on skills like data collection, coding, and digital design.
- **Engagement and Participation:** Assesses each student's level of involvement, curiosity, and teamwork.
- **Creativity and Problem-Solving:** Looks at students' ability to innovate, think critically, and adapt to challenges.
- **Ethical and Moral Development:** Observes students' understanding of ethical considerations, teamwork, and social responsibility in their projects.

### 2. Suggested Assessment Criteria by Role

Each role has specific criteria to assess students' skill development and contribution to the project.

- **AI-Powered Market Researcher**
  - **Data Collection Quality:** Accuracy and relevance of survey questions and data collection.

- **Interpretation:** Ability to identify trends or patterns in data and articulate findings.
- **Presentation:** Clarity and effectiveness in presenting research results.
- **AI-Powered Data Analyst**
  - **Data Organization:** Completeness and organization of data entries.
  - **Visualization:** Effectiveness of graphs and charts in representing data insights.
  - **Analysis:** Depth of interpretation, including spotting patterns and summarizing key findings.
- **AI-Based Solution Designer**
  - **Creativity:** Originality and practicality of design ideas.
  - **Functionality:** Relevance of design in addressing the project problem.
  - **Presentation Skills:** Ability to clearly explain the design choices and project plan.
- **AI-Based Solution Developer**
  - **Coding Basics:** Proficiency in basic coding commands, sequences, and logic.
  - **Technical Understanding:** Ability to debug, improve, and complete simple code.
  - **Project Application:** How well the code contributes to solving the problem.
- **AI-Powered Digital Marketer**
  - **Creativity in Marketing:** Innovation and appeal of digital content, logos, or posters.
  - **Audience Engagement:** Ability to design materials that capture interest.
  - **Communication Skills:** Clarity in expressing project goals and impact.

### 3. Sample Rubric for Holistic Assessment

Category	Criteria	Excellent	Satisfactory	Needs Improvement
<b>Knowledge and Understanding</b>	Understanding of concepts	Demonstrates thorough understanding of AI and data concepts	Shows general understanding of key concepts	Limited understanding, needs more support

<b>Skills Development</b>	Hands-on ability	Completes tasks with minimal guidance, applies tools effectively	Completes most tasks with guidance	Requires frequent help, lacks confidence
<b>Engagement and Participation</b>	Involvement in activities	Actively participates, takes initiative	Participates in most tasks, shows interest	Low engagement, needs encouragement
<b>Creativity and Problem-Solving</b>	Innovative thinking	Produces creative solutions, adapts to challenges	Produces workable solutions, accepts feedback	Limited creativity, struggles with problem-solving
<b>Ethical and Moral Development</b>	Teamwork and ethics	Consistently demonstrates responsibility and teamwork	Generally responsible, works well with others	Needs guidance to understand teamwork and ethics

#### 4. Reflective Self-Assessment

Encourage students to assess their own progress at the end of each week. Self-assessment questions could include:

- “What was the most interesting thing I learned this week?”
- “What skill am I most proud of practicing?”
- “What would I like to improve in the next project?”

#### Using These Assessment Guidelines

- **Flexible Application:** Teachers can use the rubric and criteria flexibly, adapting them to individual students' progress and needs.
- **Encouragement-Focused:** Emphasis is placed on effort, curiosity, and growth, encouraging students to enjoy the learning process.

- **Feedback Opportunities:** These assessments provide insights for teachers to give constructive feedback, helping students build confidence and refine their skills.

With these **Assessment Guidelines**, teachers have a clear framework to evaluate student progress, celebrate achievements, and offer constructive guidance throughout each project.



## Some of More Real life Problems mapped with Curriculum Concepts using AI and Industry Roles

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### 1. Community Garden with Recycled Materials - Grade 3,4

- **Industry:** Environmental Science
- **Problem:** How can we create a sustainable community garden using recycled materials to reduce waste?

- **Proposed Solution:** Design a community garden where all materials used are sourced from recycling, and develop a system to track material usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Collect data on recycling habits, garden layouts, and analyze the effectiveness of recycled materials.
  - **AI-Based Solution Designer & Developer:** Design the garden layout using digital tools, focusing on sustainability and innovative design.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project timeline, create promotional materials for the community, and raise awareness on environmental benefits.

## Assessments

### Curriculum Assessment:

- **Science:** Understanding plant life cycles, ecosystems, recycling, and environmental sustainability.
- **Math:** Measurement (garden dimensions), data handling (tracking material usage).
- **English:** Writing reports on the design, recycling processes, and presenting findings to the class or community.
- **Social Studies:** Understanding community involvement and the role of individuals in environmental responsibility.

### Ethical & Moral Development:

- Promoting sustainability, resource conservation, and teamwork.

### Industry Interest:

- Developing interest in environmental science and sustainability.

### Role Performance:

- **Market Researcher:** Data collection and analysis accuracy.
- **Solution Designer:** Creativity and practicality in garden design.
- **Digital Marketer:** Effectiveness in promotion and project management.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie.

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## 2. Designing a Solar-Powered Device - Grade 3,4

- **Industry:** Renewable Energy
- **Problem:** How can we use solar energy more efficiently in homes and schools?
- **Proposed Solution:** Design a solar-powered device (e.g., a small fan or light) and track its energy usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Research solar energy usage in homes and schools, analyze data on energy efficiency.
  - **AI-Based Solution Designer & Developer:** Design a functional solar-powered device and develop a visual prototype.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project, create awareness campaigns on solar energy benefits, and coordinate tasks.

### **Assessment:**

#### **Curriculum Assessment:**

- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy tracking) and data analysis (efficiency calculations).
- **English:** Writing manuals on how the solar-powered device works and presenting findings.
- **Technology:** Introduction to basic electronics and renewable energy systems.

#### **Ethical & Moral Development:**

- Promoting responsible energy use and clean energy.

#### **Industry Interest:**

- Sparking interest in renewable energy technologies.

#### **Role Performance:**

- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Creativity and innovation in solar device design.
- **Digital Marketer:** Effectiveness in promoting solar energy usage.

Tools: Canva, Figma, Google Sheets, Google Docs, Microsoft Excel, Trello, ChatGPT, CallAnnie.

### 3. Animal Habitat Conservation Project - Grade 3,4

- **Industry:** Wildlife Conservation
- **Problem:** How can we protect animal habitats and promote conservation?
- **Proposed Solution:** Create a model of an animal habitat and propose solutions to protect the species living there.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research animal habitats and analyze data on endangered species.
- **AI-Based Solution Designer & Developer:** Create a model of an animal habitat using recycled materials.
- **AI-Based Digital Marketer & Project Manager:** Create educational materials and campaigns to raise awareness about animal conservation.

#### Grade 3 Curriculum Assessment:

- **Science:** Animal habitats, ecosystems, conservation.
- **Math:** Data collection and graphing on animal populations.
- **English:** Writing reports on endangered species and creating presentations on conservation.
- **Social Studies:** Understanding the impact of human activities on wildlife.

#### Ethical & Moral Development:

- Understanding environmental responsibility and protecting wildlife.

#### Industry Interest:

- Interest in wildlife conservation and environmental protection.

#### Role Performance:

- **Market Researcher:** Quality of research on animal habitats.
- **Solution Designer:** Creativity in designing the habitat model.
- **Digital Marketer:** Effectiveness in promoting awareness campaigns.

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**Tools:**

- Canva, Figma, Google Docs, Google Forms, Trello, Microsoft Excel, ChatGPT, CallAnnie.

**4. Building a Water Filtration System - Grade 3,4**

- **Industry:** Environmental Engineering
- **Problem:** How can we create a simple, effective water filtration system to provide clean water?
- **Proposed Solution:** Design and build a basic water filtration system using accessible materials.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the effectiveness of water filtration systems and collect data on clean water access.
- **AI-Based Solution Designer & Developer:** Design and build the water filtration system using simple materials.
- **AI-Based Digital Marketer & Project Manager:** Create campaigns to educate the community on water filtration and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Water filtration processes, the water cycle.
- **Math:** Measurement (volume of water filtered) and comparison of water quality data.
- **English:** Writing reports on the water filtration process and results.
- **Social Studies:** Understanding the importance of clean water access.

**Ethical & Moral Development:**

- Promoting sustainability, water conservation, and clean water access.

**Industry Interest:**

- Interest in environmental engineering and public health solutions.

**Role Performance:**

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- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Practicality of the water filtration system.
- **Digital Marketer:** Clarity in educational campaigns on clean water access.

**Tools:**

- **Canva, Trello, Google Sheets, Microsoft Excel, Figma, Google Forms, ChatGPT, CallAnnie.**

**5. Creating a Basic Weather Station - Grade 3,4**

- **Industry:** Meteorology
- **Problem:** How can we monitor local weather and make predictions based on collected data?
- **Proposed Solution:** Build a simple weather station and collect data on temperature, rainfall, and wind patterns.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research weather patterns and analyze local weather data.
- **AI-Based Solution Designer & Developer:** Design and build a basic weather station using available materials.
- **AI-Based Digital Marketer & Project Manager:** Create weather reports and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Weather patterns, atmospheric changes.
- **Math:** Recording and analyzing weather data.
- **English:** Writing weather reports and documenting data findings.
- **Technology:** Using sensors to monitor weather conditions.

**Ethical & Moral Development:**

- Understanding weather patterns and environmental preparedness.

**Industry Interest:**

- Interest in meteorology and climate science.

**Role Performance:**

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- **Market Researcher:** Accuracy in data collection.
- **Solution Designer:** Functionality of the weather station design.
- **Digital Marketer:** Effectiveness in promoting weather awareness.

**Tools:**

- **Google Sheets, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

## 6. Designing a Recycled Art Exhibition - Grade 3,4

- **Industry:** Creative Arts and Environmental Awareness
- **Problem:** How can we use art to promote recycling and sustainability?
- **Proposed Solution:** Design and create art pieces from recycled materials and hold an exhibition.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the use of recycled materials in art and analyze environmental impacts.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create simple animations showcasing how recycled materials are transformed into art.
- **AI-Based Digital Marketer & Project Manager:** Promote the exhibition and manage the timeline, raising awareness of recycling through art.

**Grade 3 Curriculum Assessment:**

- **Science:** Recycling, material science.
- **Math:** Estimation, measurement of materials.
- **English:** Writing descriptions for the art pieces, creating promotional content.
- **Art:** Designing creative, sustainable art from recycled materials.

**Ethical & Moral Development:**

- Promoting environmental sustainability and creativity through recycling.

**Industry Interest:**

- Creative arts, design, and environmental awareness.

**Role Performance:**

- **Market Researcher:** Effectiveness in researching the use of recycled materials.
- **Solution Designer:** Creativity in the design and transformation of recycled materials into art.
- **Digital Marketer:** Success in promoting the exhibition.

**Tools:**

- **Canva, Figma, Scratch Junior, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

**7. Community Helpers Documentary Project - Grade 3,4**

- **Industry:** Social Studies and Media
- **Problem:** How can we showcase the important roles of community helpers?
- **Proposed Solution:** Create a short documentary highlighting different community helpers and their contributions.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research various community helper roles and collect data on their contributions.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to create a simple app for learning about community helpers through interactive content.
- **AI-Based Digital Marketer & Project Manager:** Promote the documentary and app through social media campaigns and manage the project timeline.

**Grade 3 Curriculum Assessment:**

- **Social Studies:** Understanding the role of community helpers.
- **English:** Writing interview questions, documentary scripts.
- **Technology:** Using video editing software and **MIT App Inventor** for the project.
- **Art:** Creating visual aids and posters to promote the documentary.

**Ethical & Moral Development:**

- Promoting respect and appreciation for community helpers.

**Industry Interest:**

- Media production, journalism, and social services.

**Role Performance:**

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- **Market Researcher:** Depth and accuracy of research on community helpers.
- **Solution Designer:** Creativity in designing the interactive app.
- **Digital Marketer:** Effectiveness of promotional campaigns.

#### **Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Adobe Premiere Rush (for video editing), Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **8. Designing a School Recycling Program - Grade 3,4**

- **Industry:** Environmental Management
- **Problem:** How can we reduce waste at school by implementing a recycling program?
- **Proposed Solution:** Design a school-wide recycling program using **MIT App Inventor** to build an app that tracks recycling habits.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the school's current waste management practices and collect data on recycling efforts.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design an app that tracks recycling efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the recycling program through digital campaigns and manage the timeline.

#### **Grade 3 Curriculum Assessment:**

- **Science:** Waste management, recycling.
- **Math:** Data collection and analysis of waste reduction.
- **English:** Writing proposals and reports on recycling.
- **Social Studies:** Community responsibility for environmental protection.

#### **Ethical & Moral Development:**

- Promoting responsibility for environmental sustainability and reducing waste.

#### **Industry Interest:**

- Environmental management and sustainability.

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**Role Performance:**

- **Market Researcher:** Thoroughness in collecting and analyzing data on waste management.
- **Solution Designer:** Practicality and effectiveness of the recycling program app.
- **Digital Marketer:** Success in promoting recycling efforts.

**Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

**9. Creating a Basic Coding Project Using Scratch - Grade 3,4,5**

- **Industry:** Technology and Coding
- **Problem:** How can we use basic coding to create a fun, interactive project?
- **Proposed Solution:** Design a simple game or animation using **Scratch Junior**.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Analyze student preferences for coding projects, collect data on popular game themes.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to design and code the game or animation.
- **AI-Based Digital Marketer & Project Manager:** Promote the coding project to classmates, collect feedback on the game.

**Grade 3 Curriculum Assessment:**

- **Technology:** Introduction to coding and programming logic.
- **Math:** Logical sequencing and problem-solving.
- **English:** Writing instructions and documenting the coding process.
- **Art:** Designing characters and visual elements in the coding project.

**Ethical & Moral Development:**

- Promoting collaboration and responsible technology use.

**Industry Interest:**

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- Programming, game design, and technology development.

#### **Role Performance:**

- **Market Researcher:** Effectiveness in collecting and analyzing coding project preferences.
- **Solution Designer:** Creativity and functionality in the design of the game.
- **Digital Marketer:** Effectiveness in promoting the game.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

### **10. Local History and Culture Exploration - Grade 3,4**

- **Industry:** Social Studies and History
- **Problem:** How can we learn about the local history and culture of our community?
- **Proposed Solution:** Create a visual representation of local history using **Scratch Junior** to develop simple animations or interactive visuals.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research and collect data on local history and cultural events.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create interactive animations or visuals of historical events.
- **AI-Based Digital Marketer & Project Manager:** Promote the project and manage the research timeline.

#### **Grade 3 Curriculum Assessment:**

- **Social Studies:** Local history, traditions, and culture.
- **English:** Writing research reports and presenting findings.
- **Art:** Creating visual representations of historical events.
- **Technology:** Using online tools for research and design.

#### **Ethical & Moral Development:**

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- Promoting respect for cultural diversity and historical preservation.

**Industry Interest:**

- History, research, and digital storytelling.

**Role Performance:**

- **Market Researcher:** Thoroughness of research on local history.
- **Solution Designer:** Creativity in designing the historical timeline.
- **Digital Marketer:** Effectiveness in promoting cultural awareness.

**Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

**11. Smart Water Conservation System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can we use technology to reduce water waste in schools and homes?
- **Proposed Solution:** Design a system that monitors water usage and suggests ways to conserve water.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Collect data on water usage and analyze where most water is being wasted.
- **AI-Based Solution Designer & Developer:** Design a water conservation system using digital tools and sensors.
- **AI-Based Digital Marketer & Project Manager:** Manage the timeline and create awareness campaigns to promote water conservation.

**Assessments:**

- **Curriculum Assessment:**
  - **Science:** Water cycle, water conservation, ecosystems.
  - **Math:** Measurement (tracking water usage), data handling.
  - **English:** Writing reports and presentations on water conservation.

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- **Social Studies:** Understanding global water issues and community involvement in conservation.

### Ethical & Moral Development:

- Teaching responsibility for conserving natural resources.

### Industry Interest:

- Fostering interest in environmental engineering and water management.

### Role Performance:

- **Market Researcher:** Accuracy in data collection on water usage.
- **Solution Designer:** Practicality of the water conservation system design.
- **Digital Marketer:** Effectiveness of water conservation promotion.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie, MIT App Inventor.

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## 12. Designing a Solar-Powered Classroom - Grade 4,5

- **Industry:** Renewable Energy
- **Problem:** How can we make classrooms more energy-efficient using solar power?
- **Proposed Solution:** Design a system that powers the classroom with solar panels and track energy savings.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research solar energy usage and analyze energy savings data.
- **AI-Based Solution Designer & Developer:** Design the solar-powered system for the classroom using digital tools.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to encourage solar power usage and manage the project.

### Assessments:

- **Curriculum Assessment:**

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- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy usage), data analysis.
- **English:** Writing reports on energy savings and presenting the solar system design.
- **Technology:** Understanding renewable energy technologies and systems.

### **Ethical & Moral Development:**

- Promoting responsible use of energy and sustainable living.

### **Industry Interest:**

- Renewable energy technology and environmental sciences.

### **Role Performance:**

- **Market Researcher:** Quality of research and data analysis.
- **Solution Designer:** Innovation in the solar power system design.
- **Digital Marketer:** Promotion effectiveness and project management.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

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## **13. Eco-Friendly Transportation Solutions - Grade 3,4,5**

- **Industry:** Transportation and Sustainability
- **Problem:** How can we create a transportation system that reduces pollution and energy usage?
- **Proposed Solution:** Design a transportation system (e.g., bicycles, electric buses) that minimizes pollution and energy consumption.

### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research current transportation methods and analyze their environmental impact.
- **AI-Based Solution Designer & Developer:** Design an eco-friendly transportation model.
- **AI-Based Digital Marketer & Project Manager:** Promote the benefits of eco-friendly transportation and manage project timelines.

## Assessments:

- **Curriculum Assessment:**
  - **Science:** Energy sources, pollution, and transportation systems.
  - **Math:** Data handling and analysis on energy use.
  - **English:** Writing proposals for the eco-friendly transportation system.
  - **Social Studies:** Understanding transportation's impact on society and the environment.

## Ethical & Moral Development:

- Promoting responsibility for reducing pollution and protecting the environment.

## Industry Interest:

- Sustainable transportation and environmental engineering.

## Role Performance:

- **Market Researcher:** Quality of research on transportation systems.
- **Solution Designer:** Creativity in designing eco-friendly transportation.
- **Digital Marketer:** Effectiveness in promoting the system and managing the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Google Docs, ChatGPT, CallAnnie.

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## 14. Virtual Health Clinic Simulation - Grade 4,5

- **Industry:** Health/Medicine
- **Problem:** How can we use technology to make healthcare more accessible and efficient?
- **Proposed Solution:** Design a virtual health clinic that uses AI to simulate patient consultations and monitor health metrics.

## AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze data on healthcare access and patient needs.

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- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design a virtual health clinic that offers AI-driven patient monitoring.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual clinic and manage project timelines.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Human body, healthcare, technology in medicine.
  - **Math:** Data analysis on patient health metrics.
  - **English:** Writing patient reports and presenting healthcare solutions.
  - **Technology:** Understanding AI applications in healthcare.

#### **Ethical & Moral Development:**

- Promoting empathy, access to healthcare, and patient privacy.

#### **Industry Interest:**

- Health technologies, telemedicine, and patient care.

#### **Role Performance:**

- **Market Researcher:** Accuracy in healthcare data analysis.
- **Solution Designer:** Innovation in creating a virtual health clinic.
- **Digital Marketer:** Success in promoting the clinic.

**Tools:** MIT App Inventor, Figma, Trello, Canva, Google Docs, ChatGPT, CallAnnie.

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#### **15. Climate Change Awareness Campaign - Grade 4,5**

- **Industry:** Environmental Science
- **Problem:** How can we raise awareness about climate change and its effects on our environment?
- **Proposed Solution:** Design an awareness campaign that educates the public about climate change through digital tools.

#### **AI-Based Roles:**

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- **AI-Based Market Researcher & Data Analyst:** Research climate change effects and collect data on public awareness.
- **AI-Based Solution Designer & Developer:** Create an interactive presentation or website to educate the public on climate change.
- **AI-Based Digital Marketer & Project Manager:** Manage the awareness campaign and promote it using digital tools.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Climate change, ecosystems, sustainability.
  - **Math:** Data analysis of climate trends.
  - **English:** Writing reports and creating climate awareness materials.
  - **Social Studies:** Understanding the societal impact of climate change.

#### **Ethical & Moral Development:**

- Promoting awareness of environmental responsibility and the impact of human activities on the planet.

#### **Industry Interest:**

- Climate science, environmental policy, and digital marketing.

#### **Role Performance:**

- **Market Researcher:** Depth of research on climate change.
- **Solution Designer:** Effectiveness of the digital campaign design.
- **Digital Marketer:** Impact of the awareness campaign and its reach.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

## **16. Designing a Smart Waste Management System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can cities optimize waste collection and reduce environmental impact?
- **Proposed Solution:** Develop a model that uses sensors and data analysis to optimize waste collection routes and schedules.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current waste management practices and analyze data on waste production.
- **AI-Based Solution Designer & Developer:** Design a system that uses sensors to track waste levels and optimize collection routes.
- **AI-Based Digital Marketer & Project Manager:** Manage the project timeline and create awareness materials to educate the community on waste management.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Waste management, environmental impact.
  - **Math:** Data analysis and route optimization.
  - **English:** Writing reports and presenting the waste management solution.
  - **Social Studies:** Understanding the societal and environmental impact of waste management.

### Ethical & Moral Development:

- Promoting environmental responsibility and efficient resource management.

### Industry Interest:

- Environmental engineering and waste management.

### Role Performance:

- **Market Researcher:** Quality of research on waste management systems.
- **Solution Designer:** Innovation and practicality in designing the waste management system.
- **Digital Marketer:** Success in promoting the solution.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, ChatGPT, CallAnnie.

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## 17. Creating a Local History and Culture Website - Grade 5,6

- **Industry:** Social Studies and Media

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- **Problem:** How can we preserve and showcase the local history and culture of our community?
- **Proposed Solution:** Create a website that presents key historical events, cultural artifacts, and traditions of the local community.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research local history and culture, analyze historical data.
- **AI-Based Solution Designer & Developer:** Design and build the website using digital tools to present local history.
- **AI-Based Digital Marketer & Project Manager:** Promote the website and manage the project timeline.

#### Assessments:

- **Curriculum Assessment:**
  - **Social Studies:** Local history, traditions, and community.
  - **English:** Writing articles and creating content for the website.
  - **Technology:** Website design and development.
  - **Art:** Designing the visual layout of the website.

#### Ethical & Moral Development:

- Teaching respect for cultural diversity and the importance of preserving local history.

#### Industry Interest:

- Media production, digital storytelling, and local history.

#### Role Performance:

- **Market Researcher:** Depth and accuracy of historical research.
- **Solution Designer:** Creativity in designing the website layout.
- **Digital Marketer:** Effectiveness in promoting the website.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

## 18. Designing an Eco-Friendly School Playground - Grade 4,5

- **Industry:** Environmental Science and Design
- **Problem:** How can we design a school playground that minimizes environmental impact and promotes sustainability?
- **Proposed Solution:** Design a playground using sustainable materials and renewable energy sources (e.g., solar-powered lights).

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research eco-friendly materials and playground designs.
- **AI-Based Solution Designer & Developer:** Design the playground layout using sustainable materials.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to raise awareness about the eco-friendly playground and manage project timelines.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Sustainable materials, renewable energy.
  - **Math:** Measurement and calculation of playground dimensions.
  - **English:** Writing proposals for the playground design.
  - **Art:** Designing the layout of the eco-friendly playground.

### Ethical & Moral Development:

- Promoting sustainability and environmental responsibility.

### Industry Interest:

- Environmental design, landscape architecture, and sustainability.

### Role Performance:

- **Market Researcher:** Accuracy in researching eco-friendly materials.
- **Solution Designer:** Creativity in designing the playground layout.
- **Digital Marketer:** Effectiveness in raising awareness about the playground.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Microsoft Excel, Google Forms, ChatGPT, CallAnnie.

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## 19. Building a Weather Station and Forecasting System - Grade 5,6

- **Industry:** Meteorology and Technology
- **Problem:** How can we create a weather station that helps monitor local weather conditions and forecast future trends?
- **Proposed Solution:** Build a simple weather station to monitor temperature, rainfall, and wind speed, and use data to create weather forecasts.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze weather data from the station.
- **AI-Based Solution Designer & Developer:** Design and build the weather station and integrate sensors for data collection.
- **AI-Based Digital Marketer & Project Manager:** Promote the weather station project and manage data presentation.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Weather systems, data collection, and analysis.
  - **Math:** Data handling and graphing weather data.
  - **English:** Writing weather reports and presenting findings.
  - **Technology:** Building and programming the weather station.

### Ethical & Moral Development:

- Promoting responsibility for environmental monitoring and preparedness.

### Industry Interest:

- Meteorology, climate science, and data analysis.

### Role Performance:

- **Market Researcher:** Thoroughness in collecting and analyzing weather data.
- **Solution Designer:** Effectiveness of the weather station design.
- **Digital Marketer:** Impact of promotional materials for the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

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## 20. Animal Habitat Preservation Project - Grade 5,6

- **Industry:** Wildlife Conservation and Environmental Science
- **Problem:** How can we protect endangered animal habitats and raise awareness about conservation efforts?
- **Proposed Solution:** Design a project that promotes habitat conservation and uses AI to monitor the health of local ecosystems.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research endangered species and analyze habitat loss data.
- **AI-Based Solution Designer & Developer:** Design an app or tool that tracks the health of animal habitats and promotes conservation efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the conservation project and manage community outreach.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Animal habitats, ecosystems, and conservation.
  - **Math:** Data analysis of habitat loss and species numbers.
  - **English:** Writing reports on conservation efforts and habitat protection.
  - **Social Studies:** Understanding human impact on the environment and the need for conservation.

### Ethical & Moral Development:

- Promoting respect for wildlife and the importance of conservation.

### Industry Interest:

- Wildlife conservation, environmental science, and technology.

### Role Performance:

- **Market Researcher:** Thoroughness in researching endangered species.

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- **Solution Designer:** Creativity in designing the conservation tool.
- **Digital Marketer:** Success in promoting conservation efforts.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

## 21. Designing an Eco-Friendly Sports Facility - Grade 5,6

- **Industry:** Environmental Science and Physical Education
- **Problem:** How can we design a sports facility that promotes physical activity and minimizes environmental impact?
- **Proposed Solution:** Create a layout for a sports facility that uses renewable energy, recycled materials, and water conservation practices.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current sports facility designs and analyze data on energy use and environmental impact.
- **AI-Based Solution Designer & Developer:** Design the facility layout using sustainable materials and renewable energy sources.
- **AI-Based Digital Marketer & Project Manager:** Create awareness campaigns promoting physical activity and environmental responsibility.

### Assessments:

- **Curriculum Assessment:**
  - **Physical Education:** Importance of physical activity and sports.
  - **Science:** Renewable energy, recycling, and environmental sustainability.
  - **Math:** Measurement and calculation of facility dimensions and energy savings.
  - **English:** Writing reports on the design and presenting it to the class or school community.

### Ethical & Moral Development:

- Promoting teamwork, physical activity, and environmental responsibility.

### Industry Interest:

- Physical education, environmental science, and sports management.

### Role Performance:

- **Market Researcher:** Quality of research on sports facility designs.
- **Solution Designer:** Creativity and practicality in designing the sports facility.
- **Digital Marketer:** Effectiveness in promoting the facility and encouraging physical activity.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 22. Creating a School Nutrition Program - Grade 5,6

- **Industry:** Health and Nutrition
- **Problem:** How can we improve student health through better nutrition?
- **Proposed Solution:** Design a healthy meal plan for the school cafeteria that considers balanced nutrition and promotes healthy eating habits.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research healthy meal plans and analyze data on student eating habits.
- **AI-Based Solution Designer & Developer:** Design a nutrition program for the school cafeteria, incorporating local, healthy food options.
- **AI-Based Digital Marketer & Project Manager:** Promote the nutrition program with educational campaigns on healthy eating.

### Assessments:

- **Curriculum Assessment:**
  - **Health Education:** Importance of balanced nutrition and healthy eating.
  - **Science:** Human body and nutrition.
  - **Math:** Measuring portion sizes, data analysis on food choices.
  - **English:** Writing reports on nutrition and presenting it to students and staff.

### Ethical & Moral Development:

- Promoting responsibility for personal health and well-being.

### Industry Interest:

- Nutrition, health sciences, and food management.

### Role Performance:

- **Market Researcher:** Quality of research on healthy food options.
- **Solution Designer:** Creativity and practicality in designing the meal plan.
- **Digital Marketer:** Success in promoting the program.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 23. Financial Literacy Market Simulation - Grade 4,5

- **Industry:** Business and Economics
- **Problem:** How can we teach students the basics of budgeting, saving, and spending?
- **Proposed Solution:** Create a virtual market where students simulate running a small business, including managing a budget and making financial decisions.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Analyze market trends and customer preferences.
- **AI-Based Solution Designer & Developer:** Design a virtual market simulation where students run a small business.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual market and manage business decisions.

### Assessments:

- **Curriculum Assessment:**
  - **Math:** Budgeting, financial planning, and data handling.
  - **English:** Writing reports and presenting business proposals.
  - **Social Studies:** Understanding economic principles and entrepreneurship.

### Ethical & Moral Development:

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- Teaching responsibility in financial decision-making and honesty in business practices.

#### Industry Interest:

- Business, economics, and entrepreneurship.

#### Role Performance:

- Market Researcher:** Effectiveness in researching market trends.
- Solution Designer:** Innovation and creativity in designing the business simulation.
- Digital Marketer:** Success in promoting the market.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 24. Building Instruments from Recycled Materials - Grade 3,4

- Industry:** Music and Performing Arts
- Problem:** How can we create musical instruments using recycled materials to promote sustainability and creativity?
- Proposed Solution:** Design and build musical instruments from recycled materials, then organize a school performance using these instruments.

#### AI-Based Roles:

- AI-Based Market Researcher & Data Analyst:** Research musical instruments made from recycled materials and analyze sound quality.
- AI-Based Solution Designer & Developer:** Design and build simple instruments using recycled materials.
- AI-Based Digital Marketer & Project Manager:** Organize and promote a school performance using the recycled instruments.

#### Assessments:

- Curriculum Assessment:**
  - Music:** Sound and music theory, performance skills.
  - Science:** Properties of materials, sound waves.

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- **Art:** Designing and building creative instruments.
- **English:** Writing descriptions of instruments and promoting the performance.

#### Ethical & Moral Development:

- Promoting creativity, resourcefulness, and environmental sustainability.

#### Industry Interest:

- Music, environmental science, and performing arts.

#### Role Performance:

- **Market Researcher:** Accuracy in researching recycled materials for instruments.
- **Solution Designer:** Creativity in instrument design.
- **Digital Marketer:** Effectiveness in promoting the performance.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 25. Peer Mentoring and Emotional Intelligence Program - Grade 3,4

- **Industry:** Social and Emotional Learning (SEL)
- **Problem:** How can we promote teamwork, leadership, and emotional intelligence in schools?
- **Proposed Solution:** Organize a peer mentoring program where older students help younger students solve academic or social challenges, fostering leadership and empathy.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect data on peer mentoring programs and analyze their effectiveness.
- **AI-Based Solution Designer & Developer:** Design a mentoring program that pairs students and includes emotional intelligence activities.
- **AI-Based Digital Marketer & Project Manager:** Promote the program within the school and manage the timeline.

#### Assessments:

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- **Curriculum Assessment:**

- **Social Studies:** Understanding leadership, teamwork, and community involvement.
- **English:** Writing reports and reflections on mentoring experiences.
- **Science:** Brain development and emotional intelligence.

### **Ethical & Moral Development:**

- Promoting empathy, leadership, and social responsibility.

### **Industry Interest:**

- Leadership development, education, and social services.

### **Role Performance:**

- **Market Researcher:** Quality of research on mentoring programs.
- **Solution Designer:** Creativity in designing emotional intelligence activities.
- **Digital Marketer:** Success in promoting the mentoring program.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie

# EAD Assessment Criteria

## Step 1 : Research & Data Collection

**Objective:** Gather real-world data related to the project using surveys and research.

**Tasks:**

1. Define the research problem and how AI can help solve it.
2. Design a **Google Forms** survey for data collection.
3. Distribute the survey to at least 10 people.
4. Collect and summarize responses.

 **Deliverables:**

- Research Report (1-page summary)
- Google Forms Survey (at least 10 responses)
- Short Video/Audio explaining findings

**Rubric: Research & Data Collection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Survey Structure</b>	Clear, well-organized, no bias, diverse questions	Mostly clear, some unclear wording	Basic structure, lacks variety in questions	Poorly structured, biased, or incomplete
<b>Data Collection</b>	10+ valid responses collected	7-9 responses, mostly valid	4-6 responses, some missing data	Less than 4 responses, missing critical data
<b>Research Depth</b>	Uses credible sources, includes AI integration	Good sources, some AI references	Limited sources, minimal AI discussion	No sources or AI discussion included

## Step 2.1: Data Analysis & Visualization

**Objective:** Organize and analyze collected data using charts and AI tools.

**Tasks:**

1. Input survey data into **Google Sheets**.
2. Use AI tools to identify patterns in the data.
3. Create visual representations (bar charts, pie charts, graphs).
4. Summarize findings in a short data analysis report.

 **Deliverables:**

- Data Spreadsheet (Google Sheets)
- AI-Generated Graphs/Charts
- Summary of Data Insights

**Rubric: Data Analysis & Visualization**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Data Organization</b>	Data is structured, accurate, and complete	Mostly structured, minor errors	Some organization issues, missing elements	Disorganized, missing major parts
<b>Visualization</b>	Graphs/charts are clear, well-labeled, insightful	Mostly clear, lacks full explanation	Basic graphs, limited insight	No graphs, unclear or missing labels
<b>Analysis Quality</b>	Identifies trends, includes AI insights	Identifies trends, some AI integration	Basic description, no AI insight	No analysis, data left unexplained

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## Step 2.2: User Interface (UI) Design

**Objective:** Design the user interface of the AI assistant using Figma.

**Tasks:**

1. Sketch a user-friendly layout for the AI assistant.
2. Use **Figma** to create a digital wireframe.
3. Ensure buttons, text fields, and chatbot interactions are clear.
4. Conduct a basic **usability test** for improvements.

 **Deliverables:**

- Figma Wireframe
- AI Usability Testing Summary
- User Experience Feedback Report

**Rubric: UI/UX Design**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Wireframe Design</b>	UI well-structured, follows best practices	Mostly clear but some UI issues	Basic layout, lacks usability	No wireframe or unclear layout
<b>User Experience</b>	Intuitive, easy-to-use navigation	Mostly clear, needs minor improvements	Some confusing UI elements	Poorly structured, difficult to use
<b>Usability Testing</b>	Feedback collected, applied improvements	Some usability feedback incorporated	Limited feedback, minimal changes	No usability test performed

---

## Step 3: AI Development & Coding

**Objective:** Build an AI-powered prototype or chatbot for recycling assistance.

**Tasks:**

1. Use **Scratch/Code.org** to develop a chatbot or AI simulation.
2. Implement AI logic to classify recyclable materials.
3. Debug and refine the AI's response accuracy.
4. Test AI functionality through multiple inputs.

📌 **Deliverables:**

- AI Prototype (Scratch/Code.org)
- Debugging Report
- Short Demo Video (Screen recording)

**Rubric: AI Development & Coding**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>AI Logic &amp; Functionality</b>	AI assistant fully functional, handles multiple inputs	Mostly functional, some errors	Basic function, lacks dynamic responses	Non-functional or incomplete code
<b>Coding Structure</b>	Well-organized, follows best practices	Mostly structured, minor redundancies	Some structure, inefficient code	Poorly structured, lacks clarity

<b>Debugging &amp; Refinement</b>	Errors fixed, AI accuracy optimized	Some minor bugs remain	Some debugging attempted	No debugging, significant errors remain
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## Step 5: Branding & Community Engagement

**Objective:** Develop branding materials and promote the AI assistant.

**Tasks:**

1. Use **Canva** to create a logo and branding kit.
2. Design a **poster or social media campaign**.
3. Share the AI assistant with the school or local community.
4. Collect user feedback on branding effectiveness.

 **Deliverables:**

- Canva-based Branding Kit (Logo, Social Media Post)
- Promotional Video or Flyer
- Social Media Campaign Post

**Rubric: Branding & Community Engagement**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Branding Consistency</b>	Logo, colors, and messaging are aligned	Mostly consistent, minor adjustments needed	Basic branding, lacks cohesion	No branding materials included
<b>Social Media Promotion</b>	Engaging, well-designed campaign	Mostly clear, minor visual issues	Basic design, lacks engagement	No social media promotion created
<b>Community Interaction</b>	Successfully reached audience, collected feedback	Some engagement, basic feedback	Limited engagement, no feedback	No promotion or engagement

---

## Step 6: Final Presentation & Reflection

**Objective:** Present the AI assistant, insights, and learning reflections.

**Tasks:**

1. Create a **Google Slides** presentation summarizing the project.
2. Include problem statement, AI features, data insights, branding elements.
3. Deliver a **5-minute presentation**.
4. Write a **reflection essay** on key learnings.

 **Deliverables:**

- Google Slides Presentation
- 5-Minute Video Presentation
- Final Reflection Essay

**Rubric: Final Presentation & Reflection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Presentation Structure</b>	Clear, well-organized, engaging visuals	Mostly clear, some structural issues	Basic slides, lacks flow	Poorly structured, minimal effort
<b>Delivery &amp; Speaking Skills</b>	Confident, clear speech, interactive	Mostly clear, minor hesitations	Needs more confidence, lacks clarity	Unclear delivery, minimal engagement
<b>Reflection Depth</b>	Thoughtful analysis, strong learning points	Good insights, some areas could be deeper	Basic reflections, lacks depth	No reflection, minimal engagement

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# EAD - AI Powered Kids Incubator

## Level 2 - (Grade 3 - 5)

**Guided Booklet for Schools / Teachers / Parents - Complete Day by Day Roadmap to include kids for AI powered PBL for kids**

(Recommended - At Least 2 Projects / Year for every Kid)

(20 Days - Day by Day Guided Tasks with 1 Project execution)

[\*\*Register Here\*\*](#) to get

- **Free 2025 Subscription on EAD AI-Powered Incubator Platform Level 2(Grade 3 - 5) and Level 3(Grade 6 - 8) Launch** to develop kids with AI and Entrepreneurship
- Teacher Training

Website - <https://technogroup.ai/>

LinkedIn - <https://www.linkedin.com/company/tgo-ead/>

Company Upwork Profile - <https://www.upwork.com/agencies/technogroup/>

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## Introduction

Welcome to **EarlyAgeDevelopment (EAD)**, an AI-powered Kids Incubator designed to prepare young minds for the world of tomorrow! This book is your guide to unlocking the potential of students in grades 3-5 through project-based learning (PBL) that blends core curriculum subjects with real-world problem-solving. By aligning critical thinking, creativity, and collaboration with essential skills, we aim to create an immersive, engaging learning experience that goes beyond traditional education.

At EAD, we believe that every child is capable of making a difference. By engaging in AI-driven projects, students not only gain practical skills but also explore industry applications, from understanding how data informs decisions to creating chatbots that enhance customer interactions. This journey empowers them with insights and tools to shape their future.

### Mission

Our mission at EarlyAgeDevelopment is to inspire and empower young learners with hands-on experiences in AI-driven roles, cultivating curiosity, creativity, and the skills needed to thrive in an ever-evolving world. Through aligned projects, we support both academic growth and real-world preparedness, ensuring students are equipped for the future of work where AI and technology drive every industry.

### Vision

We envision a world where students can bridge school learning with real-world applications seamlessly. Through AI-enhanced, project-based learning, we aspire to foster a generation of problem-solvers, innovators, and leaders who understand their potential across diverse fields. With a focus on creativity, sustainability, and future readiness, EAD provides a path for students to develop skills for tackling global challenges in an AI-powered landscape.

### Why Project-Based Learning (PBL)?

At EAD, we believe students learn best through active engagement. **Project-Based Learning (PBL)** connects academic subjects with industry-aligned, practical projects, making education relevant and exciting. Our projects are crafted to:

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- **Encourage Collaboration:** Students take on roles that reflect real-world, AI-powered careers, promoting teamwork and shared purpose.
- **Foster Critical Thinking:** By addressing industry-specific challenges, students learn to think critically and devise innovative solutions.
- **Promote Creativity:** Through design, development, and presentation, students exercise their creativity while exploring new ideas.

### AI-Powered Roles for Future-Ready Skills

AI is transforming careers across all industries, and our program introduces students to the following future-critical roles:

- **Market Researcher & Data Analyst (Problem Researcher and Data Analyst Kid):** Gathering insights and analyzing data to inform decisions and strategies.
- **AI-Based Solution Architect (Solution Designer Kid):** Using design thinking and development skills to build real-world solutions.
- **AI-Based Digital Marketer & Project Manager (Presenter Kid):** Learning to promote projects, manage timelines, and engage communities effectively.

By exposing students to these roles, we prepare them with an essential understanding of AI and its applications, better positioning them for the future workforce.

### How This Book Prepares Students for the Future

This book equips students to meet curriculum goals while gaining an understanding of how AI impacts industries. The skills they acquire—data analysis, design, development, and project management—are integral to thriving in tomorrow's careers. These projects, designed to be both enjoyable and meaningful, make learning an exciting journey with real impact.

---

## How to Use This Book

This guide is designed for teachers, parents, and students, offering a hands-on, project-based learning (PBL) experience tailored for grades 3-5. Each project connects real-world problems with AI-powered roles, engaging students in activities that build problem-solving and critical thinking. The three core roles—Market Researcher & Data Analyst, Designer & Developer, and Digital Marketer & Project Manager—integrate STEM, language arts, and environmental science.

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Projects align with educational curriculums like the US Common Core, UK Curriculum, Cambridge, and IB, so students build essential academic and practical skills.

Parents and teachers can use this book to:

- Facilitate collaboration on meaningful projects.
- Help students build a foundation in AI-powered roles to prepare for future careers.
- Integrate interactive tools like Canva, Figma, Trello, ChatGPT, Google Forms, and more.

## Guided Project Path

The book includes two structured learning sections:

1. **Introduction to AI and Technology Basics (First 10 Lessons):**
  - In the first 10 Lessons, students build foundational knowledge with lessons on key concepts in AI, data collection, and project management.
  - **Lessons 1-5:** Interactive activities introduce students to technology basics—data collection, coding, and teamwork tools like Google Forms, Scratch Junior, and Trello.
  - **Lessons 6-10:** Students deepen their understanding of specific roles through hands-on practice in data analysis, solution design, and digital marketing.
2. **Industry-Focused Project (10 More Lessons):**
  - After the initial preparation, students engage in a curriculum-aligned project that connects academic learning with practical skills, demonstrating how AI roles solve real-world problems across industries.

This book is more than a learning guide—it's a launchpad for future-ready skills that students will carry forward in their academic and professional lives. Dive in and let EAD inspire your child's journey to becoming an AI-enabled problem-solver and innovator of tomorrow.

## Industry-Aligned Projects

Each project addresses real-world problems mapped to the curriculum, with AI-based solutions to prepare kids for future AI-driven roles. These projects are freely available on our public website for students to explore independently or with guided support.

# 10 Lessons - Introduction to AI, Data Science and Technology Basics, Project Based Learning

## Preparing Kids to do AI Based Projects

### Lesson 1: Introduction to AI and Technology Basics

Objective:

On Lesson 1, students will get a broad overview of AI, its impact across different industries, and the essential technological concepts they need to understand. By the end of the Lesson, students will have a general understanding of how AI works, its key applications, and how technology is transforming various fields.

---

Step-by-Step Instructions:

#### 1. Welcome and Overview of Technology (10 minutes)

- **Teacher Explanation:**

Begin with a brief introduction to the importance of technology in today's world. Explain how technology has revolutionized every field, from healthcare to agriculture to entertainment.

- **Discussion:**

Ask the students: "What kind of technology do you use every day? How do you think technology makes things easier for us?"

Let students share their thoughts to get them comfortable with the topic.

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#### 2. Introduction to AI and its Role in Different Industries (20 minutes)

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- **Teacher Explanation:**

Explain what **Artificial Intelligence (AI)** is, and give a simple definition: “AI is when machines or computers can do tasks that normally need human intelligence—like learning, problem-solving, or even recognizing pictures and words.”

- **Examples of AI in Different Industries:**

- **Healthcare:** AI can help doctors diagnose diseases faster and more accurately.
- **Agriculture:** AI helps farmers monitor their crops and predict the weather.
- **Retail:** AI gives us personalized shopping experiences by recommending products.
- **Transportation:** AI is used in self-driving cars and traffic management systems.

- **Activity:**

Show students a few short videos or clips that illustrate these AI applications. Discuss how AI is being used in each field.

---

### 3. Hands-on AI Interaction Using Chatbots or Virtual Assistants (30 minutes)

- **Materials Needed:**

Devices with access to simple AI tools, such as **ChatGPT** or **Google Assistant**.

- **Activity:**

Have students interact with a basic AI-powered virtual assistant or chatbot. Each student can ask a question or try to have the assistant complete a simple task (e.g., ask it to tell a joke or give a weather report).

- **Teacher Explanation:**

After the activity, explain how chatbots and virtual assistants use AI to understand language and provide responses.

---

### 4. Understanding Technology Basics (30 minutes)

- **Materials Needed:**

Interactive presentation or handouts about basic technology concepts: hardware, software, the internet, data, and coding.

- **Activity:**  
Divide students into small groups and assign each group one basic concept to explore:
    - **Hardware:** What are computers and devices made of?
    - **Software:** What are apps, games, and programs?
    - **Internet:** How does the internet connect people around the world?
    - **Data:** What is data, and how is it used in AI?
    - **Coding:** How do we tell computers what to do?
  - Each group will spend time researching their topic using simple resources provided by the teacher and will present their understanding to the class.
- 

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**  
Ask students to reflect on the different industries where AI is being used. What industry interested them the most, and why? How do they think technology will change in the next 10 years?
  - **Homework Assignment:**  
Ask students to bring in an example of technology they interact with at home (e.g., a smart device, app, or a website they use frequently) and write a paragraph explaining how it helps them.
- 

## End of Lesson 1

By the end of Lesson 1, students will have a general understanding of technology and AI, how it works in different industries, and how to interact with AI systems like chatbots. This lays the foundation for the rest of the week where they will dive deeper into AI and technology concepts.

---

## Lesson 2: Exploring AI Roles and Problem-Solving in Technology

### Objective:

On Lesson 2, students will be introduced to the different roles involved in AI-driven projects (Problem Researcher, Data Analyst, AI Solution Designer, Solution Developer,

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and Digital Marketer). The focus will be on understanding the importance of these roles and how they work together to solve real-world problems.

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#### Step-by-Step Instructions:

##### 1. Recap of Lesson 1 and Introduction to Lesson 2 Objectives (10 minutes)

- **Teacher Explanation:**

Recap what students learned about AI and technology basics from Lesson 1. Introduce today's objective: learning about the different roles in AI projects and how each role contributes to solving a problem.

- **Discussion:**

Ask students: "Have you ever worked on a group project before? What roles do people usually take on in group projects?"

---

##### 2. Introduction to AI-Powered Roles (25 minutes)

- **Teacher Explanation:**

Describe the five key roles in AI projects:

- **Problem Researcher:** Gathers information and defines the problem.
- **Data Analyst:** Works with data to find patterns and insights related to the problem.
- **AI Solution Designer:** Designs the AI solution and creates a blueprint for how it will work.
- **Solution Developer:** Develops the actual AI model using programming or coding.
- **Digital Marketer:** Promotes the solution and helps people understand its value.

- **Examples:**

- For a project on **improving traffic management**, the **Problem Researcher** finds the traffic issues, the **Data Analyst** looks at traffic patterns, the **AI Solution Designer** creates a plan for a smart traffic system, the **Solution Developer** builds the AI that runs the traffic lights, and the **Digital Marketer** promotes the benefits to the community.
-

### 3. Team Activity: Role Play and Problem Identification (30 minutes)

- **Materials Needed:**

Whiteboards, markers, and access to simple industry problems (e.g., traffic management, waste management, or water conservation).

- **Activity:**

Split students into small groups, with each group assigned a different industry problem (e.g., water conservation, waste management). Each student in the group will take on one of the five roles:

- **Problem Researcher:** Gathers key information about the problem.
- **Data Analyst:** Looks at the data provided or finds data to understand the scale of the problem.
- **AI Solution Designer:** Starts to think about what kind of AI system could help solve the problem.
- **Solution Developer:** Considers what code or program might be needed.
- **Digital Marketer:** Thinks about how to promote the solution to the public.

- After 20 minutes, each group presents a rough outline of the problem they are trying to solve and how they would use AI.

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### 4. Tool Exploration for Roles (30 minutes)

- **Materials Needed:**

Devices with access to basic tools like Google Scholar (for research), Excel (for data analysis), Figma (for design), and Canva (for marketing).

- **Activity:** Introduce students to the tools they will use for their roles:

- **Problem Researchers:** Use **Google Scholar** to find articles related to the industry problem.
- **Data Analysts:** Start learning how to use **Excel** for basic data input and chart creation.
- **AI Solution Designers:** Explore **Figma** to begin thinking about designing AI solutions.
- **Solution Developers:** Set up a basic coding environment and explore introductory coding concepts.
- **Digital Marketers:** Learn how to use **Canva** to create simple promotional materials.

- Let each student spend 15-20 minutes practicing with their assigned tool.

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**

Ask each student to reflect on the role they explored. Do they think they would enjoy doing this role in real life? How do they think their role will help solve the problem their group is working on?

- **Homework Assignment:**

Each student will write a short paragraph about the role they took on today and one thing they learned about using their assigned tool.

---

## End of Lesson 2

By the end of **Lesson 2**, students will have a clearer understanding of the different roles in AI-driven projects and will have started exploring the tools associated with each role. They will begin to grasp how these roles work together to solve real-world problems, setting them up for the deeper exploration of AI in the coming days.

## Lesson 3: Introduction to Data Analysis (1-2 hours)

### Objective:

Introduce students to the basics of data analysis, focusing on how data is collected, interpreted, and visualized. Students will learn to input data, create simple charts, and understand the importance of data in decision-making.

### Materials Needed:

- Survey results from Lesson 2 (Google Forms data)
  - Computers/tablets with access to **Google Sheets**
  - Whiteboard and markers for explanations
- 

### Step-by-Step Instructions:

#### 1. Review Data Collected from Surveys (10 minutes)

- **Teacher Explanation:**

Begin by reviewing the survey results that students collected on Lesson 2. Explain how surveys collect data that can be analyzed to identify trends and insights.

- **Discussion:**

Ask students what they found surprising in their survey responses. Did the results match their predictions? Why is collecting data important in making decisions?

---

## 2. Input Data into Google Sheets (15-20 minutes)

- **Activity:**

Demonstrate how to input the survey data into **Google Sheets**. Guide the students as they enter their survey responses (e.g., favorite color, favorite animal) into a table format.

- **Example:**

- Column A: Survey question (e.g., "What's your favorite color?")
    - Column B: Response (e.g., "Blue," "Red," etc.)

- **Teacher Guidance:**

Help students organize their data properly and ensure that it's correctly formatted for analysis. Explain that this step is crucial because messy or unorganized data can lead to mistakes.

---

## 3. Create a Chart to Visualize Data (15-20 minutes)

- **Activity:**

Demonstrate how to select the data in Google Sheets and create a simple bar chart or pie chart. Show students how visualizing data can help them better understand and communicate results.

- **Example:**

Create a bar chart to show the most popular favorite colors among survey respondents.

- **Discussion:**

Ask students how their chart makes the data easier to understand. Discuss why businesses, scientists, and other professionals use data charts to make decisions.

#### 4. Data Interpretation and Patterns (15 minutes)

- **Teacher Explanation:**

Explain that after data is collected and visualized, the next step is **data interpretation**. Show students how to look for patterns in the charts they've created.

- **Example:**

"If 70% of your class picked blue as their favorite color, what does that tell us about color preferences?"

- **Group Discussion:**

In groups, have students discuss the patterns they found in their data. What does the data suggest about their survey topic? How might this information be used in real-world situations (e.g., for product design or marketing)?

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of data analysis. Ask students: "How does data help us make better decisions? Can you think of a time when understanding data would be helpful?"

- **Homework Assignment:**

Each student will collect data from a simple observation (e.g., how many cars pass their street in 10 minutes, how many different animals they see outside) and create a chart to present to the class on Lesson 4.

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#### End of Lesson 3

By the end of Lesson 3, students will understand the process of collecting, entering, and visualizing data using Google Sheets. They will have created simple charts to represent their survey results and begun interpreting data to understand trends and patterns.

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#### **Lesson 4: Introduction to Data Visualization and Problem Solving with AI (1-2 hours)**

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**Objective:**

Teach students how to create data visualizations to better understand information and introduce the role of AI in problem-solving. Students will also explore how AI can use data to make predictions and solve real-world problems.

**Materials Needed:**

- Completed homework (observed data from Lesson 3)
  - Computers/tablets with access to **Google Sheets** or **Google Charts**
  - Whiteboard and markers for explanations
- 

**Step-by-Step Instructions:****1. Review Homework and Discuss Data Observations (10 minutes)**

- **Teacher Explanation:**

Begin by reviewing students' homework. Ask a few students to share the data they collected (e.g., how many cars passed, how many animals they saw, etc.).

- **Discussion:**

Encourage students to reflect on the data they collected. What patterns did they notice? Was the data different from what they expected?

---

**2. Visualizing Data Collected from Homework (20 minutes)**

- **Activity:**

Have students input their homework data into **Google Sheets**. Demonstrate how to create a chart from their data (e.g., bar charts or line graphs).

- **Example:**

If a student counted cars passing their house, they could create a **bar chart** showing the number of cars observed over time.

- **Teacher Guidance:**

Guide students through the chart creation process and ensure they understand how visualizations help in presenting data clearly.

---

### 3. Introduction to Problem Solving with AI (15 minutes)

- **Teacher Explanation:**

Explain that **AI** is like a very smart tool that can look at data and help solve problems. AI systems can predict things, help make decisions, and even come up with new ideas.

- **Example:**

“AI can look at the weather and predict if it’s going to rain tomorrow, or it can look at traffic data and tell us the best way to get to school.”

- **Discussion:**

Ask students how they think AI might use the data they collected. Could AI help predict how many cars will pass by tomorrow, or which color will be most popular next month?

---

### 4. Fun Activity: Predicting the Future with Data (15 minutes)

- **Activity:**

Have students use the data they collected to make a prediction. For example, if a student counted how many cars passed their house, they could predict how many cars will pass tomorrow based on today’s data.

- **Example:**

“If 10 cars passed in 10 minutes today, how many cars do you think will pass tomorrow at the same time?”

- **Teacher Explanation:**

Explain that AI does something similar—it uses data from today to predict what will happen tomorrow. This is called **data-driven decision-making**.

---

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how AI helps people make predictions using data. Ask students: “What are some other ways we could use data to predict things? How could AI help farmers, doctors, or teachers?”

- **Homework Assignment:**

Each student will choose a problem they think AI could help solve. They will write

a paragraph about the problem and how they think AI could use data to find a solution.

---

## End of Lesson 4

By the end of Lesson 4, students will understand how data can be visualized to make it easier to understand and how AI uses data to solve problems and make predictions. They will also have explored how AI could help with real-world problems based on the data they have collected.

## **Lesson 5: Introduction to Project Management and Collaboration (1-2 hours)**

### Objective:

Introduce students to the basics of project management and team collaboration using tools like Trello. The aim is to help them understand how professionals organize tasks and work together effectively in a project.

### Materials Needed:

- Access to Trello (or a similar project management tool) on tablets or computers.
  - Whiteboard and markers for visual demonstration.
- 

### Step-by-Step Instructions:

#### 1. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain that **project management** is the process of organizing tasks to complete a project efficiently. Compare it to planning a party: before the party can happen, tasks like sending invitations, buying decorations, and preparing food need to be done in the right order.

- **Examples of Project Management:**

- Building a house (you can't put on the roof before the walls).
- Planning a class event (choosing a theme, sending invitations, decorating).

## 2. Introducing Trello (15 minutes)

- **Materials Needed:**

Trello or an equivalent project management tool, pre-set project board for demonstration.

- **Teacher Demonstration:**

Show students how **Trello** works by demonstrating the basics: how to create boards, lists, and task cards.

- **Board:** Represents the entire project (e.g., creating an app, completing a recycling campaign).
  - **Lists:** Organize tasks into categories (e.g., "To Do," "In Progress," "Done").
  - **Cards:** Represent specific tasks (e.g., "Design logo," "Collect survey data").
- 

## 3. Hands-on Activity: Creating a Trello Board (20 minutes)

- **Activity:**

Have students work in groups to create their own **Trello boards** for a class project. Assign each group a project, such as "Building a Recycling App" or "Creating a School Newsletter."

- **Step 1:** Create a board for the project.
- **Step 2:** Create lists like "To Do," "In Progress," and "Done."
- **Step 3:** Add task cards to each list (e.g., "Research recycling facts," "Design app interface," "Write article for newsletter").

- **Group Discussion:**

Ask students how organizing tasks in this way can help them keep track of progress. How does it feel to see tasks move from "To Do" to "Done"?

---

## 4. Fun Challenge: Moving Cards Across Lists (15 minutes)

- **Activity:**

Let students complete a few simple tasks (e.g., design a simple logo in Canva,

collect data from their surveys) and **move cards from "To Do" to "Done"** on Trello.

- This will give them a sense of accomplishment as they visually see their progress.
- 

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Discuss how professionals use project management tools to stay organized in the workplace. Ask students:

"How do you think using a tool like Trello will help us when we start working on our projects next week?"

- **Homework Assignment:**

Students should complete a task related to their role (e.g., finish collecting data for their project or create a draft of their design) and move their task card in Trello from "To Do" to "In Progress."

---

## End of Lesson 5

By the end of Lesson 5, students will have a clear understanding of **project management** and how to use tools like **Trello** to organize tasks and work collaboratively. They will have created their own project boards and started moving tasks along the workflow, preparing them for future project work.

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## Lesson 6: AI-Powered Market Researcher (1-2 hours)

### Objective:

Introduce students to the role of a **Market Researcher** in AI-driven projects. Students will learn how data collection and analysis are used by businesses to understand customer preferences and make decisions.

### Materials Needed:

- Access to Google Forms and Google Sheets.

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- Computers/tablets with internet access.
  - Example data (if needed).
- 

### Step-by-Step Instructions:

#### 1. Introduction to Market Research (10 minutes)

- **Teacher Explanation:**

Explain that a **Market Researcher** helps businesses learn what people like and don't like. They collect information (data) by asking people questions, and then analyze it to help companies decide what products to make or improve.

- **Example:**

A Market Researcher might survey people to find out what flavor of ice cream they like best, or what new toys children are interested in.

---

#### 2. Creating a Simple Survey (15-20 minutes)

- **Materials Needed:**

Google Forms on a computer or tablet.

- **Activity:**

Demonstrate how to create a basic survey using **Google Forms**. Each student will create a short survey with 3-4 questions (e.g., "What's your favorite snack?", "What's your favorite hobby?").

- Have students share the survey link with family members, friends, or classmates to collect responses.

- **Teacher Guidance:**

Help students design clear, easy-to-answer questions. Remind them that the information they gather will be used to help make decisions, just like a real market researcher.

---

#### 3. Predicting the Survey Results (15 minutes)

- **Activity:**

Before the survey responses come in, have students predict what the most

popular answers will be. For example, they might guess that “chocolate” will be the most popular snack or that “video games” will be the most popular hobby.

- Have a brief class discussion about their predictions.
- 

#### 4. Analyzing Survey Data (20 minutes)

- **Materials Needed:**

Google Sheets on computers or tablets.

- **Activity:**

Once survey responses are collected, students will input the data into **Google Sheets**. Demonstrate how to create a simple **bar chart** or **pie chart** from the data.

- **Example:**

If the survey asked about favorite snacks, create a bar chart to show how many people picked “chocolate” versus “chips.”

- **Teacher Explanation:**

Explain how businesses use these charts to make decisions. For example, if a survey shows that most people prefer chocolate, a company might decide to make more chocolate-flavored products.

---

#### 5. Group Discussion: How Does Data Help? (10 minutes)

- **Class Discussion:**

Ask students:

“How do the survey results help a company know what people like? How do you think AI can help businesses collect even more data to make better decisions?”

- Encourage students to think about how data is used to understand trends and preferences in the real world.
- 

#### 6. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the role of a **Market Researcher** and how AI plays a role in data collection and decision-making. Ask students:

"What's something new you learned today about how companies use data to make decisions?"

- **Homework Assignment:**

Ask students to think of one product or service they use regularly (e.g., a favorite toy, game, or snack). Have them write a short paragraph about how a company might use market research to improve that product.

---

End of Lesson 6

By the end of Lesson 6, students will have a solid understanding of the **Market Researcher** role, how data is collected using surveys, and how that data is analyzed to help businesses make informed decisions. They will have created their own surveys, predicted outcomes, and analyzed real-world data using charts.

## Lesson 7: AI-Driven Business and Data Analyst (1-2 hours)

Objective:

Introduce students to the role of a **Business and Data Analyst** and how data analysis is used to make informed decisions in various industries. Students will learn how businesses use data to identify trends and opportunities.

Materials Needed:

- Computers/tablets with access to **Google Sheets** or any spreadsheet software.
  - Sample dataset related to business (e.g., sales data, customer preferences).
- 

Step-by-Step Instructions:

### 1. Introduction to Business and Data Analysis (10 minutes)

- **Teacher Explanation:**

Explain the role of a **Business and Data Analyst**. They use data to help companies understand their customers, improve their products, and make better decisions.

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- **Example:**

A data analyst might look at the sales data of a store to see which products are most popular. They can use this information to decide which products to stock more of.

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## 2. Activity: Analyzing Classroom Data (20-25 minutes)

- **Materials Needed:**

Google Sheets with a preloaded sample dataset (e.g., types of products sold and how many were purchased each day).

- **Activity:**

Have students input the data from the sample dataset into **Google Sheets**. The dataset could include details like:

- Products sold (e.g., books, pencils, snacks)
- Number of units sold each day
- Customer preferences (e.g., which products customers rated highly)

- Show students how to create a **bar chart** or **pie chart** from the data to visualize which product is the most popular.

- **Teacher Explanation:**

Explain how visualizing the data helps businesses quickly understand trends (e.g., which products are selling the most). Encourage students to think about how data analysis can help businesses decide what to stock and how much.

---

## 3. Discussion: Identifying Trends (15 minutes)

- **Teacher Guidance:**

Ask students to look at their charts and identify patterns. For example:

- "Are there certain days when more snacks are sold?"
- "Which product is the most popular?"

- Help students understand how finding trends in data helps businesses make smarter decisions. For example, if a certain product sells better on Fridays, businesses may want to stock more of it that day.

- **Group Discussion:**

Encourage students to discuss how the data they analyzed could be used to improve a store's sales strategy. How could a store owner use this data to plan for the future?

#### 4. Fun Task: Business Data Analyst for a Lesson (15 minutes)

- **Activity:**

Let students pretend they are a **Business Data Analyst** for a toy store. Based on their analysis of the sample dataset, they will write a short paragraph explaining which toys the store should stock more of and why. They can use the data and charts they created to support their argument.

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how businesses rely on data to make decisions. Ask students: “What is something new you learned today about how businesses use data to decide what products to sell?”

- **Homework Assignment:**

Students should look around their home or local stores and take note of what products are most popular. Have them write a paragraph predicting which items the store might need to restock based on what's sold out or in high demand.

---

#### End of Lesson 7

By the end of Lesson 7, students will have an understanding of the role of a **Business and Data Analyst** and how data is used to make business decisions. They will have analyzed a sample dataset, created visualizations, and used data to make business recommendations.

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### Lesson 8: Solution Developer (Basic AI Concepts) (1-2 hours)

Objective:

Introduce students to the role of a **Solution Developer**, with a focus on how AI can be used to solve real-world problems by building apps or tools. Students will engage with simple coding concepts and create a basic solution using Scratch Junior.

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## Materials Needed:

- Tablets/computers with **Scratch Junior** or **MIT App Inventor** installed.
- 

## Step-by-Step Instructions:

### 1. Introduction to AI-Powered Solution Development (10 minutes)

- **Teacher Explanation:**

Explain that a **Solution Developer** is responsible for building tools and apps that solve real-world problems using AI. They use coding and technology to create things like mobile apps, websites, or smart devices.

- **Example:**

A solution developer might build an app to help farmers monitor their crops or create a game that helps students practice math.

- **Discussion:**

Ask students what apps or games they use regularly. How do they think those apps were built? How do apps help solve problems in everyday life?

---

### 2. Activity: Building a Simple App with Scratch Junior (30-40 minutes)

- **Materials Needed:**

Scratch Junior or MIT App Inventor on tablets or computers.

- **Activity:**

Guide students in creating a basic app using **Scratch Junior**. The app could be a **simple schedule organizer** where users can input tasks (e.g., homework, chores) and mark them as complete.

- **Step 1:** Show students how to drag blocks to create characters and movement in Scratch Junior.
  - **Step 2:** Have students add buttons that allow users to add or remove tasks.
  - **Step 3:** Guide them in adding basic features like displaying the tasks and marking them as done.

- **Teacher Guidance:**

Help students troubleshoot any issues they encounter and encourage creativity in their app design.

### 3. Fun Challenge: Adding Extra Features (15 minutes)

- **Activity:**

Challenge students to add one or two additional features to their app. For example, they could add sound effects when tasks are completed, or a feature that allows users to set reminders for upcoming tasks.

- Encourage students to think about how additional features can make the app more helpful or fun for users.
- 

### 4. Group Discussion: How Do Apps Solve Problems? (10 minutes)

- **Class Discussion:**

Ask students how the app they created could help people in real life. For example, how would a **schedule organizer** help someone manage their time better? Discuss how apps and tools can make life easier by solving everyday problems.

- Encourage students to think about other apps they could create to solve different problems (e.g., an app to track homework assignments, a game to help people learn math, etc.).
- 

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how apps and tools created by developers help solve problems in different industries. Ask students:

“What’s an app or tool you wish existed? How could it help solve a problem?”

- **Homework Assignment:**

Ask students to come up with an idea for an app that solves a problem in their own life. They should write a short description of the app and explain how it would work.

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### End of Lesson 8

By the end of Lesson 8, students will have a basic understanding of the **Solution Developer** role and how AI-powered apps are built to solve problems. They will have created a simple app using **Scratch Junior** and brainstormed ideas for other apps that could help solve real-world problems.

## Lesson 9: AI-Driven Digital Marketer (1-2 hours)

Objective:

Introduce students to the role of a **Digital Marketer**, focusing on how AI helps companies advertise their products, create branding, and promote their business. Students will design marketing materials using AI-powered tools to understand how digital marketing works in the real world.

Materials Needed:

- Tablets/computers with access to **Canva** or any other free design tool.
- Sample product (real or fictional) for students to market (e.g., a new toy, a school club, or a snack).

---

Step-by-Step Instructions:

### 1. Introduction to Digital Marketing (10 minutes)

- **Teacher Explanation:**

Explain that a **Digital Marketer** helps companies sell their products by creating ads, logos, social media posts, and other promotional materials. Digital marketers use AI to understand what customers want and how to best promote products to them.

- **Example:**

Explain how companies use AI to show ads to people based on their interests. For example, if someone watches a lot of videos about soccer, they might see ads for soccer gear or games.

- **Discussion:**

Ask students if they've ever seen ads on websites or social media. How do they think companies decide what ads to show?

## 2. Activity: Designing a Logo in Canva (30-40 minutes)

- **Materials Needed:**

Access to **Canva** or another design tool on tablets or computers.

- **Activity:**

Have students create a logo for a fictional product, school club, or business.

Guide them through using templates, adding colors, fonts, and images.

- **Step 1:** Show students how to choose a logo template in Canva.
- **Step 2:** Guide them through customizing the template (e.g., changing the name, adding colors, or choosing icons).
- **Step 3:** Have students think about how their logo represents their product or business (e.g., Does it show what the business does? Is it eye-catching?).

- **Teacher Guidance:**

Help students understand the importance of a clear, simple, and memorable logo. Encourage creativity and uniqueness in their designs.

---

## 3. Fun Challenge: Create a Social Media Ad (15 minutes)

- **Activity:**

After students have created their logos, ask them to design a simple social media ad (e.g., an Instagram post or Facebook ad) using Canva. The ad should promote the product or business they created a logo for.

- **Example:**

If a student created a logo for a "Junior Bakers Club," they might create an ad that invites new members to join the club. The ad could feature a fun slogan, an image of baked goods, and their new logo.

---

## 4. Group Discussion: How AI Helps in Digital Marketing (10 minutes)

- **Class Discussion:**

Ask students how they think companies decide where to show their ads. Explain that **AI** helps companies understand what people like and shows ads to the right audience.

- **Example:**

A company might use AI to figure out which colors or slogans work best for their ads. AI can also tell companies which ads are getting the most clicks and which ones need improvement.

---

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of digital marketing. Ask students:  
“How does creating a logo and ad help a company or club stand out? How do you think AI can help companies improve their marketing?”

- **Homework Assignment:**

Students should design a second ad or promotional material for their product or business, using Canva or another tool. They can use this as part of their upcoming class presentation.

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## End of Lesson 9

By the end of Lesson 9, students will have learned the basics of **Digital Marketing** and the role of AI in helping companies advertise their products. They will have created logos and social media ads, gaining hands-on experience with design tools like Canva.

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## Lesson 10: Project Management Overview and Preparation for Actual Projects (1-2 hours)

### Objective:

Introduce students to **Project Management** and prepare them for their upcoming projects. Students will learn how to use Trello or another project management tool to organize tasks, set deadlines, and work collaboratively.

### Materials Needed:

- Access to **Trello** (or any project management tool) on computers or tablets.

- Predefined class projects (e.g., creating a recycling app, designing a community garden).
- 

### Step-by-Step Instructions:

#### 1. Recap of the Week and Introduction to Project Management (10 minutes)

- **Teacher Explanation:**

Start by recapping everything students have learned over the past week:

- AI roles: Market Researcher, Data Analyst, Solution Developer, Digital Marketer.
- Tools they've used: Google Sheets, Canva, Scratch Junior.

- Explain that today's focus will be on **organizing their projects** and preparing for real-world problem-solving using project management tools.

---

#### 2. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain the concept of **project management** and how professionals use tools like Trello to plan their work. Project management helps teams break down big projects into smaller, manageable tasks.

- **Example:**

When building a house, workers need to do things in the right order—first, lay the foundation, then build the walls, and finally put on the roof. The same idea applies to other projects.

- **Discussion:**

Ask students how they think managing tasks and deadlines could help them in their schoolwork or future projects.

---

#### 3. Introduction to Trello (15 minutes)

- **Materials Needed:**

Access to Trello on tablets or computers.

- **Teacher Demonstration:**

Demonstrate how to use Trello by setting up a **Trello board** for one of the class projects (e.g., designing a recycling app). Show students how to:

- Create **lists** (To Do, In Progress, Done).
  - Add **cards** for each task (e.g., “Research recycling facts,” “Design app interface”).
  - Assign **deadlines** and roles (e.g., assign one student to research and another to design).
- 

#### 4. Group Activity: Setting Up Their Trello Boards (25 minutes)

- **Activity:**

In their project teams, students will create their own **Trello boards** for the upcoming projects. Each group will:

- Create **three lists**: To Do, In Progress, Done.
- Add task **cards** under each list.
- Assign roles and set **deadlines** for each task (e.g., the Data Analyst needs to finish analyzing data by the end of the week, the Solution Developer needs to complete coding within two weeks).
- **Example Project:**  
For a project on designing a community garden, tasks might include:
  - Researching plant types.
  - Drawing garden designs.
  - Building a prototype model.

- **Teacher Guidance:**

Help students think through the tasks and break them down into smaller steps.

Encourage them to set reasonable deadlines and assign tasks based on their team members' strengths.

---

#### 5. Fun Activity: Moving Task Cards Across Lists (10 minutes)

- **Activity:**

Let students complete one small task (e.g., researching garden plants) and move their card from **To Do** to **Done**. This helps students see how project management tools help visualize progress.

## 6. Final Discussion: Preparing for Upcoming Projects (10 minutes)

- **Class Discussion:**

Discuss how students will use Trello to manage their projects over the next few weeks. Ask:

- “How does organizing tasks help us work better as a team?”
- “Why is it important to set deadlines for each part of the project?”

- **Teacher Guidance:**

Emphasize that project management helps teams stay on track, meet deadlines, and ensure that all tasks are completed in the right order.

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## 7. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the week and how students will start their projects next week. Ask: “What are you most excited about for your upcoming project? How do you think Trello will help you stay organized?”

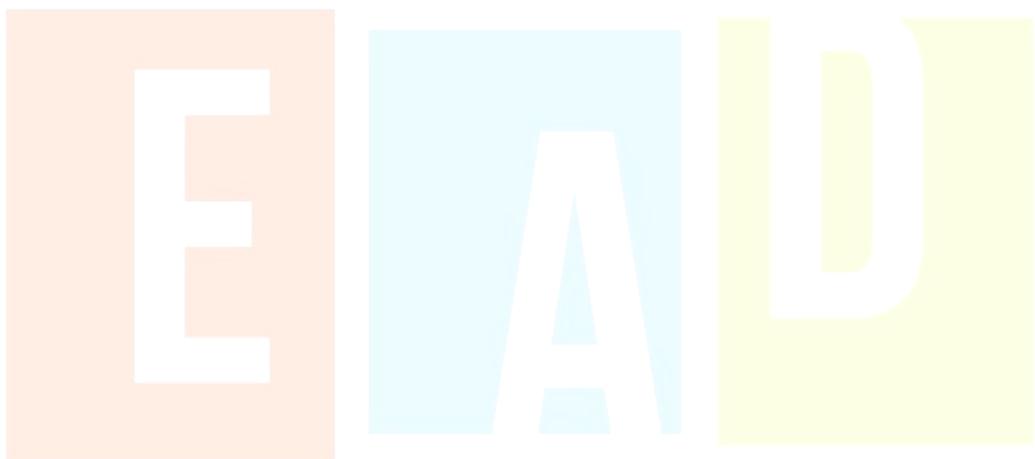
- **Homework Assignment:**

Each student should review their assigned tasks on Trello and begin preparing to work on their specific role in the project (e.g., researching, designing, developing).

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## End of Lesson 10

By the end of Lesson 10, students will have a strong understanding of **Project Management** and how to organize their upcoming projects using **Trello**. They will have set up their Trello boards and prepared their project tasks, making them ready to start working on real-world projects the following week.



## Guided Project - Creating a Community Garden with Recycled Materials

**Project Roles:** 3 (“Market Researcher & Data Analyst”, “Solution Designer & Developer”, “Digital Marketer & Project Manager”)

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**Duration:** 10 Lessons (Initial introduction and setup)

### **Project Overview:**

In this project, students will work together to create a sustainable community garden using recycled materials. Each student will take on one of three roles: **Market Researcher & Data Analyst**, **Solution Designer & Developer**, or **Digital Marketer & Project Manager**. They will collaborate to gather community data, design the garden layout, and promote the project to their community. By the end, students will have created a detailed plan for the garden and presented their ideas to their classmates or local community members.

### **Learning Objectives:**

- **Collaboration:** Students will learn to work in teams, share responsibilities, and integrate their work into a cohesive project.
- **Real-World Application:** Students will apply their knowledge of sustainability and recycling to solve a real-world problem (creating a sustainable community garden).
- **Technology Integration:** Students will use tools like Google Forms, Canva, and Trello to manage their project, design promotional materials, and collect community feedback.

### **Curriculum Mapping:**

This project is mapped to multiple subject areas across **US Common Core**, **UK Curriculum**, **Cambridge**, **IB**, and **Pakistan National Curriculum**.

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### **US Common Core Curriculum Mapping:**

#### **1. English Language Arts (ELA):**

- **Writing (W.3.2, W.4.2, W.5.2):** Writing informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- **Speaking & Listening (SL.3.4, SL.4.4, SL.5.4):** Present information clearly, concisely, and logically, supporting main ideas with facts and descriptive details.

**2. Mathematics:**

- **Measurement & Data (MD.3.4, MD.4.4, MD.5.4):** Create and interpret data in graphs, focusing on community survey data and garden layout measurements.
- **Geometry (G.3.1, G.4.1, G.5.1):** Analyze and create garden layouts using geometric shapes and spatial understanding.

**3. Science:**

- **Earth and Human Activity (3-ESS3-1, 4-ESS3-1, 5-ESS3-1):** Focus on human impact on Earth's systems, the benefits of recycling, and sustainability through the creation of the garden.
- 

**UK National Curriculum Mapping:****1. English:**

- **Writing:** Plan, draft, and write clear and coherent informational texts (related to the research and findings from the project).
- **Speaking & Listening:** Develop effective presentation skills by presenting project findings.

**2. Mathematics:**

- **Data Handling:** Use bar charts, tally charts, and pie charts to represent survey data from the community on recycling habits.
- **Measurement:** Calculate the dimensions of the garden and the space needed for different sections, using units of measurement.

**3. Science:**

- **Living Things and Their Habitats:** Learn about plants and ecosystems, linking this to the importance of sustainable gardens and recycling materials.
- 

**Cambridge Curriculum Mapping:****1. English:**

- **Writing & Presenting Information:** Develop skills in writing reports and presenting findings through research and data collection.
- **Speaking & Listening:** Share ideas through discussions and formal presentations during the project.

**2. Mathematics:**

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- **Data Collection and Presentation:** Collect, analyze, and present data from community surveys about recycling and garden preferences.
  - **Geometry:** Use geometric concepts to design the layout of the community garden.
- 3. Science:**
- **Environmental Awareness:** Understand recycling and sustainability, focusing on their application in creating an eco-friendly garden.
- 

### **IB PYP Curriculum Mapping:**

- 1. Language:**
    - **Writing & Research:** Students will gather and present information about recycling and sustainable gardening practices.
    - **Communication:** Students will develop communication skills by presenting their findings to their classmates and community.
  - 2. Mathematics:**
    - **Data Handling:** Interpret survey results and present findings using appropriate visual aids (e.g., bar charts, graphs).
  - 3. Science:**
    - **Science in Society:** Explore how human actions (like recycling) can impact the environment positively, in line with sustainability principles.
- 

### **Pakistan National Curriculum Mapping:**

- 1. English:**
  - **Writing:** Writing informative texts and explanations of the community garden's purpose, sustainability goals, and design process.
  - **Oral Communication:** Present the project's findings to classmates and community members, explaining the importance of recycling and sustainability.
- 2. Mathematics:**
  - **Data Handling:** Collect and analyze survey data, presenting it through graphs and charts.
  - **Geometry:** Use measurement and spatial understanding to plan the layout of the garden.
- 3. Science:**

- **Environmental Science:** Learn about sustainable development, recycling, and human impacts on the environment through the design and creation of the community garden.
- 

## 10 Lessons Roadmap for Market Researcher / Data Analyst

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can recycling reduce waste and help create a sustainable community garden?

**Focus:** The **Market Researcher & Data Analyst** will gather data on community recycling habits, analyze trends, and collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to ensure the garden design aligns with community interests and promotes sustainability. The project will end with a branding effort to promote the initiative.

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#### Lesson 1: Defining the Problem & Creating a Research Plan (1-2 hours)

**Objective:** Understand the project's goals, define the research problem, and develop a data collection plan.

- **Tasks:**

- Use **AI tools** like **ChatGPT** or **Google AI** to research recycling and community gardens. Gather insights to inform survey creation.
- Collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to outline the research problem and define how data will support design and promotional strategies.
- Develop a research plan to collect data on recycling habits, materials available for reuse, and community interest in a garden.

**AI Tools:** ChatGPT, Google AI (for research and planning).

**Connection Points:**

- Share initial insights with the **Designer & Developer** to inform early design concepts.

- Align the research plan with the **Digital Marketer & Project Manager** for effective community engagement.
- 

## Lesson 2: Creating a Survey Using AI Tools (1-2 hours)

**Objective:** Create a survey to gather community data on recycling habits and garden participation.

- **Tasks:**

- Use **Google Forms Auto-Generate** or **ChatGPT** to design a survey with questions like, “How often do you recycle?” and “What recycled materials do you have at home?”
- Collaborate with the **Digital Marketer & Project Manager** to ensure the survey is distributed digitally and promoted within the community.
- Finalize the survey and start distributing it through various channels.

**AI Tools:** Google Forms Auto-Generate, ChatGPT (for survey creation).

**Connection Points:**

- Share the survey questions with the **Designer & Developer** to align community input with garden design.
  - Work with the **Digital Marketer & Project Manager** to distribute the survey.
- 

## Lesson 3: Data Collection (1-2 hours)

**Objective:** Collect survey responses and gather observations about recycling behaviors in the community.

- **Tasks:**

- Collect responses via Google Forms or manually with paper-based surveys.
- Observe recycling behaviors in your school or neighborhood (e.g., what materials are recycled and how often).
- Start sharing preliminary findings with the **Designer & Developer** to inform material selection.

**AI Tools:** Google Forms (for data collection).

**Connection Points:**

- Coordinate with the **Digital Marketer & Project Manager** to ensure the survey reaches the community.
  - Share early insights with the **Designer & Developer** for the garden design.
- 

## **Lesson 4: Organizing Data Using AI (1-2 hours)**

**Objective:** Input the collected data into a spreadsheet and begin using AI tools to organize it.

- **Tasks:**
  - Input the data from surveys into **Google Sheets** or **Excel** for easier manipulation.
  - Use **Google AI** or **Microsoft Power BI** to organize the data into categories, such as materials recycled, community awareness of recycling, and interest in the community garden.

**AI Tools:** Google Sheets, Google AI, Microsoft Power BI (for organizing data).

**Connection Points:**

- Share organized data with the **Designer & Developer** to ensure materials for the garden match the community's recycling habits.
- 

## **Lesson 5: Data Visualization & Initial Reporting (1-2 hours)**

**Objective:** Use AI tools to create visual representations of the data and begin reporting key findings.

- **Tasks:**
  - Use **Google AI** or **Power BI** to create charts, such as bar graphs and pie charts, that visualize the survey results (e.g., most commonly recycled materials).
  - Prepare a brief initial report to share with the team, summarizing key insights such as which materials are most available for the garden and the community's level of interest in participating.

**AI Tools:** Power BI, Google Sheets (for data visualization).

**Connection Points:**

- Share visual data with the **Designer & Developer** to ensure that garden design aligns with the community's recycling materials.
  - Work with the **Digital Marketer & Project Manager** to present early insights to the public, promoting interest in the garden project.
- 

### **Lesson 6: Data Analysis Using AI & Collaboration (1-2 hours)**

**Objective:** Analyze the survey data using AI tools to uncover trends and collaborate with the other roles.

**● Tasks:**

- Use **Google AI** or **Power BI** to conduct deeper analysis of the data, identifying trends like the most commonly recycled materials and which households are most engaged in recycling.
- Collaborate with the **Designer & Developer** to refine the material selection for the garden based on the data.
- Discuss insights with the **Digital Marketer & Project Manager** to plan the next phase of community engagement based on data trends.

**AI Tools:** Google AI, Power BI (for data analysis).

**Connection Points:**

- Collaborate closely with the **Designer & Developer** to finalize material choices.
  - Share data-driven insights with the **Digital Marketer & Project Manager** for use in promotional campaigns.
- 

### **Lesson 7: Writing the Final Report Using AI Tools (1-2 hours)**

**Objective:** Write a comprehensive report summarizing data findings and their implications for the project.

**● Tasks:**

- Use **Grammarly** or **ChatGPT** to draft a report summarizing the findings from the survey and data analysis. Include charts and graphs for visual support.
- Discuss the report with the other team members to ensure all roles have the data they need to move forward.

**AI Tools:** Grammarly (for report writing), ChatGPT (for summarizing findings).

**Connection Points:**

- Share the final report with the **Designer & Developer** to finalize material choices for the garden.
  - Provide the report to the **Digital Marketer & Project Manager** to inform promotional materials and campaigns.
- 

### **Lesson 8: Finalizing Recycled Materials List & Collaboration (1-2 hours)**

**Objective:** Collaborate with the team to finalize the list of recycled materials for the garden.

● **Tasks:**

- Work with the **Designer & Developer** to confirm which recycled materials will be used for the garden, based on the survey results and data analysis.
- Ensure the materials are easily accessible in the community and sustainable for the long-term.
- Begin planning how the data can be used in the branding effort, highlighting the environmental impact.

**AI Tools:** Google Sheets, Power BI (for finalizing materials and visualizing data).

**Connection Points:**

- Collaborate with the **Designer & Developer** to finalize the materials and design.
  - Work with the **Digital Marketer & Project Manager** to use data-driven insights in the final promotional materials.
- 

### **Lesson 9: Branding the Project & Preparing for the Final Presentation (1-2 hours)**

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**Objective:** Contribute to the branding effort by sharing data insights that highlight community involvement and sustainability.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to create branding elements (e.g., slogans, logos) that emphasize sustainability and community engagement.
- Use the data collected throughout the project to show how the community's recycling efforts are contributing to the garden.
- Help create a presentation that highlights the key data points, using AI-generated visualizations to support the branding effort.

**AI Tools:** Canva, Power BI (for branding and data visualization).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to finalize the promotional materials.
- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden's design.

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## Lesson 10: Final Presentation & Community Engagement (1-2 hours)

**Objective:** Present the findings to the class or community and contribute to the final branding and community engagement effort.

- **Tasks:**

- Present the final report, showcasing the survey results, data analysis, and the impact of recycling on the garden.
- Work with the **Digital Marketer & Project Manager** to deliver the branding campaign to the community, using data to encourage participation in the garden.
- Conclude the project by discussing the long-term benefits of community engagement in sustainability.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Designer & Developer** and the **Digital Marketer & Project Manager** to deliver a cohesive final presentation.

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- Ensure the branding and data insights are shared with the community to encourage ongoing participation.
- 

## Assessment at Project Level:

### 1. Industry Understanding

- **Assessment Criteria:** Evaluate the student's understanding of the recycling industry, community sustainability efforts, and how data plays a crucial role in environmental decision-making.
- **Questions:**
  - How well does the student understand the impact of recycling on environmental sustainability?
  - Can they explain the connection between recycled materials and their use in the community garden?
  - Have they demonstrated a clear understanding of how data can inform decisions in real-world environmental projects?

### 2. Concept Understanding

- **Assessment Criteria:** Assess the student's grasp of the core concepts, such as data collection, analysis, and visualization, and their ability to apply these concepts in the project.
- **Questions:**
  - How effectively did the student collect and analyze data on recycling habits?
  - Were they able to create clear, accurate visualizations that helped inform the garden's design?
  - Can they explain the process of turning data into actionable insights?

### 3. Role Performance

- **Assessment Criteria:** Measure the student's success in fulfilling the responsibilities of the **Market Researcher & Data Analyst** role, including collaboration with other roles.
- **Questions:**
  - Did the student successfully collect and analyze data to support the garden design and promotional campaign?

- How well did they communicate their findings with the **Designer & Developer** and the **Digital Marketer & Project Manager**?
- Did they contribute effectively to the final report and presentation?

#### 4. Collaboration & Communication

- **Assessment Criteria:** Evaluate how well the student collaborated with their peers and communicated their findings.
- **Questions:**
  - How effectively did the student share insights with other roles throughout the project?
  - Did they collaborate well with the **Designer & Developer** to ensure data-driven design choices?
  - Were they able to communicate data findings clearly to support the **Digital Marketer & Project Manager** in the branding efforts?

#### 5. Branding & Final Presentation

- **Assessment Criteria:** Assess the student's involvement in the final branding and presentation efforts.
- **Questions:**
  - How well did the student use data to contribute to the project's branding, emphasizing community involvement and sustainability?
  - Were they able to present the final findings and demonstrate the impact of the project to the class or community?
  - How effectively did they support the **Digital Marketer & Project Manager** in the promotional campaign?

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#### Learning Outcomes for the Entire Project

- **Industry Understanding:** The student will demonstrate a deep understanding of recycling, sustainability, and how data-driven insights inform real-world projects.
- **Data Skills:** They will acquire skills in using AI tools for data collection, analysis, and visualization, creating clear and actionable insights from raw data.
- **Collaboration:** The student will learn how to effectively collaborate with peers, ensuring the data supports design and marketing efforts.
- **Branding:** The student will contribute to the branding of the community garden project, using data to highlight the impact of recycling and sustainability.

- **Communication:** By presenting their findings, the student will improve their ability to communicate data insights clearly and effectively.

Here's the **10-Lesson detailed plan** for the **Designer & Developer** role in the **Grade 3 Project: Creating a Community Garden with Recycled Materials**, integrating AI tools and connecting with the other roles like **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager**. This plan focuses on the tasks of designing the garden and developing digital components where needed. The project will end with a final presentation, including branding and showcasing the garden's design.

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## 10 Lessons Roadmap for Solution Designer / Developer

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Designer & Developer** will be responsible for designing the community garden based on the research conducted by the **Market Researcher & Data Analyst**, and developing digital components or models that can represent the garden.

Collaboration with the **Digital Marketer & Project Manager** will be essential for branding and final presentation efforts.

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### Lesson 1: Understanding the Project & Gathering Design Inputs (1-2 hours)

**Objective:** Understand the project goals and begin gathering design ideas from the team.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** to understand the community's preferences for recycling and sustainable gardening based on the initial research and data collection plan.
- Review preliminary data about materials available for the garden.
- Begin brainstorming design ideas for how recycled materials can be used effectively in the garden layout.

**AI Tools:** ChatGPT or DALL·E (to generate initial garden design ideas and layouts).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to understand the types of materials available and the community's recycling behaviors.
  - Align with the **Digital Marketer & Project Manager** on initial branding concepts that align with the garden's design and sustainability goals.
- 

## **Lesson 2: Sketching Initial Designs (1-2 hours)**

**Objective:** Create initial design sketches for the community garden using input from the research team.

- **Tasks:**
  - Using **Figma** or **Canva**, create initial sketches of the garden layout, focusing on how different recycled materials (plastic bottles, cardboard) can be incorporated into planters, pathways, and other elements.
  - Collaborate with the **Market Researcher & Data Analyst** to ensure that the design reflects community preferences, based on the survey data.
  - Prepare a few different layout options to present to the team for feedback.

**AI Tools:** Figma, Canva, or DALL·E (for garden design and layout ideas).

**Connection Points:**

- Review the initial sketches with the **Market Researcher & Data Analyst** to ensure that the materials align with the data.
  - Begin discussing the designs with the **Digital Marketer & Project Manager** to align branding with design concepts.
- 

## **Lesson 3: Finalizing the Garden Layout & Material Use (1-2 hours)**

**Objective:** Finalize the layout for the community garden and decide on the use of recycled materials.

- **Tasks:**

- Refine the initial garden sketches based on team feedback, incorporating any additional ideas or materials suggested by the **Market Researcher & Data Analyst**.
- Finalize the list of recycled materials that will be used in the garden design and ensure that all elements are sustainable and practical.
- Begin outlining the specific design elements for each section of the garden, such as planter designs, seating areas, and pathways made from recycled materials.

**AI Tools:** Figma (for finalizing designs), Google Sheets (for organizing the materials list).

**Connection Points:**

- Collaborate closely with the **Market Researcher & Data Analyst** to finalize material choices.
  - Work with the **Digital Marketer & Project Manager** to ensure that the garden's design can be easily branded and promoted.
- 

## Lesson 4: Developing Digital Components & Visual Models (1-2 hours)

**Objective:** Create digital models or visual representations of the community garden.

**● Tasks:**

- Use **Figma** or **Canva** to create a digital mockup of the garden, showing how the recycled materials will be incorporated into the final design.
- Create a visual model of the garden that can be used in the final presentation and promotional materials. This model should clearly represent the layout, materials, and overall aesthetic of the garden.
- Ensure that the model is easy to understand and visually appealing, as it will be part of the final presentation to the community.

**AI Tools:** Figma, Canva, Google SketchUp (for digital modeling and mockups).

**Connection Points:**

- Share the digital model with the **Market Researcher & Data Analyst** to ensure all materials are represented accurately.
- Work with the **Digital Marketer & Project Manager** to use the visual models in promotional campaigns.

## Lesson 5: Preparing Visual Design & Feedback Integration (1-2 hours)

**Objective:** Prepare the visual design and gather feedback from the team.

- **Tasks:**

- Present the digital model and design sketches to the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** for feedback.
- Make any necessary adjustments based on team feedback, ensuring that the design aligns with community preferences and promotional goals.
- Begin planning how the design will be presented to the community, considering visual elements that highlight the use of recycled materials.

**AI Tools:** Figma, Canva (for revisions based on feedback).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to refine the design and ensure that all elements are data-driven.
  - Work with the **Digital Marketer & Project Manager** to plan how the final design will be showcased to the community.
- 

## Lesson 6: Branding the Garden Design (1-2 hours)

**Objective:** Work with the **Digital Marketer & Project Manager** to create branding elements for the garden.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to develop branding materials, such as logos, slogans, and promotional designs, that reflect the sustainability and community-driven aspects of the garden.
- Ensure that the visual design aligns with the branding elements and that the garden's message of sustainability is clear in all promotional materials.
- Use AI tools like **Canva** to create visual assets for social media and other marketing channels.

**AI Tools:** Canva (for branding and promotional materials).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to ensure the branding is visually consistent with the garden design.
  - Collaborate with the **Market Researcher & Data Analyst** to include data-driven messaging in the branding materials.
- 

## Lesson 7: Refining Digital Models & Preparing for Final Presentation (1-2 hours)

**Objective:** Refine the digital models and prepare for the final presentation.

- **Tasks:**
  - Refine the digital model based on team feedback and ensure that it is ready for the final presentation.
  - Begin preparing slides or visual aids for the final presentation, showcasing the design process, the recycled materials used, and how the garden will benefit the community.
  - Work closely with the **Market Researcher & Data Analyst** to integrate data insights into the presentation.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to include data insights in the presentation.
  - Work with the **Digital Marketer & Project Manager** to ensure that the presentation aligns with the branding strategy.
- 

## Lesson 8: Finalizing the Garden Design & Preparing Presentation Materials (1-2 hours)

**Objective:** Finalize the garden design and prepare materials for the final presentation.

- **Tasks:**
  - Finalize all visual materials, including digital models, posters, and any other design elements that will be used in the final presentation.
  - Ensure that the final design is visually appealing and accurately represents the garden layout, including the use of recycled materials.

- Share the final design with the **Digital Marketer & Project Manager** to ensure alignment with the overall branding effort.

**AI Tools:** Figma, Canva (for finalizing visual materials).

**Connection Points:**

- Work with the **Market Researcher & Data Analyst** to ensure the final design reflects community input.
  - Collaborate with the **Digital Marketer & Project Manager** to ensure that the branding materials are consistent with the design.
- 

### **Lesson 9: Presenting the Final Garden Design to the Community (1-2 hours)**

**Objective:** Present the final garden design and explain how recycled materials are used in the garden.

- **Tasks:**
  - Present the final design to the class or community, showcasing how recycled materials have been incorporated into the garden layout.
  - Work with the **Digital Marketer & Project Manager** to ensure that the branding message is clear and that the presentation highlights the community's involvement in the project.
  - Use AI tools to create visual aids that make the design easy to understand for the audience.

**AI Tools:** Google Slides, Canva (for final presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure that data-driven insights are included in the presentation.
  - Work with the **Digital Marketer & Project Manager** to deliver a cohesive branding message during the presentation.
- 

### **Lesson 10: Final Branding and Post-Project Collaboration (1-2 hours)**

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**Objective:** Collaborate with the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** to promote the project through branding and share the project's success story with the community.

- **Tasks:**

- Finalize the project presentation and branding effort, ensuring the design reflects the community's involvement and promotes environmental sustainability.
- Participate in a final team discussion to reflect on the project, discussing what worked well and what can be improved for future projects.
- Help create a social media campaign or blog post to share the project's success story with a broader audience, highlighting how the garden project supports environmental sustainability and community involvement.

**AI Tools:** **Canva** (for creating promotional materials), **Grammarly** (for writing social media posts or blog content).

**Connection Points:**

- Collaborate with the **Digital Marketer & Project Manager** to ensure the project is branded and promoted effectively.
- Share the final project design and branding with the community through digital platforms or in-person presentations.

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**Final Assessment at Project Level (for the Designer & Developer Role):**

- **Industry Understanding:**

- Can the student explain how recycled materials were used to design the community garden?
- How well does the student understand the impact of design on environmental sustainability and community engagement?

- **Concept Understanding:**

- Evaluate the student's ability to apply design concepts in creating a sustainable garden layout.
- Did the student use recycled materials effectively and creatively?

- **Role Performance:**

- Did the student fulfill the responsibilities of the **Designer & Developer** role, including creating digital models and refining the garden design?

- How well did the student collaborate with the **Market Researcher & Data Analyst** to incorporate data insights into the design?
  - **Collaboration:**
    - Did the student communicate effectively with the other roles and integrate their input into the final design?
    - How well did the student contribute to the final presentation and branding effort?
  - **Branding & Final Presentation:**
    - Did the student contribute to the branding and promotion of the project, using their design skills to create visually appealing materials?
    - How effectively did the student participate in the final presentation, showcasing the design and promoting the project to the community?
- 

### Learning Outcomes for the Entire Project:

- **Design & Development Skills:** The student will develop skills in using AI tools like **Figma** and **Canva** to create designs and digital models.
- **Industry Knowledge:** The student will gain a deeper understanding of sustainable design and how to incorporate recycled materials into real-world projects.
- **Collaboration & Communication:** The student will improve their ability to work with other roles, ensuring that data and branding are integrated into the design process.
- **Branding & Presentation:** The student will contribute to branding efforts and learn how to present their design in a professional, visually appealing manner.

This 10-Lesson plan focuses on ensuring the **Designer & Developer** role is integrated with the other roles, using AI tools and collaborative feedback to create a sustainable, community-driven garden design. The plan culminates in a final presentation and branding effort that promotes the project's impact.

## 10 Lessons Roadmap for Project Manager / Digital Marketer

Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Digital Marketer & Project Manager** will handle project organization and branding. This includes creating promotional materials, managing timelines using Trello, and working with other roles like the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure the project's success.

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### Lesson 1: Understanding the Project & Setting Up Project Management (1-2 hours)

**Objective:** Understand the project's goals, set up the project management system, and begin organizing the project timeline.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** and the **Designer & Developer** to understand their roles and align on the project's overall goals.
- Set up a **Trello** board to organize the project tasks. Create lists for "To-Do," "In Progress," and "Completed."
- Assign tasks for each role and create a project timeline, including deadlines for survey creation, design feedback, branding, and the final presentation.

**AI Tools:** **Trello, Google Calendar** (for project management).

**Connection Points:**

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- Collaborate with the **Market Researcher & Data Analyst** to schedule tasks related to survey creation and data analysis.
  - Coordinate with the **Designer & Developer** to schedule design feedback and finalize the garden layout.
- 

## Lesson 2: Creating a Branding Strategy (1-2 hours)

**Objective:** Develop a branding strategy for the community garden project, including logos, slogans, and promotional materials.

- **Tasks:**
  - Brainstorm branding ideas with the **Designer & Developer** to create a consistent theme that reflects the garden's sustainability and recycling message.
  - Use **Canva** to design a logo and select a color scheme that represents the community garden's values.
  - Create a simple slogan for the project, emphasizing sustainability and community involvement (e.g., "Grow Green, Recycle Smart").

**AI Tools:** Canva, Adobe Spark (for branding materials).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden design.
  - Work with the **Market Researcher & Data Analyst** to include data insights (such as community interest in recycling) in the branding strategy.
- 

## Lesson 3: Promoting the Survey & Engaging the Community (1-2 hours)

**Objective:** Help distribute the survey created by the **Market Researcher & Data Analyst** and engage the community.

- **Tasks:**
  - Use **social media platforms** or school-based networks to distribute the survey to the community, promoting it as part of the sustainable garden initiative.

- Post on platforms like **ClassDojo** or school newsletters, explaining how community feedback will shape the garden.
- Track survey responses using Trello, updating the board as the community engages.

**AI Tools:** Facebook, Instagram, ClassDojo (for promoting surveys).

**Connection Points:**

- Coordinate with the **Market Researcher & Data Analyst** to ensure survey responses are collected efficiently.
  - Share community engagement data with the **Designer & Developer** for design feedback.
- 

## Lesson 4: Tracking Progress & Adjusting the Timeline (1-2 hours)

**Objective:** Review the project's progress and adjust the timeline if necessary.

- **Tasks:**
  - Use **Trello** to track the completion of tasks, including survey creation, data collection, and initial design sketches.
  - Hold a quick meeting with the team to check if any adjustments are needed for the timeline (e.g., more time for data collection or design revisions).
  - Update the project timeline based on team feedback, ensuring all tasks stay on track for completion by Lesson 10.

**AI Tools:** Trello, Google Calendar (for timeline adjustments).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure enough time is allocated for data analysis.
  - Work with the **Designer & Developer** to adjust the design schedule if needed.
- 

## Lesson 5: Creating Social Media Content for Promotion (1-2 hours)

**Objective:** Create and schedule social media content to promote the community garden project and encourage more participation.

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- **Tasks:**

- Use **Canva** to design promotional posts that highlight the garden's sustainability goals and the use of recycled materials.
- Work with the **Market Researcher & Data Analyst** to include data from the survey, such as what materials the community recycles most.
- Schedule social media posts to go live on specific days leading up to the final presentation, using tools like **Hootsuite**.

**AI Tools:** **Canva, Hootsuite, Facebook, Instagram** (for social media content and scheduling).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to use data insights in social media posts.
  - Work with the **Designer & Developer** to ensure the branding and visuals are consistent with the garden design.
- 

## Lesson 6: Refining the Branding & Promotional Campaign (1-2 hours)

**Objective:** Refine the branding strategy based on community feedback and prepare for the final promotional push.

- **Tasks:**

- Review the branding materials with the **Designer & Developer** to ensure they align with the final garden design.
- Use feedback from the community to adjust slogans, logos, or promotional content if needed.
- Prepare a final promotional push for social media, encouraging community members to attend the presentation or contribute to the garden.

**AI Tools:** **Canva, Google Sheets** (for organizing feedback and refining branding).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure branding and design remain aligned.
  - Use insights from the **Market Researcher & Data Analyst** to refine the promotional message.
-

## Lesson 7: Preparing for the Final Presentation (1-2 hours)

**Objective:** Begin preparing materials for the final presentation, including slides and talking points.

- **Tasks:**

- Use **Google Slides** or **PowerPoint** to start creating the final presentation, which will showcase the project's progress, data insights, and design.
- Include branding elements (logos, slogans) and key visuals from the **Designer & Developer**.
- Work with the **Market Researcher & Data Analyst** to include data-driven insights in the presentation, such as survey results and recycling data.

**AI Tools:** Google Slides, PowerPoint, Canva (for creating the presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure the data is visually presented in the slides.
- Ensure that branding elements from the **Designer & Developer** are included in the presentation.

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## Lesson 8: Finalizing the Presentation & Promotional Strategy (1-2 hours)

**Objective:** Finalize the presentation and promotional strategy for the community garden project.

- **Tasks:**

- Review the presentation with the team and make any necessary revisions.
- Prepare a final promotional post or email to invite community members to the presentation.
- Ensure that the branding is consistent across all promotional materials and presentation slides.

**AI Tools:** Google Slides, Canva (for finalizing presentation and promotional content).

**Connection Points:**

- Work with the **Designer & Developer** and **Market Researcher & Data Analyst** to ensure the presentation is cohesive and reflects the project's goals.

## Lesson 9: Final Presentation Preparation & Rehearsal (1-2 hours)

**Objective:** Rehearse the final presentation and ensure that all materials are ready for delivery.

- **Tasks:**

- Conduct a rehearsal with the team to ensure each role is prepared to present their part of the project.
- Finalize the promotional strategy and ensure that the community is aware of the presentation.
- Check the branding materials and visuals to ensure consistency throughout the presentation.

**AI Tools:** Google Slides, Canva (for final rehearsal and checking visuals).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure everyone is aligned for the presentation.
- 

## Lesson 10: Delivering the Final Presentation & Branding Campaign (1-2 hours)

**Objective:** Deliver the final presentation and launch the final branding campaign.

- **Tasks:**

- Present the community garden project to the class or community, highlighting how recycling has been integrated into the garden's design.
- Launch the final branding campaign on social media or school platforms, using the content created throughout the project.
- Discuss the impact of the project on the community and encourage further participation in sustainable initiatives.

**AI Tools:** Google Slides, Canva, Facebook, Instagram (for delivering the presentation and launching the branding campaign).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to deliver a cohesive final presentation.

# Teacher Guidelines to Conduct AI Based Projects

## Teacher Guideline 1 - Detailed Tool Instructions

This guide provides teachers with step-by-step instructions on using essential tools for the 10-Lesson Introduction to AI, Data Science, and Technology Basics. It includes screenshots, QR code links to short instructional videos, and sample exercises to make it easy for teachers to practice before introducing these tools to students.

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### Tool 1: Canva (Graphic Design Basics)

- **Purpose:** Canva allows students to create visuals like posters, reports, and presentation slides, which they can use to showcase project findings.
  - **Quick-Start Steps:**
    - **Open Canva:** Go to [canva.com](https://canva.com) and create a free account.
    - **Choose a Template:** Select “Create a Design” and choose a template, like “Poster” or “Presentation.”
    - **Customize Design:** Encourage students to add text, images, and icons. They can drag elements to adjust positions, change colors, and edit fonts.
    - **Save & Download:** When finished, click “Download” to save the design as a PDF or image.
  - **Sample Exercise:** Create a digital poster titled “How AI Helps Us Every Day” with a simple layout and two to three icons or images related to technology.
- 

### Tool 2: Google Forms (Data Collection)

- **Purpose:** Google Forms allows students to create surveys, gather responses, and analyze basic data, such as preferences or community feedback.
- **Quick-Start Steps:**
  - **Access Google Forms:** Go to [forms.google.com](https://forms.google.com) and log in with a Google account.
  - **Start a New Form:** Click “Blank” to start a new form or use a pre-made template.

- **Add Questions:** Select “+” to add different question types (multiple choice, short answer, etc.). Teachers can guide students to add three to five questions for practice.
  - **Share the Form:** Click “Send” and choose the “Link” option to copy and share the form with students or family members for responses.
  - **Review Responses:** Click “Responses” to view and analyze results.
  - **Sample Exercise:** Create a form titled “Favorite School Activities” with questions like “What’s your favorite subject?” and “Which club would you join?”
- 

### Tool 3: Scratch Jr. / Scratch (Basic Coding Concepts)

- **Purpose:** Scratch Jr. (for younger students) and Scratch teach basic coding logic through drag-and-drop programming, helping students understand how computers follow instructions.
  - **Quick-Start Steps:**
    - **Access Scratch:** Go to [scratch.mit.edu](https://scratch.mit.edu) for Scratch or download **Scratch Jr.** on tablets.
    - **Start a New Project:** Click “Create” on Scratch (or open Scratch Jr.) and introduce the interface (sprite area, code blocks).
    - **Add Movements:** Drag “Motion” blocks like “Move 10 Steps” to make the character move.
    - **Add Dialogue:** Use “Looks” blocks like “Say [Hello!]” to add dialogue to the characters.
  - **Sample Exercise:** Create a short animation where a character says “Hello!” and moves across the screen.
- 

### Tool 4: Trello (Simple Project Management)

- **Purpose:** Trello is a simple project management tool that organizes tasks and allows students to track project progress in a visual “board” format.
- **Quick-Start Steps:**
  - **Access Trello:** Go to [trello.com](https://trello.com) and sign up for a free account.
  - **Create a New Board:** Click “Create New Board” and name it according to the project (e.g., “Community Garden Project”).
  - **Add Lists:** Create three lists titled “To Do,” “In Progress,” and “Done.”

- **Add Task Cards:** Under “To Do,” add tasks as cards (e.g., “Research recycling materials” or “Design garden layout”).
  - **Move Cards Across Lists:** Drag cards to “In Progress” when a task starts and to “Done” upon completion.
  - **Sample Exercise:** Set up a simple Trello board for the “Community Garden Project,” with three cards under “To Do.”
- 

### Tool 5: Google Sheets (Data Analysis Basics)

- **Purpose:** Google Sheets introduces students to basic data handling, allowing them to enter data, create charts, and interpret findings.
- **Quick-Start Steps:**
  - **Access Google Sheets:** Go to [sheets.google.com](https://sheets.google.com) and start a new blank spreadsheet.
  - **Enter Data:** Demonstrate entering data in columns (e.g., “Activity” and “Number of Students”).
  - **Create a Chart:** Highlight data, click “Insert,” then “Chart.” Google Sheets will generate a chart based on selected data.
  - **Customize Chart:** Adjust the chart’s appearance by changing colors, titles, and labels.
- **Sample Exercise:** Input survey data on “Favorite School Activities” and create a bar chart showing the results.

### Teacher Guideline 2: Simplified Technical Explanations & Essential Skills Overview

This section offers **easy-to-understand explanations** for complex concepts in AI and data science, along with an overview of essential skills for each role. Teachers can use these simplified definitions and skill descriptions to introduce foundational concepts and set expectations for the skills students will build across the activities.

### Core AI & Data Science Concepts

- **AI (Artificial Intelligence):**

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- **Simple Explanation:** AI is a “smart helper” that can learn and make decisions, much like how people do.
  - **Example:** Just as Netflix recommends movies based on past viewing habits, AI learns from patterns to give us what we might like.
  - **Machine Learning:**
    - **Simple Explanation:** Machine learning is when computers learn by looking at examples and improving with practice.
    - **Example:** Like learning to recognize different breeds of dogs by seeing many examples, a machine learns to make predictions based on data.
  - **Data:**
    - **Simple Explanation:** Data is information that we can collect, analyze, and use to make decisions.
    - **Example:** Schools collect data on attendance and grades to understand how students are doing.
  - **Coding:**
    - **Simple Explanation:** Coding is giving instructions to a computer to perform specific tasks.
    - **Example:** Just like following a recipe to bake a cake, coding gives step-by-step instructions to make things happen on a computer.
- 

## Essential Skills for Each Role

- **AI-Powered Market Researcher:**
  - **Skills Developed:** Survey creation, data collection, data analysis.
  - **Practical Application:** Learning to gather information from people and analyze trends, such as classmates’ favorite activities.
- **AI-Powered Data Analyst:**
  - **Skills Developed:** Data interpretation, data visualization, basic statistics.
  - **Practical Application:** Using data charts to understand patterns, like which snacks are most popular.
- **AI-Based Solution Designer:**
  - **Skills Developed:** Design thinking, creative problem-solving, prototyping.
  - **Practical Application:** Developing and presenting ideas for real-world problems, like designing a sustainable garden layout.
- **AI-Based Solution Developer:**
  - **Skills Developed:** Coding basics, creating simple applications, understanding logic sequences.

- **Practical Application:** Creating digital animations or simple apps that demonstrate problem-solving, such as coding an animation in Scratch Jr.
  - **AI-Powered Digital Marketer:**
    - **Skills Developed:** Digital content creation, branding basics, public speaking.
    - **Practical Application:** Making posters and presentations to promote projects, helping students learn how to communicate ideas effectively.
- 

## Glossary of Key Terms

- **Artificial Intelligence (AI):** Technology that enables computers to perform tasks that require human-like thinking.
  - **Data:** Information collected for analysis, like survey responses or numerical figures.
  - **Machine Learning:** A branch of AI where computers learn patterns from data to make predictions.
  - **Coding:** Writing instructions in a language computers understand to perform specific tasks.
  - **Project Management:** The process of organizing tasks and tracking progress to complete a project.
- 

## Using This Section

- **Introduce Concepts in Context:** Present these terms and skills in context, relating them to daily project tasks so students understand their practical importance.
  - **Skill Building Across Activities:** Emphasize how each activity will help students gain and practice these skills, which are fundamental for future projects and career paths.
  - **Quick Reference Glossary:** Keep this glossary accessible throughout the project to help both teachers and students reinforce their understanding of new terms.
- 

## Teacher Guideline 3: Flexible Options for Lower-Tech Classrooms

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This section provides **non-digital alternatives** for each project and activity, helping teachers adapt projects to classrooms with limited technology resources. Each activity includes an **offline option** using common classroom materials or low-tech tools, allowing teachers to achieve the same learning goals without relying heavily on computers or internet access.

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## 1. Canva (Graphic Design Basics)

- **Purpose:** Instead of Canva, students can use **colored paper, markers, and glue** to create posters or designs by hand.
  - **Alternative Steps:**
    1. **Brainstorm & Sketch:** Have students sketch their design ideas on paper first, planning colors, shapes, and text.
    2. **Create the Poster:** Provide colored paper, markers, scissors, and glue for students to create a poster or design.
    3. **Present:** Students present their designs to the class, explaining their choices just as they would if created digitally.
  - **Goal Achieved:** Students learn basic design principles, practice creativity, and share their work, just as they would on Canva.
- 

## 2. Google Forms (Data Collection)

- **Purpose:** For data collection, use **paper surveys** instead of Google Forms.
  - **Alternative Steps:**
    1. **Create a Survey:** Write survey questions on a large sheet of paper or chalkboard. Students copy questions onto their own papers or teachers provide printed handouts.
    2. **Collect Responses:** Each student asks family or classmates to answer the survey questions and records responses by hand.
    3. **Discuss Results:** Students tally responses and analyze results as a class, discussing patterns and trends.
  - **Goal Achieved:** Students learn the basics of data collection, develop survey questions, and analyze responses without needing an online form.
- 

## 3. Scratch Jr. / Scratch (Basic Coding Concepts)

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- **Purpose:** Instead of using Scratch, introduce **coding concepts with role-playing or written instructions.**
  - **Alternative Steps:**
    1. **Define “Instructions”:** Explain that coding involves giving clear instructions, just like following a recipe.
    2. **Create a Simple “Code”:** Write simple instructions for students to follow, such as “Move 2 steps forward, turn left, jump.” This simulates basic coding commands.
    3. **Role-Playing Game:** Assign students to be “computers” and “programmers” and have them follow each other’s instructions to understand coding.
  - **Goal Achieved:** Students understand basic coding principles (sequences, commands) through role-play, preparing them for digital coding later on.
- 

#### 4. Trello (Project Management)

- **Purpose:** Replace Trello with a **physical task board** in the classroom.
  - **Alternative Steps:**
    1. **Set Up a Task Board:** Divide a whiteboard, corkboard, or wall into sections: “To Do,” “In Progress,” and “Done.”
    2. **Create Task Cards:** Write tasks on sticky notes or index cards and place them under “To Do.”
    3. **Move Tasks Physically:** As tasks are completed, students move the sticky notes to “In Progress” and then “Done,” visually tracking project progress.
  - **Goal Achieved:** Students learn project management basics with a physical board, gaining the same organizational skills they would on Trello.
- 

#### 5. Google Sheets (Data Analysis Basics)

- **Purpose:** For data visualization, use **graph paper and markers** instead of Google Sheets.
- **Alternative Steps:**
  1. **Record Data by Hand:** Students list data (e.g., favorite animals or colors) on paper.

2. **Create a Graph:** On graph paper, students create a bar chart or pie chart representing the data they collected.
  3. **Discuss Findings:** Students share their hand-drawn graphs with the class, explaining what the data shows.
- **Goal Achieved:** Students practice data visualization and interpretation skills using manual tools, allowing them to analyze and present data without digital software.
- 

### How to Use These Alternatives

- **Flexible Planning:** Teachers can choose to follow digital or non-digital versions based on classroom resources. These options allow for flexible lesson planning and ensure each student can fully participate.
  - **Encouraging Creativity:** Using hands-on materials like paper, markers, and role-play introduces new elements of creativity, helping students relate abstract concepts to tangible experiences.
  - **Achieving Learning Goals:** Whether digital or physical, these alternatives achieve the same learning objectives in each project, ensuring that all students gain valuable skills in data collection, analysis, design, and project management.
- 

By providing these **low-tech options**, teachers can adapt each project and activity to the resources available, making the content accessible to all classrooms.

Next, we'll move to the **Clear Role Descriptions for Teachers and Students** section, which defines specific responsibilities for each Lesson's activity.

### Teacher Guideline 4 - Student Motivation and Engagement Tips

This section offers **practical strategies** to help teachers keep students engaged and motivated as they explore AI, data science, and project-based learning. From setting small goals to celebrating achievements, these tips focus on making learning enjoyable and helping students build confidence as they develop new skills.

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## 1. Use Gamification Techniques

- **Create Mini-Challenges:** Turn activities into small challenges, such as a “Data Detective” day where students have to uncover patterns in a dataset or a “Design Sprint” where they brainstorm solutions quickly.
- **Reward Progress:** Offer digital badges or certificates for completing key milestones (e.g., “Survey Creator,” “Data Visualizer”), which can be printed or displayed in the classroom.
- **Make It Collaborative:** Allow students to earn points as teams, motivating them to work together and encourage each other.

## 2. Set Clear, Achievable Goals

- **Daily and Weekly Goals:** Break down the 10-Lesson program into daily goals so students know what to expect and can celebrate small wins.
- **Visual Progress Tracker:** Use a board to track the class’s progress, where students can move a marker or add a sticker when a Lesson’s tasks are complete, creating a sense of collective accomplishment.

## 3. Foster Curiosity and Relevance

- **Relate Projects to Real Life:** Show students how each activity is relevant to their lives, like explaining how data collection helps companies decide on new toy designs.
- **Encourage Questions:** Create an “Ask Anything” box where students can submit questions about AI, data science, or any topic that piques their interest. Spend a few minutes each day addressing these questions.
- **Introduce Real-World Examples:** Share age-appropriate examples of AI in action, like how Google Maps uses data to predict traffic or how Netflix suggests movies based on viewing history.

## 4. Celebrate Progress and Effort, Not Just Results

- **Acknowledge Effort:** Highlight students’ hard work and creativity, especially when they try something new or face challenges, reinforcing a growth mindset.
- **Showcase Student Work:** Create a “Student Spotlight” wall or virtual board to display projects, survey results, and designs, celebrating each student’s contributions.

- **Share Success Stories:** Occasionally share stories about young inventors, tech entrepreneurs, or environmental activists who made a difference with creative ideas, inspiring students to think about their potential.

## 5. Encourage Reflection and Self-Assessment

- **End-of-Lesson Reflections:** Have students write or share one thing they learned and one question they have after each Lesson's activity, helping them process what they've gained.
- **Weekly Journaling:** Encourage students to keep a weekly journal of their experiences, including what they enjoyed, what they found challenging, and what they're excited to try next.
- **Peer Feedback:** Create moments for students to share and receive constructive feedback from peers, fostering collaboration and growth.

## 6. Make Learning Fun with Hands-On Activities

- **Incorporate Art and Creativity:** Allow students to incorporate drawings, crafts, or physical models in their projects, especially for roles like the Solution Designer or Digital Marketer.
- **Allow Free Exploration:** Give students "exploration days" where they can use tools like Canva or Scratch for their own mini-projects, letting them practice skills in a low-pressure setting.
- **Involve the Class in Problem-Solving:** Let students take ownership of small project decisions, like choosing survey topics or deciding on themes for presentations, fostering autonomy and pride in their work.

## 7. Create an Inclusive and Supportive Environment

- **Encourage Teamwork:** Pair students with different strengths so they can support each other, learning from each other's skills and experiences.
- **Celebrate Diversity:** Recognize and appreciate diverse ideas, reinforcing that every perspective adds value to the project.
- **Provide Extra Support:** For students who may need extra help with digital tools or understanding concepts, set aside time for one-on-one assistance or pair them with a more confident peer.

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### Using These Tips in the Classroom

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- **Daily Check-Ins:** Begin each day with a brief check-in, asking students how they're feeling about the project and addressing any concerns. This builds rapport and shows students their engagement matters.
- **Make Learning Visible:** Use visual progress trackers, displays, or badges so students can see and celebrate their growth.
- **Feedback Loop:** Use the reflections and self-assessments to adjust the pacing or focus of activities as needed, keeping students motivated.

With these **motivation and engagement tips**, teachers can make each activity dynamic, enjoyable, and meaningful for students, encouraging sustained enthusiasm and participation throughout the 10-Lesson program.

## Teacher Guideline 5 - Assessment Guidelines

This section provides **structured assessment criteria** to help teachers evaluate students' learning progress and engagement throughout each project. Assessments are designed to be **flexible and holistic**, with a focus on skills, creativity, and teamwork rather than just final results.

### 1. Assessment Categories

- **Knowledge and Understanding:** Measures students' grasp of AI, data science, and technology basics.
- **Skills Development:** Evaluates hands-on skills like data collection, coding, and digital design.
- **Engagement and Participation:** Assesses each student's level of involvement, curiosity, and teamwork.
- **Creativity and Problem-Solving:** Looks at students' ability to innovate, think critically, and adapt to challenges.
- **Ethical and Moral Development:** Observes students' understanding of ethical considerations, teamwork, and social responsibility in their projects.

### 2. Suggested Assessment Criteria by Role

Each role has specific criteria to assess students' skill development and contribution to the project.

- **AI-Powered Market Researcher**
  - **Data Collection Quality:** Accuracy and relevance of survey questions and data collection.

- **Interpretation:** Ability to identify trends or patterns in data and articulate findings.
- **Presentation:** Clarity and effectiveness in presenting research results.
- **AI-Powered Data Analyst**
  - **Data Organization:** Completeness and organization of data entries.
  - **Visualization:** Effectiveness of graphs and charts in representing data insights.
  - **Analysis:** Depth of interpretation, including spotting patterns and summarizing key findings.
- **AI-Based Solution Designer**
  - **Creativity:** Originality and practicality of design ideas.
  - **Functionality:** Relevance of design in addressing the project problem.
  - **Presentation Skills:** Ability to clearly explain the design choices and project plan.
- **AI-Based Solution Developer**
  - **Coding Basics:** Proficiency in basic coding commands, sequences, and logic.
  - **Technical Understanding:** Ability to debug, improve, and complete simple code.
  - **Project Application:** How well the code contributes to solving the problem.
- **AI-Powered Digital Marketer**
  - **Creativity in Marketing:** Innovation and appeal of digital content, logos, or posters.
  - **Audience Engagement:** Ability to design materials that capture interest.
  - **Communication Skills:** Clarity in expressing project goals and impact.

### 3. Sample Rubric for Holistic Assessment

Category	Criteria	Excellent	Satisfactory	Needs Improvement
<b>Knowledge and Understanding</b>	Understanding of concepts	Demonstrates thorough understanding of AI and data concepts	Shows general understanding of key concepts	Limited understanding, needs more support

<b>Skills Development</b>	Hands-on ability	Completes tasks with minimal guidance, applies tools effectively	Completes most tasks with guidance	Requires frequent help, lacks confidence
<b>Engagement and Participation</b>	Involvement in activities	Actively participates, takes initiative	Participates in most tasks, shows interest	Low engagement, needs encouragement
<b>Creativity and Problem-Solving</b>	Innovative thinking	Produces creative solutions, adapts to challenges	Produces workable solutions, accepts feedback	Limited creativity, struggles with problem-solving
<b>Ethical and Moral Development</b>	Teamwork and ethics	Consistently demonstrates responsibility and teamwork	Generally responsible, works well with others	Needs guidance to understand teamwork and ethics

#### 4. Reflective Self-Assessment

Encourage students to assess their own progress at the end of each week. Self-assessment questions could include:

- “What was the most interesting thing I learned this week?”
- “What skill am I most proud of practicing?”
- “What would I like to improve in the next project?”

#### Using These Assessment Guidelines

- **Flexible Application:** Teachers can use the rubric and criteria flexibly, adapting them to individual students' progress and needs.
- **Encouragement-Focused:** Emphasis is placed on effort, curiosity, and growth, encouraging students to enjoy the learning process.

- **Feedback Opportunities:** These assessments provide insights for teachers to give constructive feedback, helping students build confidence and refine their skills.

With these **Assessment Guidelines**, teachers have a clear framework to evaluate student progress, celebrate achievements, and offer constructive guidance throughout each project.



## Some of More Real life Problems mapped with Curriculum Concepts using AI and Industry Roles

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### 1. Community Garden with Recycled Materials - Grade 3,4

- **Industry:** Environmental Science
- **Problem:** How can we create a sustainable community garden using recycled materials to reduce waste?

- **Proposed Solution:** Design a community garden where all materials used are sourced from recycling, and develop a system to track material usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Collect data on recycling habits, garden layouts, and analyze the effectiveness of recycled materials.
  - **AI-Based Solution Designer & Developer:** Design the garden layout using digital tools, focusing on sustainability and innovative design.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project timeline, create promotional materials for the community, and raise awareness on environmental benefits.

## Assessments

### Curriculum Assessment:

- **Science:** Understanding plant life cycles, ecosystems, recycling, and environmental sustainability.
- **Math:** Measurement (garden dimensions), data handling (tracking material usage).
- **English:** Writing reports on the design, recycling processes, and presenting findings to the class or community.
- **Social Studies:** Understanding community involvement and the role of individuals in environmental responsibility.

### Ethical & Moral Development:

- Promoting sustainability, resource conservation, and teamwork.

### Industry Interest:

- Developing interest in environmental science and sustainability.

### Role Performance:

- **Market Researcher:** Data collection and analysis accuracy.
- **Solution Designer:** Creativity and practicality in garden design.
- **Digital Marketer:** Effectiveness in promotion and project management.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie.

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## 2. Designing a Solar-Powered Device - Grade 3,4

- **Industry:** Renewable Energy
- **Problem:** How can we use solar energy more efficiently in homes and schools?
- **Proposed Solution:** Design a solar-powered device (e.g., a small fan or light) and track its energy usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Research solar energy usage in homes and schools, analyze data on energy efficiency.
  - **AI-Based Solution Designer & Developer:** Design a functional solar-powered device and develop a visual prototype.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project, create awareness campaigns on solar energy benefits, and coordinate tasks.

### Assessment:

#### Curriculum Assessment:

- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy tracking) and data analysis (efficiency calculations).
- **English:** Writing manuals on how the solar-powered device works and presenting findings.
- **Technology:** Introduction to basic electronics and renewable energy systems.

#### Ethical & Moral Development:

- Promoting responsible energy use and clean energy.

#### Industry Interest:

- Sparking interest in renewable energy technologies.

#### Role Performance:

- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Creativity and innovation in solar device design.
- **Digital Marketer:** Effectiveness in promoting solar energy usage.

Tools: Canva, Figma, Google Sheets, Google Docs, Microsoft Excel, Trello, ChatGPT, CallAnnie.

### 3. Animal Habitat Conservation Project - Grade 3,4

- **Industry:** Wildlife Conservation
- **Problem:** How can we protect animal habitats and promote conservation?
- **Proposed Solution:** Create a model of an animal habitat and propose solutions to protect the species living there.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research animal habitats and analyze data on endangered species.
- **AI-Based Solution Designer & Developer:** Create a model of an animal habitat using recycled materials.
- **AI-Based Digital Marketer & Project Manager:** Create educational materials and campaigns to raise awareness about animal conservation.

#### Grade 3 Curriculum Assessment:

- **Science:** Animal habitats, ecosystems, conservation.
- **Math:** Data collection and graphing on animal populations.
- **English:** Writing reports on endangered species and creating presentations on conservation.
- **Social Studies:** Understanding the impact of human activities on wildlife.

#### Ethical & Moral Development:

- Understanding environmental responsibility and protecting wildlife.

#### Industry Interest:

- Interest in wildlife conservation and environmental protection.

#### Role Performance:

- **Market Researcher:** Quality of research on animal habitats.
- **Solution Designer:** Creativity in designing the habitat model.
- **Digital Marketer:** Effectiveness in promoting awareness campaigns.

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**Tools:**

- Canva, Figma, Google Docs, Google Forms, Trello, Microsoft Excel, ChatGPT, CallAnnie.

**4. Building a Water Filtration System - Grade 3,4**

- **Industry:** Environmental Engineering
- **Problem:** How can we create a simple, effective water filtration system to provide clean water?
- **Proposed Solution:** Design and build a basic water filtration system using accessible materials.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the effectiveness of water filtration systems and collect data on clean water access.
- **AI-Based Solution Designer & Developer:** Design and build the water filtration system using simple materials.
- **AI-Based Digital Marketer & Project Manager:** Create campaigns to educate the community on water filtration and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Water filtration processes, the water cycle.
- **Math:** Measurement (volume of water filtered) and comparison of water quality data.
- **English:** Writing reports on the water filtration process and results.
- **Social Studies:** Understanding the importance of clean water access.

**Ethical & Moral Development:**

- Promoting sustainability, water conservation, and clean water access.

**Industry Interest:**

- Interest in environmental engineering and public health solutions.

**Role Performance:**

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- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Practicality of the water filtration system.
- **Digital Marketer:** Clarity in educational campaigns on clean water access.

**Tools:**

- **Canva, Trello, Google Sheets, Microsoft Excel, Figma, Google Forms, ChatGPT, CallAnnie.**

**5. Creating a Basic Weather Station - Grade 3,4**

- **Industry:** Meteorology
- **Problem:** How can we monitor local weather and make predictions based on collected data?
- **Proposed Solution:** Build a simple weather station and collect data on temperature, rainfall, and wind patterns.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research weather patterns and analyze local weather data.
- **AI-Based Solution Designer & Developer:** Design and build a basic weather station using available materials.
- **AI-Based Digital Marketer & Project Manager:** Create weather reports and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Weather patterns, atmospheric changes.
- **Math:** Recording and analyzing weather data.
- **English:** Writing weather reports and documenting data findings.
- **Technology:** Using sensors to monitor weather conditions.

**Ethical & Moral Development:**

- Understanding weather patterns and environmental preparedness.

**Industry Interest:**

- Interest in meteorology and climate science.

**Role Performance:**

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- **Market Researcher:** Accuracy in data collection.
- **Solution Designer:** Functionality of the weather station design.
- **Digital Marketer:** Effectiveness in promoting weather awareness.

**Tools:**

- **Google Sheets, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

## 6. Designing a Recycled Art Exhibition - Grade 3,4

- **Industry:** Creative Arts and Environmental Awareness
- **Problem:** How can we use art to promote recycling and sustainability?
- **Proposed Solution:** Design and create art pieces from recycled materials and hold an exhibition.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the use of recycled materials in art and analyze environmental impacts.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create simple animations showcasing how recycled materials are transformed into art.
- **AI-Based Digital Marketer & Project Manager:** Promote the exhibition and manage the timeline, raising awareness of recycling through art.

**Grade 3 Curriculum Assessment:**

- **Science:** Recycling, material science.
- **Math:** Estimation, measurement of materials.
- **English:** Writing descriptions for the art pieces, creating promotional content.
- **Art:** Designing creative, sustainable art from recycled materials.

**Ethical & Moral Development:**

- Promoting environmental sustainability and creativity through recycling.

**Industry Interest:**

- Creative arts, design, and environmental awareness.

**Role Performance:**

- **Market Researcher:** Effectiveness in researching the use of recycled materials.
- **Solution Designer:** Creativity in the design and transformation of recycled materials into art.
- **Digital Marketer:** Success in promoting the exhibition.

**Tools:**

- **Canva, Figma, Scratch Junior, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

**7. Community Helpers Documentary Project - Grade 3,4**

- **Industry:** Social Studies and Media
- **Problem:** How can we showcase the important roles of community helpers?
- **Proposed Solution:** Create a short documentary highlighting different community helpers and their contributions.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research various community helper roles and collect data on their contributions.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to create a simple app for learning about community helpers through interactive content.
- **AI-Based Digital Marketer & Project Manager:** Promote the documentary and app through social media campaigns and manage the project timeline.

**Grade 3 Curriculum Assessment:**

- **Social Studies:** Understanding the role of community helpers.
- **English:** Writing interview questions, documentary scripts.
- **Technology:** Using video editing software and **MIT App Inventor** for the project.
- **Art:** Creating visual aids and posters to promote the documentary.

**Ethical & Moral Development:**

- Promoting respect and appreciation for community helpers.

**Industry Interest:**

- Media production, journalism, and social services.

**Role Performance:**

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- **Market Researcher:** Depth and accuracy of research on community helpers.
- **Solution Designer:** Creativity in designing the interactive app.
- **Digital Marketer:** Effectiveness of promotional campaigns.

#### **Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Adobe Premiere Rush (for video editing), Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **8. Designing a School Recycling Program - Grade 3,4**

- **Industry:** Environmental Management
- **Problem:** How can we reduce waste at school by implementing a recycling program?
- **Proposed Solution:** Design a school-wide recycling program using **MIT App Inventor** to build an app that tracks recycling habits.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the school's current waste management practices and collect data on recycling efforts.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design an app that tracks recycling efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the recycling program through digital campaigns and manage the timeline.

#### **Grade 3 Curriculum Assessment:**

- **Science:** Waste management, recycling.
- **Math:** Data collection and analysis of waste reduction.
- **English:** Writing proposals and reports on recycling.
- **Social Studies:** Community responsibility for environmental protection.

#### **Ethical & Moral Development:**

- Promoting responsibility for environmental sustainability and reducing waste.

#### **Industry Interest:**

- Environmental management and sustainability.

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**Role Performance:**

- **Market Researcher:** Thoroughness in collecting and analyzing data on waste management.
- **Solution Designer:** Practicality and effectiveness of the recycling program app.
- **Digital Marketer:** Success in promoting recycling efforts.

**Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

**9. Creating a Basic Coding Project Using Scratch - Grade 3,4,5**

- **Industry:** Technology and Coding
- **Problem:** How can we use basic coding to create a fun, interactive project?
- **Proposed Solution:** Design a simple game or animation using **Scratch Junior**.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Analyze student preferences for coding projects, collect data on popular game themes.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to design and code the game or animation.
- **AI-Based Digital Marketer & Project Manager:** Promote the coding project to classmates, collect feedback on the game.

**Grade 3 Curriculum Assessment:**

- **Technology:** Introduction to coding and programming logic.
- **Math:** Logical sequencing and problem-solving.
- **English:** Writing instructions and documenting the coding process.
- **Art:** Designing characters and visual elements in the coding project.

**Ethical & Moral Development:**

- Promoting collaboration and responsible technology use.

**Industry Interest:**

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- Programming, game design, and technology development.

#### **Role Performance:**

- **Market Researcher:** Effectiveness in collecting and analyzing coding project preferences.
- **Solution Designer:** Creativity and functionality in the design of the game.
- **Digital Marketer:** Effectiveness in promoting the game.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

### **10. Local History and Culture Exploration - Grade 3,4**

- **Industry:** Social Studies and History
- **Problem:** How can we learn about the local history and culture of our community?
- **Proposed Solution:** Create a visual representation of local history using **Scratch Junior** to develop simple animations or interactive visuals.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research and collect data on local history and cultural events.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create interactive animations or visuals of historical events.
- **AI-Based Digital Marketer & Project Manager:** Promote the project and manage the research timeline.

#### **Grade 3 Curriculum Assessment:**

- **Social Studies:** Local history, traditions, and culture.
- **English:** Writing research reports and presenting findings.
- **Art:** Creating visual representations of historical events.
- **Technology:** Using online tools for research and design.

#### **Ethical & Moral Development:**

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- Promoting respect for cultural diversity and historical preservation.

#### **Industry Interest:**

- History, research, and digital storytelling.

#### **Role Performance:**

- **Market Researcher:** Thoroughness of research on local history.
- **Solution Designer:** Creativity in designing the historical timeline.
- **Digital Marketer:** Effectiveness in promoting cultural awareness.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **11. Smart Water Conservation System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can we use technology to reduce water waste in schools and homes?
- **Proposed Solution:** Design a system that monitors water usage and suggests ways to conserve water.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Collect data on water usage and analyze where most water is being wasted.
- **AI-Based Solution Designer & Developer:** Design a water conservation system using digital tools and sensors.
- **AI-Based Digital Marketer & Project Manager:** Manage the timeline and create awareness campaigns to promote water conservation.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Water cycle, water conservation, ecosystems.
  - **Math:** Measurement (tracking water usage), data handling.
  - **English:** Writing reports and presentations on water conservation.

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- **Social Studies:** Understanding global water issues and community involvement in conservation.

### Ethical & Moral Development:

- Teaching responsibility for conserving natural resources.

### Industry Interest:

- Fostering interest in environmental engineering and water management.

### Role Performance:

- **Market Researcher:** Accuracy in data collection on water usage.
- **Solution Designer:** Practicality of the water conservation system design.
- **Digital Marketer:** Effectiveness of water conservation promotion.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie, MIT App Inventor.

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## 12. Designing a Solar-Powered Classroom - Grade 4,5

- **Industry:** Renewable Energy
- **Problem:** How can we make classrooms more energy-efficient using solar power?
- **Proposed Solution:** Design a system that powers the classroom with solar panels and track energy savings.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research solar energy usage and analyze energy savings data.
- **AI-Based Solution Designer & Developer:** Design the solar-powered system for the classroom using digital tools.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to encourage solar power usage and manage the project.

### Assessments:

- **Curriculum Assessment:**

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- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy usage), data analysis.
- **English:** Writing reports on energy savings and presenting the solar system design.
- **Technology:** Understanding renewable energy technologies and systems.

### **Ethical & Moral Development:**

- Promoting responsible use of energy and sustainable living.

### **Industry Interest:**

- Renewable energy technology and environmental sciences.

### **Role Performance:**

- **Market Researcher:** Quality of research and data analysis.
- **Solution Designer:** Innovation in the solar power system design.
- **Digital Marketer:** Promotion effectiveness and project management.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

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## **13. Eco-Friendly Transportation Solutions - Grade 3,4,5**

- **Industry:** Transportation and Sustainability
- **Problem:** How can we create a transportation system that reduces pollution and energy usage?
- **Proposed Solution:** Design a transportation system (e.g., bicycles, electric buses) that minimizes pollution and energy consumption.

### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research current transportation methods and analyze their environmental impact.
- **AI-Based Solution Designer & Developer:** Design an eco-friendly transportation model.
- **AI-Based Digital Marketer & Project Manager:** Promote the benefits of eco-friendly transportation and manage project timelines.

## Assessments:

- **Curriculum Assessment:**
  - **Science:** Energy sources, pollution, and transportation systems.
  - **Math:** Data handling and analysis on energy use.
  - **English:** Writing proposals for the eco-friendly transportation system.
  - **Social Studies:** Understanding transportation's impact on society and the environment.

## Ethical & Moral Development:

- Promoting responsibility for reducing pollution and protecting the environment.

## Industry Interest:

- Sustainable transportation and environmental engineering.

## Role Performance:

- **Market Researcher:** Quality of research on transportation systems.
- **Solution Designer:** Creativity in designing eco-friendly transportation.
- **Digital Marketer:** Effectiveness in promoting the system and managing the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Google Docs, ChatGPT, CallAnnie.

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## 14. Virtual Health Clinic Simulation - Grade 4,5

- **Industry:** Health/Medicine
- **Problem:** How can we use technology to make healthcare more accessible and efficient?
- **Proposed Solution:** Design a virtual health clinic that uses AI to simulate patient consultations and monitor health metrics.

## AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze data on healthcare access and patient needs.

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- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design a virtual health clinic that offers AI-driven patient monitoring.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual clinic and manage project timelines.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Human body, healthcare, technology in medicine.
  - **Math:** Data analysis on patient health metrics.
  - **English:** Writing patient reports and presenting healthcare solutions.
  - **Technology:** Understanding AI applications in healthcare.

#### **Ethical & Moral Development:**

- Promoting empathy, access to healthcare, and patient privacy.

#### **Industry Interest:**

- Health technologies, telemedicine, and patient care.

#### **Role Performance:**

- **Market Researcher:** Accuracy in healthcare data analysis.
- **Solution Designer:** Innovation in creating a virtual health clinic.
- **Digital Marketer:** Success in promoting the clinic.

**Tools:** MIT App Inventor, Figma, Trello, Canva, Google Docs, ChatGPT, CallAnnie.

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### **15. Climate Change Awareness Campaign - Grade 4,5**

- **Industry:** Environmental Science
- **Problem:** How can we raise awareness about climate change and its effects on our environment?
- **Proposed Solution:** Design an awareness campaign that educates the public about climate change through digital tools.

#### **AI-Based Roles:**

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- **AI-Based Market Researcher & Data Analyst:** Research climate change effects and collect data on public awareness.
- **AI-Based Solution Designer & Developer:** Create an interactive presentation or website to educate the public on climate change.
- **AI-Based Digital Marketer & Project Manager:** Manage the awareness campaign and promote it using digital tools.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Climate change, ecosystems, sustainability.
  - **Math:** Data analysis of climate trends.
  - **English:** Writing reports and creating climate awareness materials.
  - **Social Studies:** Understanding the societal impact of climate change.

#### **Ethical & Moral Development:**

- Promoting awareness of environmental responsibility and the impact of human activities on the planet.

#### **Industry Interest:**

- Climate science, environmental policy, and digital marketing.

#### **Role Performance:**

- **Market Researcher:** Depth of research on climate change.
- **Solution Designer:** Effectiveness of the digital campaign design.
- **Digital Marketer:** Impact of the awareness campaign and its reach.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

## **16. Designing a Smart Waste Management System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can cities optimize waste collection and reduce environmental impact?
- **Proposed Solution:** Develop a model that uses sensors and data analysis to optimize waste collection routes and schedules.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current waste management practices and analyze data on waste production.
- **AI-Based Solution Designer & Developer:** Design a system that uses sensors to track waste levels and optimize collection routes.
- **AI-Based Digital Marketer & Project Manager:** Manage the project timeline and create awareness materials to educate the community on waste management.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Waste management, environmental impact.
  - **Math:** Data analysis and route optimization.
  - **English:** Writing reports and presenting the waste management solution.
  - **Social Studies:** Understanding the societal and environmental impact of waste management.

### Ethical & Moral Development:

- Promoting environmental responsibility and efficient resource management.

### Industry Interest:

- Environmental engineering and waste management.

### Role Performance:

- **Market Researcher:** Quality of research on waste management systems.
- **Solution Designer:** Innovation and practicality in designing the waste management system.
- **Digital Marketer:** Success in promoting the solution.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, ChatGPT, CallAnnie.

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## 17. Creating a Local History and Culture Website - Grade 5,6

- **Industry:** Social Studies and Media

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- **Problem:** How can we preserve and showcase the local history and culture of our community?
- **Proposed Solution:** Create a website that presents key historical events, cultural artifacts, and traditions of the local community.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research local history and culture, analyze historical data.
- **AI-Based Solution Designer & Developer:** Design and build the website using digital tools to present local history.
- **AI-Based Digital Marketer & Project Manager:** Promote the website and manage the project timeline.

#### Assessments:

- **Curriculum Assessment:**
  - **Social Studies:** Local history, traditions, and community.
  - **English:** Writing articles and creating content for the website.
  - **Technology:** Website design and development.
  - **Art:** Designing the visual layout of the website.

#### Ethical & Moral Development:

- Teaching respect for cultural diversity and the importance of preserving local history.

#### Industry Interest:

- Media production, digital storytelling, and local history.

#### Role Performance:

- **Market Researcher:** Depth and accuracy of historical research.
- **Solution Designer:** Creativity in designing the website layout.
- **Digital Marketer:** Effectiveness in promoting the website.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

## 18. Designing an Eco-Friendly School Playground - Grade 4,5

- **Industry:** Environmental Science and Design
- **Problem:** How can we design a school playground that minimizes environmental impact and promotes sustainability?
- **Proposed Solution:** Design a playground using sustainable materials and renewable energy sources (e.g., solar-powered lights).

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research eco-friendly materials and playground designs.
- **AI-Based Solution Designer & Developer:** Design the playground layout using sustainable materials.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to raise awareness about the eco-friendly playground and manage project timelines.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Sustainable materials, renewable energy.
  - **Math:** Measurement and calculation of playground dimensions.
  - **English:** Writing proposals for the playground design.
  - **Art:** Designing the layout of the eco-friendly playground.

### Ethical & Moral Development:

- Promoting sustainability and environmental responsibility.

### Industry Interest:

- Environmental design, landscape architecture, and sustainability.

### Role Performance:

- **Market Researcher:** Accuracy in researching eco-friendly materials.
- **Solution Designer:** Creativity in designing the playground layout.
- **Digital Marketer:** Effectiveness in raising awareness about the playground.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Microsoft Excel, Google Forms, ChatGPT, CallAnnie.

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## 19. Building a Weather Station and Forecasting System - Grade 5,6

- **Industry:** Meteorology and Technology
- **Problem:** How can we create a weather station that helps monitor local weather conditions and forecast future trends?
- **Proposed Solution:** Build a simple weather station to monitor temperature, rainfall, and wind speed, and use data to create weather forecasts.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze weather data from the station.
- **AI-Based Solution Designer & Developer:** Design and build the weather station and integrate sensors for data collection.
- **AI-Based Digital Marketer & Project Manager:** Promote the weather station project and manage data presentation.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Weather systems, data collection, and analysis.
  - **Math:** Data handling and graphing weather data.
  - **English:** Writing weather reports and presenting findings.
  - **Technology:** Building and programming the weather station.

### Ethical & Moral Development:

- Promoting responsibility for environmental monitoring and preparedness.

### Industry Interest:

- Meteorology, climate science, and data analysis.

### Role Performance:

- **Market Researcher:** Thoroughness in collecting and analyzing weather data.
- **Solution Designer:** Effectiveness of the weather station design.
- **Digital Marketer:** Impact of promotional materials for the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

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## 20. Animal Habitat Preservation Project - Grade 5,6

- **Industry:** Wildlife Conservation and Environmental Science
- **Problem:** How can we protect endangered animal habitats and raise awareness about conservation efforts?
- **Proposed Solution:** Design a project that promotes habitat conservation and uses AI to monitor the health of local ecosystems.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research endangered species and analyze habitat loss data.
- **AI-Based Solution Designer & Developer:** Design an app or tool that tracks the health of animal habitats and promotes conservation efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the conservation project and manage community outreach.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Animal habitats, ecosystems, and conservation.
  - **Math:** Data analysis of habitat loss and species numbers.
  - **English:** Writing reports on conservation efforts and habitat protection.
  - **Social Studies:** Understanding human impact on the environment and the need for conservation.

### Ethical & Moral Development:

- Promoting respect for wildlife and the importance of conservation.

### Industry Interest:

- Wildlife conservation, environmental science, and technology.

### Role Performance:

- **Market Researcher:** Thoroughness in researching endangered species.

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- **Solution Designer:** Creativity in designing the conservation tool.
- **Digital Marketer:** Success in promoting conservation efforts.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

## 21. Designing an Eco-Friendly Sports Facility - Grade 5,6

- **Industry:** Environmental Science and Physical Education
- **Problem:** How can we design a sports facility that promotes physical activity and minimizes environmental impact?
- **Proposed Solution:** Create a layout for a sports facility that uses renewable energy, recycled materials, and water conservation practices.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current sports facility designs and analyze data on energy use and environmental impact.
- **AI-Based Solution Designer & Developer:** Design the facility layout using sustainable materials and renewable energy sources.
- **AI-Based Digital Marketer & Project Manager:** Create awareness campaigns promoting physical activity and environmental responsibility.

### Assessments:

- **Curriculum Assessment:**
  - **Physical Education:** Importance of physical activity and sports.
  - **Science:** Renewable energy, recycling, and environmental sustainability.
  - **Math:** Measurement and calculation of facility dimensions and energy savings.
  - **English:** Writing reports on the design and presenting it to the class or school community.

### Ethical & Moral Development:

- Promoting teamwork, physical activity, and environmental responsibility.

### Industry Interest:

- Physical education, environmental science, and sports management.

**Role Performance:**

- **Market Researcher:** Quality of research on sports facility designs.
- **Solution Designer:** Creativity and practicality in designing the sports facility.
- **Digital Marketer:** Effectiveness in promoting the facility and encouraging physical activity.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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**22. Creating a School Nutrition Program - Grade 5,6**

- **Industry:** Health and Nutrition
- **Problem:** How can we improve student health through better nutrition?
- **Proposed Solution:** Design a healthy meal plan for the school cafeteria that considers balanced nutrition and promotes healthy eating habits.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research healthy meal plans and analyze data on student eating habits.
- **AI-Based Solution Designer & Developer:** Design a nutrition program for the school cafeteria, incorporating local, healthy food options.
- **AI-Based Digital Marketer & Project Manager:** Promote the nutrition program with educational campaigns on healthy eating.

**Assessments:**

- **Curriculum Assessment:**
  - **Health Education:** Importance of balanced nutrition and healthy eating.
  - **Science:** Human body and nutrition.
  - **Math:** Measuring portion sizes, data analysis on food choices.
  - **English:** Writing reports on nutrition and presenting it to students and staff.

**Ethical & Moral Development:**

- Promoting responsibility for personal health and well-being.

### Industry Interest:

- Nutrition, health sciences, and food management.

### Role Performance:

- **Market Researcher:** Quality of research on healthy food options.
- **Solution Designer:** Creativity and practicality in designing the meal plan.
- **Digital Marketer:** Success in promoting the program.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

---

### 23. Financial Literacy Market Simulation - Grade 4,5

- **Industry:** Business and Economics
- **Problem:** How can we teach students the basics of budgeting, saving, and spending?
- **Proposed Solution:** Create a virtual market where students simulate running a small business, including managing a budget and making financial decisions.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Analyze market trends and customer preferences.
- **AI-Based Solution Designer & Developer:** Design a virtual market simulation where students run a small business.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual market and manage business decisions.

### Assessments:

- **Curriculum Assessment:**
  - **Math:** Budgeting, financial planning, and data handling.
  - **English:** Writing reports and presenting business proposals.
  - **Social Studies:** Understanding economic principles and entrepreneurship.

### Ethical & Moral Development:

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- Teaching responsibility in financial decision-making and honesty in business practices.

#### Industry Interest:

- Business, economics, and entrepreneurship.

#### Role Performance:

- Market Researcher:** Effectiveness in researching market trends.
- Solution Designer:** Innovation and creativity in designing the business simulation.
- Digital Marketer:** Success in promoting the market.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

---

### 24. Building Instruments from Recycled Materials - Grade 3,4

- Industry:** Music and Performing Arts
- Problem:** How can we create musical instruments using recycled materials to promote sustainability and creativity?
- Proposed Solution:** Design and build musical instruments from recycled materials, then organize a school performance using these instruments.

#### AI-Based Roles:

- AI-Based Market Researcher & Data Analyst:** Research musical instruments made from recycled materials and analyze sound quality.
- AI-Based Solution Designer & Developer:** Design and build simple instruments using recycled materials.
- AI-Based Digital Marketer & Project Manager:** Organize and promote a school performance using the recycled instruments.

#### Assessments:

- Curriculum Assessment:**
  - Music:** Sound and music theory, performance skills.
  - Science:** Properties of materials, sound waves.

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- **Art:** Designing and building creative instruments.
- **English:** Writing descriptions of instruments and promoting the performance.

#### Ethical & Moral Development:

- Promoting creativity, resourcefulness, and environmental sustainability.

#### Industry Interest:

- Music, environmental science, and performing arts.

#### Role Performance:

- **Market Researcher:** Accuracy in researching recycled materials for instruments.
- **Solution Designer:** Creativity in instrument design.
- **Digital Marketer:** Effectiveness in promoting the performance.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 25. Peer Mentoring and Emotional Intelligence Program - Grade 3,4

- **Industry:** Social and Emotional Learning (SEL)
- **Problem:** How can we promote teamwork, leadership, and emotional intelligence in schools?
- **Proposed Solution:** Organize a peer mentoring program where older students help younger students solve academic or social challenges, fostering leadership and empathy.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect data on peer mentoring programs and analyze their effectiveness.
- **AI-Based Solution Designer & Developer:** Design a mentoring program that pairs students and includes emotional intelligence activities.
- **AI-Based Digital Marketer & Project Manager:** Promote the program within the school and manage the timeline.

#### Assessments:

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- **Curriculum Assessment:**

- **Social Studies:** Understanding leadership, teamwork, and community involvement.
- **English:** Writing reports and reflections on mentoring experiences.
- **Science:** Brain development and emotional intelligence.

### **Ethical & Moral Development:**

- Promoting empathy, leadership, and social responsibility.

### **Industry Interest:**

- Leadership development, education, and social services.

### **Role Performance:**

- **Market Researcher:** Quality of research on mentoring programs.
- **Solution Designer:** Creativity in designing emotional intelligence activities.
- **Digital Marketer:** Success in promoting the mentoring program.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie

# EAD Assessment Criteria

## Step 1 : Research & Data Collection

**Objective:** Gather real-world data related to the project using surveys and research.

**Tasks:**

1. Define the research problem and how AI can help solve it.
2. Design a **Google Forms** survey for data collection.
3. Distribute the survey to at least 10 people.
4. Collect and summarize responses.

 **Deliverables:**

- Research Report (1-page summary)
- Google Forms Survey (at least 10 responses)
- Short Video/Audio explaining findings

**Rubric: Research & Data Collection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Survey Structure</b>	Clear, well-organized, no bias, diverse questions	Mostly clear, some unclear wording	Basic structure, lacks variety in questions	Poorly structured, biased, or incomplete
<b>Data Collection</b>	10+ valid responses collected	7-9 responses, mostly valid	4-6 responses, some missing data	Less than 4 responses, missing critical data
<b>Research Depth</b>	Uses credible sources, includes AI integration	Good sources, some AI references	Limited sources, minimal AI discussion	No sources or AI discussion included

## Step 2.1: Data Analysis & Visualization

**Objective:** Organize and analyze collected data using charts and AI tools.

**Tasks:**

1. Input survey data into **Google Sheets**.
2. Use AI tools to identify patterns in the data.
3. Create visual representations (bar charts, pie charts, graphs).
4. Summarize findings in a short data analysis report.

 **Deliverables:**

- Data Spreadsheet (Google Sheets)
- AI-Generated Graphs/Charts
- Summary of Data Insights

**Rubric: Data Analysis & Visualization**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Data Organization</b>	Data is structured, accurate, and complete	Mostly structured, minor errors	Some organization issues, missing elements	Disorganized, missing major parts
<b>Visualization</b>	Graphs/charts are clear, well-labeled, insightful	Mostly clear, lacks full explanation	Basic graphs, limited insight	No graphs, unclear or missing labels
<b>Analysis Quality</b>	Identifies trends, includes AI insights	Identifies trends, some AI integration	Basic description, no AI insight	No analysis, data left unexplained

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## Step 2.2: User Interface (UI) Design

**Objective:** Design the user interface of the AI assistant using Figma.

**Tasks:**

1. Sketch a user-friendly layout for the AI assistant.
2. Use **Figma** to create a digital wireframe.
3. Ensure buttons, text fields, and chatbot interactions are clear.
4. Conduct a basic **usability test** for improvements.

 **Deliverables:**

- Figma Wireframe
- AI Usability Testing Summary
- User Experience Feedback Report

**Rubric: UI/UX Design**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Wireframe Design</b>	UI well-structured, follows best practices	Mostly clear but some UI issues	Basic layout, lacks usability	No wireframe or unclear layout
<b>User Experience</b>	Intuitive, easy-to-use navigation	Mostly clear, needs minor improvements	Some confusing UI elements	Poorly structured, difficult to use
<b>Usability Testing</b>	Feedback collected, applied improvements	Some usability feedback incorporated	Limited feedback, minimal changes	No usability test performed

---

## Step 3: AI Development & Coding

**Objective:** Build an AI-powered prototype or chatbot for recycling assistance.

**Tasks:**

1. Use **Scratch/Code.org** to develop a chatbot or AI simulation.
2. Implement AI logic to classify recyclable materials.
3. Debug and refine the AI's response accuracy.
4. Test AI functionality through multiple inputs.

📌 **Deliverables:**

- AI Prototype (Scratch/Code.org)
- Debugging Report
- Short Demo Video (Screen recording)

**Rubric: AI Development & Coding**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>AI Logic &amp; Functionality</b>	AI assistant fully functional, handles multiple inputs	Mostly functional, some errors	Basic function, lacks dynamic responses	Non-functional or incomplete code
<b>Coding Structure</b>	Well-organized, follows best practices	Mostly structured, minor redundancies	Some structure, inefficient code	Poorly structured, lacks clarity

<b>Debugging &amp; Refinement</b>	Errors fixed, AI accuracy optimized	Some minor bugs remain	Some debugging attempted	No debugging, significant errors remain
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## Step 5: Branding & Community Engagement

**Objective:** Develop branding materials and promote the AI assistant.

**Tasks:**

1. Use **Canva** to create a logo and branding kit.
2. Design a **poster or social media campaign**.
3. Share the AI assistant with the school or local community.
4. Collect user feedback on branding effectiveness.

 **Deliverables:**

- Canva-based Branding Kit (Logo, Social Media Post)
- Promotional Video or Flyer
- Social Media Campaign Post

**Rubric: Branding & Community Engagement**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Branding Consistency</b>	Logo, colors, and messaging are aligned	Mostly consistent, minor adjustments needed	Basic branding, lacks cohesion	No branding materials included
<b>Social Media Promotion</b>	Engaging, well-designed campaign	Mostly clear, minor visual issues	Basic design, lacks engagement	No social media promotion created
<b>Community Interaction</b>	Successfully reached audience, collected feedback	Some engagement, basic feedback	Limited engagement, no feedback	No promotion or engagement

---

## Step 6: Final Presentation & Reflection

**Objective:** Present the AI assistant, insights, and learning reflections.

**Tasks:**

1. Create a **Google Slides** presentation summarizing the project.
2. Include problem statement, AI features, data insights, branding elements.
3. Deliver a **5-minute presentation**.
4. Write a **reflection essay** on key learnings.

 **Deliverables:**

- Google Slides Presentation
- 5-Minute Video Presentation
- Final Reflection Essay

**Rubric: Final Presentation & Reflection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Presentation Structure</b>	Clear, well-organized, engaging visuals	Mostly clear, some structural issues	Basic slides, lacks flow	Poorly structured, minimal effort
<b>Delivery &amp; Speaking Skills</b>	Confident, clear speech, interactive	Mostly clear, minor hesitations	Needs more confidence, lacks clarity	Unclear delivery, minimal engagement
<b>Reflection Depth</b>	Thoughtful analysis, strong learning points	Good insights, some areas could be deeper	Basic reflections, lacks depth	No reflection, minimal engagement

---

# EAD - AI Powered Kids Incubator

## Level 2 - (Grade 3 - 5)

**Guided Booklet for Schools / Teachers / Parents - Complete Day by Day Roadmap to include kids for AI powered PBL for kids**

(Recommended - At Least 2 Projects / Year for every Kid)

(20 Days - Day by Day Guided Tasks with 1 Project execution)

[\*\*Register Here\*\*](#) to get

- **Free 2025 Subscription on EAD AI-Powered Incubator Platform Level 2(Grade 3 - 5) and Level 3(Grade 6 - 8) Launch** to develop kids with AI and Entrepreneurship
- Teacher Training

Website - <https://technogroup.ai/>

LinkedIn - <https://www.linkedin.com/company/tgo-ead/>

Company Upwork Profile - <https://www.upwork.com/agencies/technogroup/>

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## Introduction

Welcome to **EarlyAgeDevelopment (EAD)**, an AI-powered Kids Incubator designed to prepare young minds for the world of tomorrow! This book is your guide to unlocking the potential of students in grades 3-5 through project-based learning (PBL) that blends core curriculum subjects with real-world problem-solving. By aligning critical thinking, creativity, and collaboration with essential skills, we aim to create an immersive, engaging learning experience that goes beyond traditional education.

At EAD, we believe that every child is capable of making a difference. By engaging in AI-driven projects, students not only gain practical skills but also explore industry applications, from understanding how data informs decisions to creating chatbots that enhance customer interactions. This journey empowers them with insights and tools to shape their future.

### Mission

Our mission at EarlyAgeDevelopment is to inspire and empower young learners with hands-on experiences in AI-driven roles, cultivating curiosity, creativity, and the skills needed to thrive in an ever-evolving world. Through aligned projects, we support both academic growth and real-world preparedness, ensuring students are equipped for the future of work where AI and technology drive every industry.

### Vision

We envision a world where students can bridge school learning with real-world applications seamlessly. Through AI-enhanced, project-based learning, we aspire to foster a generation of problem-solvers, innovators, and leaders who understand their potential across diverse fields. With a focus on creativity, sustainability, and future readiness, EAD provides a path for students to develop skills for tackling global challenges in an AI-powered landscape.

### Why Project-Based Learning (PBL)?

At EAD, we believe students learn best through active engagement. **Project-Based Learning (PBL)** connects academic subjects with industry-aligned, practical projects, making education relevant and exciting. Our projects are crafted to:

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- **Encourage Collaboration:** Students take on roles that reflect real-world, AI-powered careers, promoting teamwork and shared purpose.
- **Foster Critical Thinking:** By addressing industry-specific challenges, students learn to think critically and devise innovative solutions.
- **Promote Creativity:** Through design, development, and presentation, students exercise their creativity while exploring new ideas.

### AI-Powered Roles for Future-Ready Skills

AI is transforming careers across all industries, and our program introduces students to the following future-critical roles:

- **Market Researcher & Data Analyst (Problem Researcher and Data Analyst Kid):** Gathering insights and analyzing data to inform decisions and strategies.
- **AI-Based Solution Architect (Solution Designer Kid):** Using design thinking and development skills to build real-world solutions.
- **AI-Based Digital Marketer & Project Manager (Presenter Kid):** Learning to promote projects, manage timelines, and engage communities effectively.

By exposing students to these roles, we prepare them with an essential understanding of AI and its applications, better positioning them for the future workforce.

### How This Book Prepares Students for the Future

This book equips students to meet curriculum goals while gaining an understanding of how AI impacts industries. The skills they acquire—data analysis, design, development, and project management—are integral to thriving in tomorrow's careers. These projects, designed to be both enjoyable and meaningful, make learning an exciting journey with real impact.

---

## How to Use This Book

This guide is designed for teachers, parents, and students, offering a hands-on, project-based learning (PBL) experience tailored for grades 3-5. Each project connects real-world problems with AI-powered roles, engaging students in activities that build problem-solving and critical thinking. The three core roles—Market Researcher & Data Analyst, Designer & Developer, and Digital Marketer & Project Manager—integrate STEM, language arts, and environmental science.

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Projects align with educational curriculums like the US Common Core, UK Curriculum, Cambridge, and IB, so students build essential academic and practical skills.

Parents and teachers can use this book to:

- Facilitate collaboration on meaningful projects.
- Help students build a foundation in AI-powered roles to prepare for future careers.
- Integrate interactive tools like Canva, Figma, Trello, ChatGPT, Google Forms, and more.

## Guided Project Path

The book includes two structured learning sections:

1. **Introduction to AI and Technology Basics (First 10 Lessons):**
  - In the first 10 Lessons, students build foundational knowledge with lessons on key concepts in AI, data collection, and project management.
  - **Lessons 1-5:** Interactive activities introduce students to technology basics—data collection, coding, and teamwork tools like Google Forms, Scratch Junior, and Trello.
  - **Lessons 6-10:** Students deepen their understanding of specific roles through hands-on practice in data analysis, solution design, and digital marketing.
2. **Industry-Focused Project (10 More Lessons):**
  - After the initial preparation, students engage in a curriculum-aligned project that connects academic learning with practical skills, demonstrating how AI roles solve real-world problems across industries.

This book is more than a learning guide—it's a launchpad for future-ready skills that students will carry forward in their academic and professional lives. Dive in and let EAD inspire your child's journey to becoming an AI-enabled problem-solver and innovator of tomorrow.

## Industry-Aligned Projects

Each project addresses real-world problems mapped to the curriculum, with AI-based solutions to prepare kids for future AI-driven roles. These projects are freely available on our public website for students to explore independently or with guided support.

# 10 Lessons - Introduction to AI, Data Science and Technology Basics, Project Based Learning

## Preparing Kids to do AI Based Projects

### Lesson 1: Introduction to AI and Technology Basics

Objective:

On Lesson 1, students will get a broad overview of AI, its impact across different industries, and the essential technological concepts they need to understand. By the end of the Lesson, students will have a general understanding of how AI works, its key applications, and how technology is transforming various fields.

---

Step-by-Step Instructions:

#### 1. Welcome and Overview of Technology (10 minutes)

- **Teacher Explanation:**

Begin with a brief introduction to the importance of technology in today's world. Explain how technology has revolutionized every field, from healthcare to agriculture to entertainment.

- **Discussion:**

Ask the students: "What kind of technology do you use every day? How do you think technology makes things easier for us?"

Let students share their thoughts to get them comfortable with the topic.

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#### 2. Introduction to AI and its Role in Different Industries (20 minutes)

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- **Teacher Explanation:**

Explain what **Artificial Intelligence (AI)** is, and give a simple definition: “AI is when machines or computers can do tasks that normally need human intelligence—like learning, problem-solving, or even recognizing pictures and words.”

- **Examples of AI in Different Industries:**

- **Healthcare:** AI can help doctors diagnose diseases faster and more accurately.
- **Agriculture:** AI helps farmers monitor their crops and predict the weather.
- **Retail:** AI gives us personalized shopping experiences by recommending products.
- **Transportation:** AI is used in self-driving cars and traffic management systems.

- **Activity:**

Show students a few short videos or clips that illustrate these AI applications. Discuss how AI is being used in each field.

---

### 3. Hands-on AI Interaction Using Chatbots or Virtual Assistants (30 minutes)

- **Materials Needed:**

Devices with access to simple AI tools, such as **ChatGPT** or **Google Assistant**.

- **Activity:**

Have students interact with a basic AI-powered virtual assistant or chatbot. Each student can ask a question or try to have the assistant complete a simple task (e.g., ask it to tell a joke or give a weather report).

- **Teacher Explanation:**

After the activity, explain how chatbots and virtual assistants use AI to understand language and provide responses.

---

### 4. Understanding Technology Basics (30 minutes)

- **Materials Needed:**

Interactive presentation or handouts about basic technology concepts: hardware, software, the internet, data, and coding.

- **Activity:**  
Divide students into small groups and assign each group one basic concept to explore:
    - **Hardware:** What are computers and devices made of?
    - **Software:** What are apps, games, and programs?
    - **Internet:** How does the internet connect people around the world?
    - **Data:** What is data, and how is it used in AI?
    - **Coding:** How do we tell computers what to do?
  - Each group will spend time researching their topic using simple resources provided by the teacher and will present their understanding to the class.
- 

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**  
Ask students to reflect on the different industries where AI is being used. What industry interested them the most, and why? How do they think technology will change in the next 10 years?
  - **Homework Assignment:**  
Ask students to bring in an example of technology they interact with at home (e.g., a smart device, app, or a website they use frequently) and write a paragraph explaining how it helps them.
- 

## End of Lesson 1

By the end of Lesson 1, students will have a general understanding of technology and AI, how it works in different industries, and how to interact with AI systems like chatbots. This lays the foundation for the rest of the week where they will dive deeper into AI and technology concepts.

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## Lesson 2: Exploring AI Roles and Problem-Solving in Technology

### Objective:

On Lesson 2, students will be introduced to the different roles involved in AI-driven projects (Problem Researcher, Data Analyst, AI Solution Designer, Solution Developer,

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and Digital Marketer). The focus will be on understanding the importance of these roles and how they work together to solve real-world problems.

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#### Step-by-Step Instructions:

##### 1. Recap of Lesson 1 and Introduction to Lesson 2 Objectives (10 minutes)

- **Teacher Explanation:**

Recap what students learned about AI and technology basics from Lesson 1. Introduce today's objective: learning about the different roles in AI projects and how each role contributes to solving a problem.

- **Discussion:**

Ask students: "Have you ever worked on a group project before? What roles do people usually take on in group projects?"

---

##### 2. Introduction to AI-Powered Roles (25 minutes)

- **Teacher Explanation:**

Describe the five key roles in AI projects:

- **Problem Researcher:** Gathers information and defines the problem.
- **Data Analyst:** Works with data to find patterns and insights related to the problem.
- **AI Solution Designer:** Designs the AI solution and creates a blueprint for how it will work.
- **Solution Developer:** Develops the actual AI model using programming or coding.
- **Digital Marketer:** Promotes the solution and helps people understand its value.

- **Examples:**

- For a project on **improving traffic management**, the **Problem Researcher** finds the traffic issues, the **Data Analyst** looks at traffic patterns, the **AI Solution Designer** creates a plan for a smart traffic system, the **Solution Developer** builds the AI that runs the traffic lights, and the **Digital Marketer** promotes the benefits to the community.
-

### 3. Team Activity: Role Play and Problem Identification (30 minutes)

- **Materials Needed:**

Whiteboards, markers, and access to simple industry problems (e.g., traffic management, waste management, or water conservation).

- **Activity:**

Split students into small groups, with each group assigned a different industry problem (e.g., water conservation, waste management). Each student in the group will take on one of the five roles:

- **Problem Researcher:** Gathers key information about the problem.
- **Data Analyst:** Looks at the data provided or finds data to understand the scale of the problem.
- **AI Solution Designer:** Starts to think about what kind of AI system could help solve the problem.
- **Solution Developer:** Considers what code or program might be needed.
- **Digital Marketer:** Thinks about how to promote the solution to the public.

- After 20 minutes, each group presents a rough outline of the problem they are trying to solve and how they would use AI.

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### 4. Tool Exploration for Roles (30 minutes)

- **Materials Needed:**

Devices with access to basic tools like Google Scholar (for research), Excel (for data analysis), Figma (for design), and Canva (for marketing).

- **Activity:** Introduce students to the tools they will use for their roles:

- **Problem Researchers:** Use **Google Scholar** to find articles related to the industry problem.
- **Data Analysts:** Start learning how to use **Excel** for basic data input and chart creation.
- **AI Solution Designers:** Explore **Figma** to begin thinking about designing AI solutions.
- **Solution Developers:** Set up a basic coding environment and explore introductory coding concepts.
- **Digital Marketers:** Learn how to use **Canva** to create simple promotional materials.

- Let each student spend 15-20 minutes practicing with their assigned tool.

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**

Ask each student to reflect on the role they explored. Do they think they would enjoy doing this role in real life? How do they think their role will help solve the problem their group is working on?

- **Homework Assignment:**

Each student will write a short paragraph about the role they took on today and one thing they learned about using their assigned tool.

---

## End of Lesson 2

By the end of **Lesson 2**, students will have a clearer understanding of the different roles in AI-driven projects and will have started exploring the tools associated with each role. They will begin to grasp how these roles work together to solve real-world problems, setting them up for the deeper exploration of AI in the coming days.

## Lesson 3: Introduction to Data Analysis (1-2 hours)

### Objective:

Introduce students to the basics of data analysis, focusing on how data is collected, interpreted, and visualized. Students will learn to input data, create simple charts, and understand the importance of data in decision-making.

### Materials Needed:

- Survey results from Lesson 2 (Google Forms data)
  - Computers/tablets with access to **Google Sheets**
  - Whiteboard and markers for explanations
- 

### Step-by-Step Instructions:

#### 1. Review Data Collected from Surveys (10 minutes)

- **Teacher Explanation:**

Begin by reviewing the survey results that students collected on Lesson 2. Explain how surveys collect data that can be analyzed to identify trends and insights.

- **Discussion:**

Ask students what they found surprising in their survey responses. Did the results match their predictions? Why is collecting data important in making decisions?

---

## 2. Input Data into Google Sheets (15-20 minutes)

- **Activity:**

Demonstrate how to input the survey data into **Google Sheets**. Guide the students as they enter their survey responses (e.g., favorite color, favorite animal) into a table format.

- **Example:**

- Column A: Survey question (e.g., "What's your favorite color?")
    - Column B: Response (e.g., "Blue," "Red," etc.)

- **Teacher Guidance:**

Help students organize their data properly and ensure that it's correctly formatted for analysis. Explain that this step is crucial because messy or unorganized data can lead to mistakes.

---

## 3. Create a Chart to Visualize Data (15-20 minutes)

- **Activity:**

Demonstrate how to select the data in Google Sheets and create a simple bar chart or pie chart. Show students how visualizing data can help them better understand and communicate results.

- **Example:**

Create a bar chart to show the most popular favorite colors among survey respondents.

- **Discussion:**

Ask students how their chart makes the data easier to understand. Discuss why businesses, scientists, and other professionals use data charts to make decisions.

#### 4. Data Interpretation and Patterns (15 minutes)

- **Teacher Explanation:**

Explain that after data is collected and visualized, the next step is **data interpretation**. Show students how to look for patterns in the charts they've created.

- **Example:**

"If 70% of your class picked blue as their favorite color, what does that tell us about color preferences?"

- **Group Discussion:**

In groups, have students discuss the patterns they found in their data. What does the data suggest about their survey topic? How might this information be used in real-world situations (e.g., for product design or marketing)?

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of data analysis. Ask students: "How does data help us make better decisions? Can you think of a time when understanding data would be helpful?"

- **Homework Assignment:**

Each student will collect data from a simple observation (e.g., how many cars pass their street in 10 minutes, how many different animals they see outside) and create a chart to present to the class on Lesson 4.

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#### End of Lesson 3

By the end of Lesson 3, students will understand the process of collecting, entering, and visualizing data using Google Sheets. They will have created simple charts to represent their survey results and begun interpreting data to understand trends and patterns.

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#### **Lesson 4: Introduction to Data Visualization and Problem Solving with AI (1-2 hours)**

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**Objective:**

Teach students how to create data visualizations to better understand information and introduce the role of AI in problem-solving. Students will also explore how AI can use data to make predictions and solve real-world problems.

**Materials Needed:**

- Completed homework (observed data from Lesson 3)
  - Computers/tablets with access to **Google Sheets** or **Google Charts**
  - Whiteboard and markers for explanations
- 

**Step-by-Step Instructions:****1. Review Homework and Discuss Data Observations (10 minutes)**

- **Teacher Explanation:**

Begin by reviewing students' homework. Ask a few students to share the data they collected (e.g., how many cars passed, how many animals they saw, etc.).

- **Discussion:**

Encourage students to reflect on the data they collected. What patterns did they notice? Was the data different from what they expected?

---

**2. Visualizing Data Collected from Homework (20 minutes)**

- **Activity:**

Have students input their homework data into **Google Sheets**. Demonstrate how to create a chart from their data (e.g., bar charts or line graphs).

- **Example:**

If a student counted cars passing their house, they could create a **bar chart** showing the number of cars observed over time.

- **Teacher Guidance:**

Guide students through the chart creation process and ensure they understand how visualizations help in presenting data clearly.

---

### 3. Introduction to Problem Solving with AI (15 minutes)

- **Teacher Explanation:**

Explain that **AI** is like a very smart tool that can look at data and help solve problems. AI systems can predict things, help make decisions, and even come up with new ideas.

- **Example:**

“AI can look at the weather and predict if it’s going to rain tomorrow, or it can look at traffic data and tell us the best way to get to school.”

- **Discussion:**

Ask students how they think AI might use the data they collected. Could AI help predict how many cars will pass by tomorrow, or which color will be most popular next month?

---

### 4. Fun Activity: Predicting the Future with Data (15 minutes)

- **Activity:**

Have students use the data they collected to make a prediction. For example, if a student counted how many cars passed their house, they could predict how many cars will pass tomorrow based on today’s data.

- **Example:**

“If 10 cars passed in 10 minutes today, how many cars do you think will pass tomorrow at the same time?”

- **Teacher Explanation:**

Explain that AI does something similar—it uses data from today to predict what will happen tomorrow. This is called **data-driven decision-making**.

---

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how AI helps people make predictions using data. Ask students: “What are some other ways we could use data to predict things? How could AI help farmers, doctors, or teachers?”

- **Homework Assignment:**

Each student will choose a problem they think AI could help solve. They will write

a paragraph about the problem and how they think AI could use data to find a solution.

---

## End of Lesson 4

By the end of Lesson 4, students will understand how data can be visualized to make it easier to understand and how AI uses data to solve problems and make predictions. They will also have explored how AI could help with real-world problems based on the data they have collected.

## **Lesson 5: Introduction to Project Management and Collaboration (1-2 hours)**

### Objective:

Introduce students to the basics of project management and team collaboration using tools like Trello. The aim is to help them understand how professionals organize tasks and work together effectively in a project.

### Materials Needed:

- Access to Trello (or a similar project management tool) on tablets or computers.
  - Whiteboard and markers for visual demonstration.
- 

### Step-by-Step Instructions:

#### 1. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain that **project management** is the process of organizing tasks to complete a project efficiently. Compare it to planning a party: before the party can happen, tasks like sending invitations, buying decorations, and preparing food need to be done in the right order.

- **Examples of Project Management:**

- Building a house (you can't put on the roof before the walls).
- Planning a class event (choosing a theme, sending invitations, decorating).

## 2. Introducing Trello (15 minutes)

- **Materials Needed:**

Trello or an equivalent project management tool, pre-set project board for demonstration.

- **Teacher Demonstration:**

Show students how **Trello** works by demonstrating the basics: how to create boards, lists, and task cards.

- **Board:** Represents the entire project (e.g., creating an app, completing a recycling campaign).
  - **Lists:** Organize tasks into categories (e.g., "To Do," "In Progress," "Done").
  - **Cards:** Represent specific tasks (e.g., "Design logo," "Collect survey data").
- 

## 3. Hands-on Activity: Creating a Trello Board (20 minutes)

- **Activity:**

Have students work in groups to create their own **Trello boards** for a class project. Assign each group a project, such as "Building a Recycling App" or "Creating a School Newsletter."

- **Step 1:** Create a board for the project.
- **Step 2:** Create lists like "To Do," "In Progress," and "Done."
- **Step 3:** Add task cards to each list (e.g., "Research recycling facts," "Design app interface," "Write article for newsletter").

- **Group Discussion:**

Ask students how organizing tasks in this way can help them keep track of progress. How does it feel to see tasks move from "To Do" to "Done"?

---

## 4. Fun Challenge: Moving Cards Across Lists (15 minutes)

- **Activity:**

Let students complete a few simple tasks (e.g., design a simple logo in Canva,

collect data from their surveys) and **move cards from "To Do" to "Done"** on Trello.

- This will give them a sense of accomplishment as they visually see their progress.
- 

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Discuss how professionals use project management tools to stay organized in the workplace. Ask students:

"How do you think using a tool like Trello will help us when we start working on our projects next week?"

- **Homework Assignment:**

Students should complete a task related to their role (e.g., finish collecting data for their project or create a draft of their design) and move their task card in Trello from "To Do" to "In Progress."

---

## End of Lesson 5

By the end of Lesson 5, students will have a clear understanding of **project management** and how to use tools like **Trello** to organize tasks and work collaboratively. They will have created their own project boards and started moving tasks along the workflow, preparing them for future project work.

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## Lesson 6: AI-Powered Market Researcher (1-2 hours)

### Objective:

Introduce students to the role of a **Market Researcher** in AI-driven projects. Students will learn how data collection and analysis are used by businesses to understand customer preferences and make decisions.

### Materials Needed:

- Access to Google Forms and Google Sheets.

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- Computers/tablets with internet access.
  - Example data (if needed).
- 

### Step-by-Step Instructions:

#### 1. Introduction to Market Research (10 minutes)

- **Teacher Explanation:**

Explain that a **Market Researcher** helps businesses learn what people like and don't like. They collect information (data) by asking people questions, and then analyze it to help companies decide what products to make or improve.

- **Example:**

A Market Researcher might survey people to find out what flavor of ice cream they like best, or what new toys children are interested in.

---

#### 2. Creating a Simple Survey (15-20 minutes)

- **Materials Needed:**

Google Forms on a computer or tablet.

- **Activity:**

Demonstrate how to create a basic survey using **Google Forms**. Each student will create a short survey with 3-4 questions (e.g., "What's your favorite snack?", "What's your favorite hobby?").

- Have students share the survey link with family members, friends, or classmates to collect responses.

- **Teacher Guidance:**

Help students design clear, easy-to-answer questions. Remind them that the information they gather will be used to help make decisions, just like a real market researcher.

---

#### 3. Predicting the Survey Results (15 minutes)

- **Activity:**

Before the survey responses come in, have students predict what the most

popular answers will be. For example, they might guess that “chocolate” will be the most popular snack or that “video games” will be the most popular hobby.

- Have a brief class discussion about their predictions.
- 

#### 4. Analyzing Survey Data (20 minutes)

- **Materials Needed:**

Google Sheets on computers or tablets.

- **Activity:**

Once survey responses are collected, students will input the data into **Google Sheets**. Demonstrate how to create a simple **bar chart** or **pie chart** from the data.

- **Example:**

If the survey asked about favorite snacks, create a bar chart to show how many people picked “chocolate” versus “chips.”

- **Teacher Explanation:**

Explain how businesses use these charts to make decisions. For example, if a survey shows that most people prefer chocolate, a company might decide to make more chocolate-flavored products.

---

#### 5. Group Discussion: How Does Data Help? (10 minutes)

- **Class Discussion:**

Ask students:

“How do the survey results help a company know what people like? How do you think AI can help businesses collect even more data to make better decisions?”

- Encourage students to think about how data is used to understand trends and preferences in the real world.
- 

#### 6. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the role of a **Market Researcher** and how AI plays a role in data collection and decision-making. Ask students:

"What's something new you learned today about how companies use data to make decisions?"

- **Homework Assignment:**

Ask students to think of one product or service they use regularly (e.g., a favorite toy, game, or snack). Have them write a short paragraph about how a company might use market research to improve that product.

---

End of Lesson 6

By the end of Lesson 6, students will have a solid understanding of the **Market Researcher** role, how data is collected using surveys, and how that data is analyzed to help businesses make informed decisions. They will have created their own surveys, predicted outcomes, and analyzed real-world data using charts.

## Lesson 7: AI-Driven Business and Data Analyst (1-2 hours)

Objective:

Introduce students to the role of a **Business and Data Analyst** and how data analysis is used to make informed decisions in various industries. Students will learn how businesses use data to identify trends and opportunities.

Materials Needed:

- Computers/tablets with access to **Google Sheets** or any spreadsheet software.
  - Sample dataset related to business (e.g., sales data, customer preferences).
- 

Step-by-Step Instructions:

### 1. Introduction to Business and Data Analysis (10 minutes)

- **Teacher Explanation:**

Explain the role of a **Business and Data Analyst**. They use data to help companies understand their customers, improve their products, and make better decisions.

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- **Example:**

A data analyst might look at the sales data of a store to see which products are most popular. They can use this information to decide which products to stock more of.

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## 2. Activity: Analyzing Classroom Data (20-25 minutes)

- **Materials Needed:**

Google Sheets with a preloaded sample dataset (e.g., types of products sold and how many were purchased each day).

- **Activity:**

Have students input the data from the sample dataset into **Google Sheets**. The dataset could include details like:

- Products sold (e.g., books, pencils, snacks)
- Number of units sold each day
- Customer preferences (e.g., which products customers rated highly)

- Show students how to create a **bar chart** or **pie chart** from the data to visualize which product is the most popular.

- **Teacher Explanation:**

Explain how visualizing the data helps businesses quickly understand trends (e.g., which products are selling the most). Encourage students to think about how data analysis can help businesses decide what to stock and how much.

---

## 3. Discussion: Identifying Trends (15 minutes)

- **Teacher Guidance:**

Ask students to look at their charts and identify patterns. For example:

- "Are there certain days when more snacks are sold?"
- "Which product is the most popular?"

- Help students understand how finding trends in data helps businesses make smarter decisions. For example, if a certain product sells better on Fridays, businesses may want to stock more of it that day.

- **Group Discussion:**

Encourage students to discuss how the data they analyzed could be used to improve a store's sales strategy. How could a store owner use this data to plan for the future?

#### 4. Fun Task: Business Data Analyst for a Lesson (15 minutes)

- **Activity:**

Let students pretend they are a **Business Data Analyst** for a toy store. Based on their analysis of the sample dataset, they will write a short paragraph explaining which toys the store should stock more of and why. They can use the data and charts they created to support their argument.

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how businesses rely on data to make decisions. Ask students: “What is something new you learned today about how businesses use data to decide what products to sell?”

- **Homework Assignment:**

Students should look around their home or local stores and take note of what products are most popular. Have them write a paragraph predicting which items the store might need to restock based on what's sold out or in high demand.

---

#### End of Lesson 7

By the end of Lesson 7, students will have an understanding of the role of a **Business and Data Analyst** and how data is used to make business decisions. They will have analyzed a sample dataset, created visualizations, and used data to make business recommendations.

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### Lesson 8: Solution Developer (Basic AI Concepts) (1-2 hours)

Objective:

Introduce students to the role of a **Solution Developer**, with a focus on how AI can be used to solve real-world problems by building apps or tools. Students will engage with simple coding concepts and create a basic solution using Scratch Junior.

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## Materials Needed:

- Tablets/computers with **Scratch Junior** or **MIT App Inventor** installed.
- 

## Step-by-Step Instructions:

### 1. Introduction to AI-Powered Solution Development (10 minutes)

- **Teacher Explanation:**

Explain that a **Solution Developer** is responsible for building tools and apps that solve real-world problems using AI. They use coding and technology to create things like mobile apps, websites, or smart devices.

- **Example:**

A solution developer might build an app to help farmers monitor their crops or create a game that helps students practice math.

- **Discussion:**

Ask students what apps or games they use regularly. How do they think those apps were built? How do apps help solve problems in everyday life?

---

### 2. Activity: Building a Simple App with Scratch Junior (30-40 minutes)

- **Materials Needed:**

Scratch Junior or MIT App Inventor on tablets or computers.

- **Activity:**

Guide students in creating a basic app using **Scratch Junior**. The app could be a **simple schedule organizer** where users can input tasks (e.g., homework, chores) and mark them as complete.

- **Step 1:** Show students how to drag blocks to create characters and movement in Scratch Junior.
  - **Step 2:** Have students add buttons that allow users to add or remove tasks.
  - **Step 3:** Guide them in adding basic features like displaying the tasks and marking them as done.

- **Teacher Guidance:**

Help students troubleshoot any issues they encounter and encourage creativity in their app design.

### 3. Fun Challenge: Adding Extra Features (15 minutes)

- **Activity:**

Challenge students to add one or two additional features to their app. For example, they could add sound effects when tasks are completed, or a feature that allows users to set reminders for upcoming tasks.

- Encourage students to think about how additional features can make the app more helpful or fun for users.
- 

### 4. Group Discussion: How Do Apps Solve Problems? (10 minutes)

- **Class Discussion:**

Ask students how the app they created could help people in real life. For example, how would a **schedule organizer** help someone manage their time better? Discuss how apps and tools can make life easier by solving everyday problems.

- Encourage students to think about other apps they could create to solve different problems (e.g., an app to track homework assignments, a game to help people learn math, etc.).
- 

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how apps and tools created by developers help solve problems in different industries. Ask students:

“What’s an app or tool you wish existed? How could it help solve a problem?”

- **Homework Assignment:**

Ask students to come up with an idea for an app that solves a problem in their own life. They should write a short description of the app and explain how it would work.

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### End of Lesson 8

By the end of Lesson 8, students will have a basic understanding of the **Solution Developer** role and how AI-powered apps are built to solve problems. They will have created a simple app using **Scratch Junior** and brainstormed ideas for other apps that could help solve real-world problems.

## Lesson 9: AI-Driven Digital Marketer (1-2 hours)

Objective:

Introduce students to the role of a **Digital Marketer**, focusing on how AI helps companies advertise their products, create branding, and promote their business. Students will design marketing materials using AI-powered tools to understand how digital marketing works in the real world.

Materials Needed:

- Tablets/computers with access to **Canva** or any other free design tool.
- Sample product (real or fictional) for students to market (e.g., a new toy, a school club, or a snack).

---

Step-by-Step Instructions:

### 1. Introduction to Digital Marketing (10 minutes)

- **Teacher Explanation:**

Explain that a **Digital Marketer** helps companies sell their products by creating ads, logos, social media posts, and other promotional materials. Digital marketers use AI to understand what customers want and how to best promote products to them.

- **Example:**

Explain how companies use AI to show ads to people based on their interests. For example, if someone watches a lot of videos about soccer, they might see ads for soccer gear or games.

- **Discussion:**

Ask students if they've ever seen ads on websites or social media. How do they think companies decide what ads to show?

## 2. Activity: Designing a Logo in Canva (30-40 minutes)

- **Materials Needed:**

Access to **Canva** or another design tool on tablets or computers.

- **Activity:**

Have students create a logo for a fictional product, school club, or business.

Guide them through using templates, adding colors, fonts, and images.

- **Step 1:** Show students how to choose a logo template in Canva.
- **Step 2:** Guide them through customizing the template (e.g., changing the name, adding colors, or choosing icons).
- **Step 3:** Have students think about how their logo represents their product or business (e.g., Does it show what the business does? Is it eye-catching?).

- **Teacher Guidance:**

Help students understand the importance of a clear, simple, and memorable logo. Encourage creativity and uniqueness in their designs.

---

## 3. Fun Challenge: Create a Social Media Ad (15 minutes)

- **Activity:**

After students have created their logos, ask them to design a simple social media ad (e.g., an Instagram post or Facebook ad) using Canva. The ad should promote the product or business they created a logo for.

- **Example:**

If a student created a logo for a "Junior Bakers Club," they might create an ad that invites new members to join the club. The ad could feature a fun slogan, an image of baked goods, and their new logo.

---

## 4. Group Discussion: How AI Helps in Digital Marketing (10 minutes)

- **Class Discussion:**

Ask students how they think companies decide where to show their ads. Explain that **AI** helps companies understand what people like and shows ads to the right audience.

- **Example:**

A company might use AI to figure out which colors or slogans work best for their ads. AI can also tell companies which ads are getting the most clicks and which ones need improvement.

---

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of digital marketing. Ask students:  
“How does creating a logo and ad help a company or club stand out? How do you think AI can help companies improve their marketing?”

- **Homework Assignment:**

Students should design a second ad or promotional material for their product or business, using Canva or another tool. They can use this as part of their upcoming class presentation.

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## End of Lesson 9

By the end of Lesson 9, students will have learned the basics of **Digital Marketing** and the role of AI in helping companies advertise their products. They will have created logos and social media ads, gaining hands-on experience with design tools like Canva.

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## Lesson 10: Project Management Overview and Preparation for Actual Projects (1-2 hours)

### Objective:

Introduce students to **Project Management** and prepare them for their upcoming projects. Students will learn how to use Trello or another project management tool to organize tasks, set deadlines, and work collaboratively.

### Materials Needed:

- Access to **Trello** (or any project management tool) on computers or tablets.

- Predefined class projects (e.g., creating a recycling app, designing a community garden).
- 

### Step-by-Step Instructions:

#### 1. Recap of the Week and Introduction to Project Management (10 minutes)

- **Teacher Explanation:**

Start by recapping everything students have learned over the past week:

- AI roles: Market Researcher, Data Analyst, Solution Developer, Digital Marketer.
- Tools they've used: Google Sheets, Canva, Scratch Junior.

- Explain that today's focus will be on **organizing their projects** and preparing for real-world problem-solving using project management tools.

---

#### 2. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain the concept of **project management** and how professionals use tools like Trello to plan their work. Project management helps teams break down big projects into smaller, manageable tasks.

- **Example:**

When building a house, workers need to do things in the right order—first, lay the foundation, then build the walls, and finally put on the roof. The same idea applies to other projects.

- **Discussion:**

Ask students how they think managing tasks and deadlines could help them in their schoolwork or future projects.

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#### 3. Introduction to Trello (15 minutes)

- **Materials Needed:**

Access to Trello on tablets or computers.

- **Teacher Demonstration:**

Demonstrate how to use Trello by setting up a **Trello board** for one of the class projects (e.g., designing a recycling app). Show students how to:

- Create **lists** (To Do, In Progress, Done).
  - Add **cards** for each task (e.g., “Research recycling facts,” “Design app interface”).
  - Assign **deadlines** and roles (e.g., assign one student to research and another to design).
- 

#### 4. Group Activity: Setting Up Their Trello Boards (25 minutes)

- **Activity:**

In their project teams, students will create their own **Trello boards** for the upcoming projects. Each group will:

- Create **three lists**: To Do, In Progress, Done.
- Add task **cards** under each list.
- Assign roles and set **deadlines** for each task (e.g., the Data Analyst needs to finish analyzing data by the end of the week, the Solution Developer needs to complete coding within two weeks).
- **Example Project:**  
For a project on designing a community garden, tasks might include:
  - Researching plant types.
  - Drawing garden designs.
  - Building a prototype model.

- **Teacher Guidance:**

Help students think through the tasks and break them down into smaller steps.

Encourage them to set reasonable deadlines and assign tasks based on their team members' strengths.

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#### 5. Fun Activity: Moving Task Cards Across Lists (10 minutes)

- **Activity:**

Let students complete one small task (e.g., researching garden plants) and move their card from **To Do** to **Done**. This helps students see how project management tools help visualize progress.

## 6. Final Discussion: Preparing for Upcoming Projects (10 minutes)

- **Class Discussion:**

Discuss how students will use Trello to manage their projects over the next few weeks. Ask:

- “How does organizing tasks help us work better as a team?”
- “Why is it important to set deadlines for each part of the project?”

- **Teacher Guidance:**

Emphasize that project management helps teams stay on track, meet deadlines, and ensure that all tasks are completed in the right order.

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## 7. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the week and how students will start their projects next week. Ask: “What are you most excited about for your upcoming project? How do you think Trello will help you stay organized?”

- **Homework Assignment:**

Each student should review their assigned tasks on Trello and begin preparing to work on their specific role in the project (e.g., researching, designing, developing).

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## End of Lesson 10

By the end of Lesson 10, students will have a strong understanding of **Project Management** and how to organize their upcoming projects using **Trello**. They will have set up their Trello boards and prepared their project tasks, making them ready to start working on real-world projects the following week.



## Guided Project - Creating a Community Garden with Recycled Materials

**Project Roles:** 3 (“Market Researcher & Data Analyst”, “Solution Designer & Developer”, “Digital Marketer & Project Manager”)

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**Duration:** 10 Lessons (Initial introduction and setup)

### **Project Overview:**

In this project, students will work together to create a sustainable community garden using recycled materials. Each student will take on one of three roles: **Market Researcher & Data Analyst**, **Solution Designer & Developer**, or **Digital Marketer & Project Manager**. They will collaborate to gather community data, design the garden layout, and promote the project to their community. By the end, students will have created a detailed plan for the garden and presented their ideas to their classmates or local community members.

### **Learning Objectives:**

- **Collaboration:** Students will learn to work in teams, share responsibilities, and integrate their work into a cohesive project.
- **Real-World Application:** Students will apply their knowledge of sustainability and recycling to solve a real-world problem (creating a sustainable community garden).
- **Technology Integration:** Students will use tools like Google Forms, Canva, and Trello to manage their project, design promotional materials, and collect community feedback.

### **Curriculum Mapping:**

This project is mapped to multiple subject areas across **US Common Core**, **UK Curriculum**, **Cambridge**, **IB**, and **Pakistan National Curriculum**.

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### **US Common Core Curriculum Mapping:**

#### **1. English Language Arts (ELA):**

- **Writing (W.3.2, W.4.2, W.5.2):** Writing informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- **Speaking & Listening (SL.3.4, SL.4.4, SL.5.4):** Present information clearly, concisely, and logically, supporting main ideas with facts and descriptive details.

**2. Mathematics:**

- **Measurement & Data (MD.3.4, MD.4.4, MD.5.4):** Create and interpret data in graphs, focusing on community survey data and garden layout measurements.
- **Geometry (G.3.1, G.4.1, G.5.1):** Analyze and create garden layouts using geometric shapes and spatial understanding.

**3. Science:**

- **Earth and Human Activity (3-ESS3-1, 4-ESS3-1, 5-ESS3-1):** Focus on human impact on Earth's systems, the benefits of recycling, and sustainability through the creation of the garden.
- 

**UK National Curriculum Mapping:****1. English:**

- **Writing:** Plan, draft, and write clear and coherent informational texts (related to the research and findings from the project).
- **Speaking & Listening:** Develop effective presentation skills by presenting project findings.

**2. Mathematics:**

- **Data Handling:** Use bar charts, tally charts, and pie charts to represent survey data from the community on recycling habits.
- **Measurement:** Calculate the dimensions of the garden and the space needed for different sections, using units of measurement.

**3. Science:**

- **Living Things and Their Habitats:** Learn about plants and ecosystems, linking this to the importance of sustainable gardens and recycling materials.
- 

**Cambridge Curriculum Mapping:****1. English:**

- **Writing & Presenting Information:** Develop skills in writing reports and presenting findings through research and data collection.
- **Speaking & Listening:** Share ideas through discussions and formal presentations during the project.

**2. Mathematics:**

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- **Data Collection and Presentation:** Collect, analyze, and present data from community surveys about recycling and garden preferences.
  - **Geometry:** Use geometric concepts to design the layout of the community garden.
- 3. Science:**
- **Environmental Awareness:** Understand recycling and sustainability, focusing on their application in creating an eco-friendly garden.
- 

### **IB PYP Curriculum Mapping:**

- 1. Language:**
    - **Writing & Research:** Students will gather and present information about recycling and sustainable gardening practices.
    - **Communication:** Students will develop communication skills by presenting their findings to their classmates and community.
  - 2. Mathematics:**
    - **Data Handling:** Interpret survey results and present findings using appropriate visual aids (e.g., bar charts, graphs).
  - 3. Science:**
    - **Science in Society:** Explore how human actions (like recycling) can impact the environment positively, in line with sustainability principles.
- 

### **Pakistan National Curriculum Mapping:**

- 1. English:**
  - **Writing:** Writing informative texts and explanations of the community garden's purpose, sustainability goals, and design process.
  - **Oral Communication:** Present the project's findings to classmates and community members, explaining the importance of recycling and sustainability.
- 2. Mathematics:**
  - **Data Handling:** Collect and analyze survey data, presenting it through graphs and charts.
  - **Geometry:** Use measurement and spatial understanding to plan the layout of the garden.
- 3. Science:**

- **Environmental Science:** Learn about sustainable development, recycling, and human impacts on the environment through the design and creation of the community garden.
- 

## 10 Lessons Roadmap for Market Researcher / Data Analyst

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can recycling reduce waste and help create a sustainable community garden?

**Focus:** The **Market Researcher & Data Analyst** will gather data on community recycling habits, analyze trends, and collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to ensure the garden design aligns with community interests and promotes sustainability. The project will end with a branding effort to promote the initiative.

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#### Lesson 1: Defining the Problem & Creating a Research Plan (1-2 hours)

**Objective:** Understand the project's goals, define the research problem, and develop a data collection plan.

- **Tasks:**

- Use **AI tools** like **ChatGPT** or **Google AI** to research recycling and community gardens. Gather insights to inform survey creation.
- Collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to outline the research problem and define how data will support design and promotional strategies.
- Develop a research plan to collect data on recycling habits, materials available for reuse, and community interest in a garden.

**AI Tools:** ChatGPT, Google AI (for research and planning).

**Connection Points:**

- Share initial insights with the **Designer & Developer** to inform early design concepts.

- Align the research plan with the **Digital Marketer & Project Manager** for effective community engagement.
- 

## Lesson 2: Creating a Survey Using AI Tools (1-2 hours)

**Objective:** Create a survey to gather community data on recycling habits and garden participation.

- **Tasks:**

- Use **Google Forms Auto-Generate** or **ChatGPT** to design a survey with questions like, "How often do you recycle?" and "What recycled materials do you have at home?"
- Collaborate with the **Digital Marketer & Project Manager** to ensure the survey is distributed digitally and promoted within the community.
- Finalize the survey and start distributing it through various channels.

**AI Tools:** Google Forms Auto-Generate, ChatGPT (for survey creation).

**Connection Points:**

- Share the survey questions with the **Designer & Developer** to align community input with garden design.
  - Work with the **Digital Marketer & Project Manager** to distribute the survey.
- 

## Lesson 3: Data Collection (1-2 hours)

**Objective:** Collect survey responses and gather observations about recycling behaviors in the community.

- **Tasks:**

- Collect responses via Google Forms or manually with paper-based surveys.
- Observe recycling behaviors in your school or neighborhood (e.g., what materials are recycled and how often).
- Start sharing preliminary findings with the **Designer & Developer** to inform material selection.

**AI Tools:** Google Forms (for data collection).

**Connection Points:**

- Coordinate with the **Digital Marketer & Project Manager** to ensure the survey reaches the community.
  - Share early insights with the **Designer & Developer** for the garden design.
- 

## **Lesson 4: Organizing Data Using AI (1-2 hours)**

**Objective:** Input the collected data into a spreadsheet and begin using AI tools to organize it.

- **Tasks:**
  - Input the data from surveys into **Google Sheets** or **Excel** for easier manipulation.
  - Use **Google AI** or **Microsoft Power BI** to organize the data into categories, such as materials recycled, community awareness of recycling, and interest in the community garden.

**AI Tools:** Google Sheets, Google AI, Microsoft Power BI (for organizing data).

**Connection Points:**

- Share organized data with the **Designer & Developer** to ensure materials for the garden match the community's recycling habits.
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## **Lesson 5: Data Visualization & Initial Reporting (1-2 hours)**

**Objective:** Use AI tools to create visual representations of the data and begin reporting key findings.

- **Tasks:**
  - Use **Google AI** or **Power BI** to create charts, such as bar graphs and pie charts, that visualize the survey results (e.g., most commonly recycled materials).
  - Prepare a brief initial report to share with the team, summarizing key insights such as which materials are most available for the garden and the community's level of interest in participating.

**AI Tools:** Power BI, Google Sheets (for data visualization).

**Connection Points:**

- Share visual data with the **Designer & Developer** to ensure that garden design aligns with the community's recycling materials.
  - Work with the **Digital Marketer & Project Manager** to present early insights to the public, promoting interest in the garden project.
- 

### **Lesson 6: Data Analysis Using AI & Collaboration (1-2 hours)**

**Objective:** Analyze the survey data using AI tools to uncover trends and collaborate with the other roles.

**● Tasks:**

- Use **Google AI** or **Power BI** to conduct deeper analysis of the data, identifying trends like the most commonly recycled materials and which households are most engaged in recycling.
- Collaborate with the **Designer & Developer** to refine the material selection for the garden based on the data.
- Discuss insights with the **Digital Marketer & Project Manager** to plan the next phase of community engagement based on data trends.

**AI Tools:** Google AI, Power BI (for data analysis).

**Connection Points:**

- Collaborate closely with the **Designer & Developer** to finalize material choices.
  - Share data-driven insights with the **Digital Marketer & Project Manager** for use in promotional campaigns.
- 

### **Lesson 7: Writing the Final Report Using AI Tools (1-2 hours)**

**Objective:** Write a comprehensive report summarizing data findings and their implications for the project.

**● Tasks:**

- Use **Grammarly** or **ChatGPT** to draft a report summarizing the findings from the survey and data analysis. Include charts and graphs for visual support.
- Discuss the report with the other team members to ensure all roles have the data they need to move forward.

**AI Tools:** Grammarly (for report writing), ChatGPT (for summarizing findings).

**Connection Points:**

- Share the final report with the **Designer & Developer** to finalize material choices for the garden.
  - Provide the report to the **Digital Marketer & Project Manager** to inform promotional materials and campaigns.
- 

### **Lesson 8: Finalizing Recycled Materials List & Collaboration (1-2 hours)**

**Objective:** Collaborate with the team to finalize the list of recycled materials for the garden.

● **Tasks:**

- Work with the **Designer & Developer** to confirm which recycled materials will be used for the garden, based on the survey results and data analysis.
- Ensure the materials are easily accessible in the community and sustainable for the long-term.
- Begin planning how the data can be used in the branding effort, highlighting the environmental impact.

**AI Tools:** Google Sheets, Power BI (for finalizing materials and visualizing data).

**Connection Points:**

- Collaborate with the **Designer & Developer** to finalize the materials and design.
  - Work with the **Digital Marketer & Project Manager** to use data-driven insights in the final promotional materials.
- 

### **Lesson 9: Branding the Project & Preparing for the Final Presentation (1-2 hours)**

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**Objective:** Contribute to the branding effort by sharing data insights that highlight community involvement and sustainability.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to create branding elements (e.g., slogans, logos) that emphasize sustainability and community engagement.
- Use the data collected throughout the project to show how the community's recycling efforts are contributing to the garden.
- Help create a presentation that highlights the key data points, using AI-generated visualizations to support the branding effort.

**AI Tools:** Canva, Power BI (for branding and data visualization).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to finalize the promotional materials.
- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden's design.

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## Lesson 10: Final Presentation & Community Engagement (1-2 hours)

**Objective:** Present the findings to the class or community and contribute to the final branding and community engagement effort.

- **Tasks:**

- Present the final report, showcasing the survey results, data analysis, and the impact of recycling on the garden.
- Work with the **Digital Marketer & Project Manager** to deliver the branding campaign to the community, using data to encourage participation in the garden.
- Conclude the project by discussing the long-term benefits of community engagement in sustainability.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Designer & Developer** and the **Digital Marketer & Project Manager** to deliver a cohesive final presentation.

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- Ensure the branding and data insights are shared with the community to encourage ongoing participation.
- 

## Assessment at Project Level:

### 1. Industry Understanding

- **Assessment Criteria:** Evaluate the student's understanding of the recycling industry, community sustainability efforts, and how data plays a crucial role in environmental decision-making.
- **Questions:**
  - How well does the student understand the impact of recycling on environmental sustainability?
  - Can they explain the connection between recycled materials and their use in the community garden?
  - Have they demonstrated a clear understanding of how data can inform decisions in real-world environmental projects?

### 2. Concept Understanding

- **Assessment Criteria:** Assess the student's grasp of the core concepts, such as data collection, analysis, and visualization, and their ability to apply these concepts in the project.
- **Questions:**
  - How effectively did the student collect and analyze data on recycling habits?
  - Were they able to create clear, accurate visualizations that helped inform the garden's design?
  - Can they explain the process of turning data into actionable insights?

### 3. Role Performance

- **Assessment Criteria:** Measure the student's success in fulfilling the responsibilities of the **Market Researcher & Data Analyst** role, including collaboration with other roles.
- **Questions:**
  - Did the student successfully collect and analyze data to support the garden design and promotional campaign?

- How well did they communicate their findings with the **Designer & Developer** and the **Digital Marketer & Project Manager**?
- Did they contribute effectively to the final report and presentation?

#### 4. Collaboration & Communication

- **Assessment Criteria:** Evaluate how well the student collaborated with their peers and communicated their findings.
- **Questions:**
  - How effectively did the student share insights with other roles throughout the project?
  - Did they collaborate well with the **Designer & Developer** to ensure data-driven design choices?
  - Were they able to communicate data findings clearly to support the **Digital Marketer & Project Manager** in the branding efforts?

#### 5. Branding & Final Presentation

- **Assessment Criteria:** Assess the student's involvement in the final branding and presentation efforts.
- **Questions:**
  - How well did the student use data to contribute to the project's branding, emphasizing community involvement and sustainability?
  - Were they able to present the final findings and demonstrate the impact of the project to the class or community?
  - How effectively did they support the **Digital Marketer & Project Manager** in the promotional campaign?

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#### Learning Outcomes for the Entire Project

- **Industry Understanding:** The student will demonstrate a deep understanding of recycling, sustainability, and how data-driven insights inform real-world projects.
- **Data Skills:** They will acquire skills in using AI tools for data collection, analysis, and visualization, creating clear and actionable insights from raw data.
- **Collaboration:** The student will learn how to effectively collaborate with peers, ensuring the data supports design and marketing efforts.
- **Branding:** The student will contribute to the branding of the community garden project, using data to highlight the impact of recycling and sustainability.

- **Communication:** By presenting their findings, the student will improve their ability to communicate data insights clearly and effectively.

Here's the **10-Lesson detailed plan** for the **Designer & Developer** role in the **Grade 3 Project: Creating a Community Garden with Recycled Materials**, integrating AI tools and connecting with the other roles like **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager**. This plan focuses on the tasks of designing the garden and developing digital components where needed. The project will end with a final presentation, including branding and showcasing the garden's design.

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## 10 Lessons Roadmap for Solution Designer / Developer

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Designer & Developer** will be responsible for designing the community garden based on the research conducted by the **Market Researcher & Data Analyst**, and developing digital components or models that can represent the garden.

Collaboration with the **Digital Marketer & Project Manager** will be essential for branding and final presentation efforts.

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### Lesson 1: Understanding the Project & Gathering Design Inputs (1-2 hours)

**Objective:** Understand the project goals and begin gathering design ideas from the team.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** to understand the community's preferences for recycling and sustainable gardening based on the initial research and data collection plan.
- Review preliminary data about materials available for the garden.
- Begin brainstorming design ideas for how recycled materials can be used effectively in the garden layout.

**AI Tools:** ChatGPT or DALL·E (to generate initial garden design ideas and layouts).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to understand the types of materials available and the community's recycling behaviors.
  - Align with the **Digital Marketer & Project Manager** on initial branding concepts that align with the garden's design and sustainability goals.
- 

## **Lesson 2: Sketching Initial Designs (1-2 hours)**

**Objective:** Create initial design sketches for the community garden using input from the research team.

- **Tasks:**
  - Using **Figma** or **Canva**, create initial sketches of the garden layout, focusing on how different recycled materials (plastic bottles, cardboard) can be incorporated into planters, pathways, and other elements.
  - Collaborate with the **Market Researcher & Data Analyst** to ensure that the design reflects community preferences, based on the survey data.
  - Prepare a few different layout options to present to the team for feedback.

**AI Tools:** Figma, Canva, or DALL·E (for garden design and layout ideas).

**Connection Points:**

- Review the initial sketches with the **Market Researcher & Data Analyst** to ensure that the materials align with the data.
  - Begin discussing the designs with the **Digital Marketer & Project Manager** to align branding with design concepts.
- 

## **Lesson 3: Finalizing the Garden Layout & Material Use (1-2 hours)**

**Objective:** Finalize the layout for the community garden and decide on the use of recycled materials.

- **Tasks:**

- Refine the initial garden sketches based on team feedback, incorporating any additional ideas or materials suggested by the **Market Researcher & Data Analyst**.
- Finalize the list of recycled materials that will be used in the garden design and ensure that all elements are sustainable and practical.
- Begin outlining the specific design elements for each section of the garden, such as planter designs, seating areas, and pathways made from recycled materials.

**AI Tools:** Figma (for finalizing designs), Google Sheets (for organizing the materials list).

#### Connection Points:

- Collaborate closely with the **Market Researcher & Data Analyst** to finalize material choices.
  - Work with the **Digital Marketer & Project Manager** to ensure that the garden's design can be easily branded and promoted.
- 

### Lesson 4: Developing Digital Components & Visual Models (1-2 hours)

**Objective:** Create digital models or visual representations of the community garden.

#### ● Tasks:

- Use **Figma** or **Canva** to create a digital mockup of the garden, showing how the recycled materials will be incorporated into the final design.
- Create a visual model of the garden that can be used in the final presentation and promotional materials. This model should clearly represent the layout, materials, and overall aesthetic of the garden.
- Ensure that the model is easy to understand and visually appealing, as it will be part of the final presentation to the community.

**AI Tools:** Figma, Canva, Google SketchUp (for digital modeling and mockups).

#### Connection Points:

- Share the digital model with the **Market Researcher & Data Analyst** to ensure all materials are represented accurately.
- Work with the **Digital Marketer & Project Manager** to use the visual models in promotional campaigns.

## Lesson 5: Preparing Visual Design & Feedback Integration (1-2 hours)

**Objective:** Prepare the visual design and gather feedback from the team.

- **Tasks:**

- Present the digital model and design sketches to the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** for feedback.
- Make any necessary adjustments based on team feedback, ensuring that the design aligns with community preferences and promotional goals.
- Begin planning how the design will be presented to the community, considering visual elements that highlight the use of recycled materials.

**AI Tools:** Figma, Canva (for revisions based on feedback).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to refine the design and ensure that all elements are data-driven.
  - Work with the **Digital Marketer & Project Manager** to plan how the final design will be showcased to the community.
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## Lesson 6: Branding the Garden Design (1-2 hours)

**Objective:** Work with the **Digital Marketer & Project Manager** to create branding elements for the garden.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to develop branding materials, such as logos, slogans, and promotional designs, that reflect the sustainability and community-driven aspects of the garden.
- Ensure that the visual design aligns with the branding elements and that the garden's message of sustainability is clear in all promotional materials.
- Use AI tools like **Canva** to create visual assets for social media and other marketing channels.

**AI Tools:** Canva (for branding and promotional materials).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to ensure the branding is visually consistent with the garden design.
  - Collaborate with the **Market Researcher & Data Analyst** to include data-driven messaging in the branding materials.
- 

## Lesson 7: Refining Digital Models & Preparing for Final Presentation (1-2 hours)

**Objective:** Refine the digital models and prepare for the final presentation.

- **Tasks:**
  - Refine the digital model based on team feedback and ensure that it is ready for the final presentation.
  - Begin preparing slides or visual aids for the final presentation, showcasing the design process, the recycled materials used, and how the garden will benefit the community.
  - Work closely with the **Market Researcher & Data Analyst** to integrate data insights into the presentation.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to include data insights in the presentation.
  - Work with the **Digital Marketer & Project Manager** to ensure that the presentation aligns with the branding strategy.
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## Lesson 8: Finalizing the Garden Design & Preparing Presentation Materials (1-2 hours)

**Objective:** Finalize the garden design and prepare materials for the final presentation.

- **Tasks:**
  - Finalize all visual materials, including digital models, posters, and any other design elements that will be used in the final presentation.
  - Ensure that the final design is visually appealing and accurately represents the garden layout, including the use of recycled materials.

- Share the final design with the **Digital Marketer & Project Manager** to ensure alignment with the overall branding effort.

**AI Tools:** Figma, Canva (for finalizing visual materials).

**Connection Points:**

- Work with the **Market Researcher & Data Analyst** to ensure the final design reflects community input.
  - Collaborate with the **Digital Marketer & Project Manager** to ensure that the branding materials are consistent with the design.
- 

### **Lesson 9: Presenting the Final Garden Design to the Community (1-2 hours)**

**Objective:** Present the final garden design and explain how recycled materials are used in the garden.

- **Tasks:**
  - Present the final design to the class or community, showcasing how recycled materials have been incorporated into the garden layout.
  - Work with the **Digital Marketer & Project Manager** to ensure that the branding message is clear and that the presentation highlights the community's involvement in the project.
  - Use AI tools to create visual aids that make the design easy to understand for the audience.

**AI Tools:** Google Slides, Canva (for final presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure that data-driven insights are included in the presentation.
  - Work with the **Digital Marketer & Project Manager** to deliver a cohesive branding message during the presentation.
- 

### **Lesson 10: Final Branding and Post-Project Collaboration (1-2 hours)**

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**Objective:** Collaborate with the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** to promote the project through branding and share the project's success story with the community.

- **Tasks:**

- Finalize the project presentation and branding effort, ensuring the design reflects the community's involvement and promotes environmental sustainability.
- Participate in a final team discussion to reflect on the project, discussing what worked well and what can be improved for future projects.
- Help create a social media campaign or blog post to share the project's success story with a broader audience, highlighting how the garden project supports environmental sustainability and community involvement.

**AI Tools:** **Canva** (for creating promotional materials), **Grammarly** (for writing social media posts or blog content).

**Connection Points:**

- Collaborate with the **Digital Marketer & Project Manager** to ensure the project is branded and promoted effectively.
- Share the final project design and branding with the community through digital platforms or in-person presentations.

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**Final Assessment at Project Level (for the Designer & Developer Role):**

- **Industry Understanding:**

- Can the student explain how recycled materials were used to design the community garden?
- How well does the student understand the impact of design on environmental sustainability and community engagement?

- **Concept Understanding:**

- Evaluate the student's ability to apply design concepts in creating a sustainable garden layout.
- Did the student use recycled materials effectively and creatively?

- **Role Performance:**

- Did the student fulfill the responsibilities of the **Designer & Developer** role, including creating digital models and refining the garden design?

- How well did the student collaborate with the **Market Researcher & Data Analyst** to incorporate data insights into the design?
  - **Collaboration:**
    - Did the student communicate effectively with the other roles and integrate their input into the final design?
    - How well did the student contribute to the final presentation and branding effort?
  - **Branding & Final Presentation:**
    - Did the student contribute to the branding and promotion of the project, using their design skills to create visually appealing materials?
    - How effectively did the student participate in the final presentation, showcasing the design and promoting the project to the community?
- 

### Learning Outcomes for the Entire Project:

- **Design & Development Skills:** The student will develop skills in using AI tools like **Figma** and **Canva** to create designs and digital models.
- **Industry Knowledge:** The student will gain a deeper understanding of sustainable design and how to incorporate recycled materials into real-world projects.
- **Collaboration & Communication:** The student will improve their ability to work with other roles, ensuring that data and branding are integrated into the design process.
- **Branding & Presentation:** The student will contribute to branding efforts and learn how to present their design in a professional, visually appealing manner.

This 10-Lesson plan focuses on ensuring the **Designer & Developer** role is integrated with the other roles, using AI tools and collaborative feedback to create a sustainable, community-driven garden design. The plan culminates in a final presentation and branding effort that promotes the project's impact.

## 10 Lessons Roadmap for Project Manager / Digital Marketer

Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Digital Marketer & Project Manager** will handle project organization and branding. This includes creating promotional materials, managing timelines using Trello, and working with other roles like the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure the project's success.

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### Lesson 1: Understanding the Project & Setting Up Project Management (1-2 hours)

**Objective:** Understand the project's goals, set up the project management system, and begin organizing the project timeline.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** and the **Designer & Developer** to understand their roles and align on the project's overall goals.
- Set up a **Trello** board to organize the project tasks. Create lists for "To-Do," "In Progress," and "Completed."
- Assign tasks for each role and create a project timeline, including deadlines for survey creation, design feedback, branding, and the final presentation.

**AI Tools:** **Trello, Google Calendar** (for project management).

**Connection Points:**

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- Collaborate with the **Market Researcher & Data Analyst** to schedule tasks related to survey creation and data analysis.
  - Coordinate with the **Designer & Developer** to schedule design feedback and finalize the garden layout.
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## Lesson 2: Creating a Branding Strategy (1-2 hours)

**Objective:** Develop a branding strategy for the community garden project, including logos, slogans, and promotional materials.

- **Tasks:**
  - Brainstorm branding ideas with the **Designer & Developer** to create a consistent theme that reflects the garden's sustainability and recycling message.
  - Use **Canva** to design a logo and select a color scheme that represents the community garden's values.
  - Create a simple slogan for the project, emphasizing sustainability and community involvement (e.g., "Grow Green, Recycle Smart").

**AI Tools:** Canva, Adobe Spark (for branding materials).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden design.
  - Work with the **Market Researcher & Data Analyst** to include data insights (such as community interest in recycling) in the branding strategy.
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## Lesson 3: Promoting the Survey & Engaging the Community (1-2 hours)

**Objective:** Help distribute the survey created by the **Market Researcher & Data Analyst** and engage the community.

- **Tasks:**
  - Use **social media platforms** or school-based networks to distribute the survey to the community, promoting it as part of the sustainable garden initiative.

- Post on platforms like **ClassDojo** or school newsletters, explaining how community feedback will shape the garden.
- Track survey responses using Trello, updating the board as the community engages.

**AI Tools:** Facebook, Instagram, ClassDojo (for promoting surveys).

**Connection Points:**

- Coordinate with the **Market Researcher & Data Analyst** to ensure survey responses are collected efficiently.
  - Share community engagement data with the **Designer & Developer** for design feedback.
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## Lesson 4: Tracking Progress & Adjusting the Timeline (1-2 hours)

**Objective:** Review the project's progress and adjust the timeline if necessary.

- **Tasks:**
  - Use **Trello** to track the completion of tasks, including survey creation, data collection, and initial design sketches.
  - Hold a quick meeting with the team to check if any adjustments are needed for the timeline (e.g., more time for data collection or design revisions).
  - Update the project timeline based on team feedback, ensuring all tasks stay on track for completion by Lesson 10.

**AI Tools:** Trello, Google Calendar (for timeline adjustments).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure enough time is allocated for data analysis.
  - Work with the **Designer & Developer** to adjust the design schedule if needed.
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## Lesson 5: Creating Social Media Content for Promotion (1-2 hours)

**Objective:** Create and schedule social media content to promote the community garden project and encourage more participation.

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- **Tasks:**

- Use **Canva** to design promotional posts that highlight the garden's sustainability goals and the use of recycled materials.
- Work with the **Market Researcher & Data Analyst** to include data from the survey, such as what materials the community recycles most.
- Schedule social media posts to go live on specific days leading up to the final presentation, using tools like **Hootsuite**.

**AI Tools:** **Canva, Hootsuite, Facebook, Instagram** (for social media content and scheduling).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to use data insights in social media posts.
  - Work with the **Designer & Developer** to ensure the branding and visuals are consistent with the garden design.
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## Lesson 6: Refining the Branding & Promotional Campaign (1-2 hours)

**Objective:** Refine the branding strategy based on community feedback and prepare for the final promotional push.

- **Tasks:**

- Review the branding materials with the **Designer & Developer** to ensure they align with the final garden design.
- Use feedback from the community to adjust slogans, logos, or promotional content if needed.
- Prepare a final promotional push for social media, encouraging community members to attend the presentation or contribute to the garden.

**AI Tools:** **Canva, Google Sheets** (for organizing feedback and refining branding).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure branding and design remain aligned.
  - Use insights from the **Market Researcher & Data Analyst** to refine the promotional message.
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## Lesson 7: Preparing for the Final Presentation (1-2 hours)

**Objective:** Begin preparing materials for the final presentation, including slides and talking points.

- **Tasks:**

- Use **Google Slides** or **PowerPoint** to start creating the final presentation, which will showcase the project's progress, data insights, and design.
- Include branding elements (logos, slogans) and key visuals from the **Designer & Developer**.
- Work with the **Market Researcher & Data Analyst** to include data-driven insights in the presentation, such as survey results and recycling data.

**AI Tools:** Google Slides, PowerPoint, Canva (for creating the presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure the data is visually presented in the slides.
- Ensure that branding elements from the **Designer & Developer** are included in the presentation.

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## Lesson 8: Finalizing the Presentation & Promotional Strategy (1-2 hours)

**Objective:** Finalize the presentation and promotional strategy for the community garden project.

- **Tasks:**

- Review the presentation with the team and make any necessary revisions.
- Prepare a final promotional post or email to invite community members to the presentation.
- Ensure that the branding is consistent across all promotional materials and presentation slides.

**AI Tools:** Google Slides, Canva (for finalizing presentation and promotional content).

**Connection Points:**

- Work with the **Designer & Developer** and **Market Researcher & Data Analyst** to ensure the presentation is cohesive and reflects the project's goals.

## Lesson 9: Final Presentation Preparation & Rehearsal (1-2 hours)

**Objective:** Rehearse the final presentation and ensure that all materials are ready for delivery.

- **Tasks:**

- Conduct a rehearsal with the team to ensure each role is prepared to present their part of the project.
- Finalize the promotional strategy and ensure that the community is aware of the presentation.
- Check the branding materials and visuals to ensure consistency throughout the presentation.

**AI Tools:** Google Slides, Canva (for final rehearsal and checking visuals).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure everyone is aligned for the presentation.
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## Lesson 10: Delivering the Final Presentation & Branding Campaign (1-2 hours)

**Objective:** Deliver the final presentation and launch the final branding campaign.

- **Tasks:**

- Present the community garden project to the class or community, highlighting how recycling has been integrated into the garden's design.
- Launch the final branding campaign on social media or school platforms, using the content created throughout the project.
- Discuss the impact of the project on the community and encourage further participation in sustainable initiatives.

**AI Tools:** Google Slides, Canva, Facebook, Instagram (for delivering the presentation and launching the branding campaign).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to deliver a cohesive final presentation.

# Teacher Guidelines to Conduct AI Based Projects

## Teacher Guideline 1 - Detailed Tool Instructions

This guide provides teachers with step-by-step instructions on using essential tools for the 10-Lesson Introduction to AI, Data Science, and Technology Basics. It includes screenshots, QR code links to short instructional videos, and sample exercises to make it easy for teachers to practice before introducing these tools to students.

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### Tool 1: Canva (Graphic Design Basics)

- **Purpose:** Canva allows students to create visuals like posters, reports, and presentation slides, which they can use to showcase project findings.
  - **Quick-Start Steps:**
    - **Open Canva:** Go to [canva.com](https://canva.com) and create a free account.
    - **Choose a Template:** Select “Create a Design” and choose a template, like “Poster” or “Presentation.”
    - **Customize Design:** Encourage students to add text, images, and icons. They can drag elements to adjust positions, change colors, and edit fonts.
    - **Save & Download:** When finished, click “Download” to save the design as a PDF or image.
  - **Sample Exercise:** Create a digital poster titled “How AI Helps Us Every Day” with a simple layout and two to three icons or images related to technology.
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### Tool 2: Google Forms (Data Collection)

- **Purpose:** Google Forms allows students to create surveys, gather responses, and analyze basic data, such as preferences or community feedback.
- **Quick-Start Steps:**
  - **Access Google Forms:** Go to [forms.google.com](https://forms.google.com) and log in with a Google account.
  - **Start a New Form:** Click “Blank” to start a new form or use a pre-made template.

- **Add Questions:** Select “+” to add different question types (multiple choice, short answer, etc.). Teachers can guide students to add three to five questions for practice.
  - **Share the Form:** Click “Send” and choose the “Link” option to copy and share the form with students or family members for responses.
  - **Review Responses:** Click “Responses” to view and analyze results.
  - **Sample Exercise:** Create a form titled “Favorite School Activities” with questions like “What’s your favorite subject?” and “Which club would you join?”
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### Tool 3: Scratch Jr. / Scratch (Basic Coding Concepts)

- **Purpose:** Scratch Jr. (for younger students) and Scratch teach basic coding logic through drag-and-drop programming, helping students understand how computers follow instructions.
  - **Quick-Start Steps:**
    - **Access Scratch:** Go to [scratch.mit.edu](https://scratch.mit.edu) for Scratch or download **Scratch Jr.** on tablets.
    - **Start a New Project:** Click “Create” on Scratch (or open Scratch Jr.) and introduce the interface (sprite area, code blocks).
    - **Add Movements:** Drag “Motion” blocks like “Move 10 Steps” to make the character move.
    - **Add Dialogue:** Use “Looks” blocks like “Say [Hello!]” to add dialogue to the characters.
  - **Sample Exercise:** Create a short animation where a character says “Hello!” and moves across the screen.
- 

### Tool 4: Trello (Simple Project Management)

- **Purpose:** Trello is a simple project management tool that organizes tasks and allows students to track project progress in a visual “board” format.
- **Quick-Start Steps:**
  - **Access Trello:** Go to [trello.com](https://trello.com) and sign up for a free account.
  - **Create a New Board:** Click “Create New Board” and name it according to the project (e.g., “Community Garden Project”).
  - **Add Lists:** Create three lists titled “To Do,” “In Progress,” and “Done.”

- **Add Task Cards:** Under “To Do,” add tasks as cards (e.g., “Research recycling materials” or “Design garden layout”).
  - **Move Cards Across Lists:** Drag cards to “In Progress” when a task starts and to “Done” upon completion.
  - **Sample Exercise:** Set up a simple Trello board for the “Community Garden Project,” with three cards under “To Do.”
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### Tool 5: Google Sheets (Data Analysis Basics)

- **Purpose:** Google Sheets introduces students to basic data handling, allowing them to enter data, create charts, and interpret findings.
- **Quick-Start Steps:**
  - **Access Google Sheets:** Go to [sheets.google.com](https://sheets.google.com) and start a new blank spreadsheet.
  - **Enter Data:** Demonstrate entering data in columns (e.g., “Activity” and “Number of Students”).
  - **Create a Chart:** Highlight data, click “Insert,” then “Chart.” Google Sheets will generate a chart based on selected data.
  - **Customize Chart:** Adjust the chart’s appearance by changing colors, titles, and labels.
- **Sample Exercise:** Input survey data on “Favorite School Activities” and create a bar chart showing the results.

### Teacher Guideline 2: Simplified Technical Explanations & Essential Skills Overview

This section offers **easy-to-understand explanations** for complex concepts in AI and data science, along with an overview of essential skills for each role. Teachers can use these simplified definitions and skill descriptions to introduce foundational concepts and set expectations for the skills students will build across the activities.

### Core AI & Data Science Concepts

- **AI (Artificial Intelligence):**

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- **Simple Explanation:** AI is a “smart helper” that can learn and make decisions, much like how people do.
  - **Example:** Just as Netflix recommends movies based on past viewing habits, AI learns from patterns to give us what we might like.
  - **Machine Learning:**
    - **Simple Explanation:** Machine learning is when computers learn by looking at examples and improving with practice.
    - **Example:** Like learning to recognize different breeds of dogs by seeing many examples, a machine learns to make predictions based on data.
  - **Data:**
    - **Simple Explanation:** Data is information that we can collect, analyze, and use to make decisions.
    - **Example:** Schools collect data on attendance and grades to understand how students are doing.
  - **Coding:**
    - **Simple Explanation:** Coding is giving instructions to a computer to perform specific tasks.
    - **Example:** Just like following a recipe to bake a cake, coding gives step-by-step instructions to make things happen on a computer.
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## Essential Skills for Each Role

- **AI-Powered Market Researcher:**
  - **Skills Developed:** Survey creation, data collection, data analysis.
  - **Practical Application:** Learning to gather information from people and analyze trends, such as classmates’ favorite activities.
- **AI-Powered Data Analyst:**
  - **Skills Developed:** Data interpretation, data visualization, basic statistics.
  - **Practical Application:** Using data charts to understand patterns, like which snacks are most popular.
- **AI-Based Solution Designer:**
  - **Skills Developed:** Design thinking, creative problem-solving, prototyping.
  - **Practical Application:** Developing and presenting ideas for real-world problems, like designing a sustainable garden layout.
- **AI-Based Solution Developer:**
  - **Skills Developed:** Coding basics, creating simple applications, understanding logic sequences.

- **Practical Application:** Creating digital animations or simple apps that demonstrate problem-solving, such as coding an animation in Scratch Jr.
  - **AI-Powered Digital Marketer:**
    - **Skills Developed:** Digital content creation, branding basics, public speaking.
    - **Practical Application:** Making posters and presentations to promote projects, helping students learn how to communicate ideas effectively.
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## Glossary of Key Terms

- **Artificial Intelligence (AI):** Technology that enables computers to perform tasks that require human-like thinking.
  - **Data:** Information collected for analysis, like survey responses or numerical figures.
  - **Machine Learning:** A branch of AI where computers learn patterns from data to make predictions.
  - **Coding:** Writing instructions in a language computers understand to perform specific tasks.
  - **Project Management:** The process of organizing tasks and tracking progress to complete a project.
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## Using This Section

- **Introduce Concepts in Context:** Present these terms and skills in context, relating them to daily project tasks so students understand their practical importance.
  - **Skill Building Across Activities:** Emphasize how each activity will help students gain and practice these skills, which are fundamental for future projects and career paths.
  - **Quick Reference Glossary:** Keep this glossary accessible throughout the project to help both teachers and students reinforce their understanding of new terms.
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## Teacher Guideline 3: Flexible Options for Lower-Tech Classrooms

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This section provides **non-digital alternatives** for each project and activity, helping teachers adapt projects to classrooms with limited technology resources. Each activity includes an **offline option** using common classroom materials or low-tech tools, allowing teachers to achieve the same learning goals without relying heavily on computers or internet access.

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## 1. Canva (Graphic Design Basics)

- **Purpose:** Instead of Canva, students can use **colored paper, markers, and glue** to create posters or designs by hand.
  - **Alternative Steps:**
    1. **Brainstorm & Sketch:** Have students sketch their design ideas on paper first, planning colors, shapes, and text.
    2. **Create the Poster:** Provide colored paper, markers, scissors, and glue for students to create a poster or design.
    3. **Present:** Students present their designs to the class, explaining their choices just as they would if created digitally.
  - **Goal Achieved:** Students learn basic design principles, practice creativity, and share their work, just as they would on Canva.
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## 2. Google Forms (Data Collection)

- **Purpose:** For data collection, use **paper surveys** instead of Google Forms.
  - **Alternative Steps:**
    1. **Create a Survey:** Write survey questions on a large sheet of paper or chalkboard. Students copy questions onto their own papers or teachers provide printed handouts.
    2. **Collect Responses:** Each student asks family or classmates to answer the survey questions and records responses by hand.
    3. **Discuss Results:** Students tally responses and analyze results as a class, discussing patterns and trends.
  - **Goal Achieved:** Students learn the basics of data collection, develop survey questions, and analyze responses without needing an online form.
- 

## 3. Scratch Jr. / Scratch (Basic Coding Concepts)

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- **Purpose:** Instead of using Scratch, introduce **coding concepts with role-playing or written instructions.**
  - **Alternative Steps:**
    1. **Define “Instructions”:** Explain that coding involves giving clear instructions, just like following a recipe.
    2. **Create a Simple “Code”:** Write simple instructions for students to follow, such as “Move 2 steps forward, turn left, jump.” This simulates basic coding commands.
    3. **Role-Playing Game:** Assign students to be “computers” and “programmers” and have them follow each other’s instructions to understand coding.
  - **Goal Achieved:** Students understand basic coding principles (sequences, commands) through role-play, preparing them for digital coding later on.
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#### 4. Trello (Project Management)

- **Purpose:** Replace Trello with a **physical task board** in the classroom.
  - **Alternative Steps:**
    1. **Set Up a Task Board:** Divide a whiteboard, corkboard, or wall into sections: “To Do,” “In Progress,” and “Done.”
    2. **Create Task Cards:** Write tasks on sticky notes or index cards and place them under “To Do.”
    3. **Move Tasks Physically:** As tasks are completed, students move the sticky notes to “In Progress” and then “Done,” visually tracking project progress.
  - **Goal Achieved:** Students learn project management basics with a physical board, gaining the same organizational skills they would on Trello.
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#### 5. Google Sheets (Data Analysis Basics)

- **Purpose:** For data visualization, use **graph paper and markers** instead of Google Sheets.
- **Alternative Steps:**
  1. **Record Data by Hand:** Students list data (e.g., favorite animals or colors) on paper.

2. **Create a Graph:** On graph paper, students create a bar chart or pie chart representing the data they collected.
  3. **Discuss Findings:** Students share their hand-drawn graphs with the class, explaining what the data shows.
- **Goal Achieved:** Students practice data visualization and interpretation skills using manual tools, allowing them to analyze and present data without digital software.
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### How to Use These Alternatives

- **Flexible Planning:** Teachers can choose to follow digital or non-digital versions based on classroom resources. These options allow for flexible lesson planning and ensure each student can fully participate.
  - **Encouraging Creativity:** Using hands-on materials like paper, markers, and role-play introduces new elements of creativity, helping students relate abstract concepts to tangible experiences.
  - **Achieving Learning Goals:** Whether digital or physical, these alternatives achieve the same learning objectives in each project, ensuring that all students gain valuable skills in data collection, analysis, design, and project management.
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By providing these **low-tech options**, teachers can adapt each project and activity to the resources available, making the content accessible to all classrooms.

Next, we'll move to the **Clear Role Descriptions for Teachers and Students** section, which defines specific responsibilities for each Lesson's activity.

### Teacher Guideline 4 - Student Motivation and Engagement Tips

This section offers **practical strategies** to help teachers keep students engaged and motivated as they explore AI, data science, and project-based learning. From setting small goals to celebrating achievements, these tips focus on making learning enjoyable and helping students build confidence as they develop new skills.

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## 1. Use Gamification Techniques

- **Create Mini-Challenges:** Turn activities into small challenges, such as a “Data Detective” day where students have to uncover patterns in a dataset or a “Design Sprint” where they brainstorm solutions quickly.
- **Reward Progress:** Offer digital badges or certificates for completing key milestones (e.g., “Survey Creator,” “Data Visualizer”), which can be printed or displayed in the classroom.
- **Make It Collaborative:** Allow students to earn points as teams, motivating them to work together and encourage each other.

## 2. Set Clear, Achievable Goals

- **Daily and Weekly Goals:** Break down the 10-Lesson program into daily goals so students know what to expect and can celebrate small wins.
- **Visual Progress Tracker:** Use a board to track the class’s progress, where students can move a marker or add a sticker when a Lesson’s tasks are complete, creating a sense of collective accomplishment.

## 3. Foster Curiosity and Relevance

- **Relate Projects to Real Life:** Show students how each activity is relevant to their lives, like explaining how data collection helps companies decide on new toy designs.
- **Encourage Questions:** Create an “Ask Anything” box where students can submit questions about AI, data science, or any topic that piques their interest. Spend a few minutes each day addressing these questions.
- **Introduce Real-World Examples:** Share age-appropriate examples of AI in action, like how Google Maps uses data to predict traffic or how Netflix suggests movies based on viewing history.

## 4. Celebrate Progress and Effort, Not Just Results

- **Acknowledge Effort:** Highlight students’ hard work and creativity, especially when they try something new or face challenges, reinforcing a growth mindset.
- **Showcase Student Work:** Create a “Student Spotlight” wall or virtual board to display projects, survey results, and designs, celebrating each student’s contributions.

- **Share Success Stories:** Occasionally share stories about young inventors, tech entrepreneurs, or environmental activists who made a difference with creative ideas, inspiring students to think about their potential.

## 5. Encourage Reflection and Self-Assessment

- **End-of-Lesson Reflections:** Have students write or share one thing they learned and one question they have after each Lesson's activity, helping them process what they've gained.
- **Weekly Journaling:** Encourage students to keep a weekly journal of their experiences, including what they enjoyed, what they found challenging, and what they're excited to try next.
- **Peer Feedback:** Create moments for students to share and receive constructive feedback from peers, fostering collaboration and growth.

## 6. Make Learning Fun with Hands-On Activities

- **Incorporate Art and Creativity:** Allow students to incorporate drawings, crafts, or physical models in their projects, especially for roles like the Solution Designer or Digital Marketer.
- **Allow Free Exploration:** Give students "exploration days" where they can use tools like Canva or Scratch for their own mini-projects, letting them practice skills in a low-pressure setting.
- **Involve the Class in Problem-Solving:** Let students take ownership of small project decisions, like choosing survey topics or deciding on themes for presentations, fostering autonomy and pride in their work.

## 7. Create an Inclusive and Supportive Environment

- **Encourage Teamwork:** Pair students with different strengths so they can support each other, learning from each other's skills and experiences.
- **Celebrate Diversity:** Recognize and appreciate diverse ideas, reinforcing that every perspective adds value to the project.
- **Provide Extra Support:** For students who may need extra help with digital tools or understanding concepts, set aside time for one-on-one assistance or pair them with a more confident peer.

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### Using These Tips in the Classroom

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- **Daily Check-Ins:** Begin each day with a brief check-in, asking students how they're feeling about the project and addressing any concerns. This builds rapport and shows students their engagement matters.
- **Make Learning Visible:** Use visual progress trackers, displays, or badges so students can see and celebrate their growth.
- **Feedback Loop:** Use the reflections and self-assessments to adjust the pacing or focus of activities as needed, keeping students motivated.

With these **motivation and engagement tips**, teachers can make each activity dynamic, enjoyable, and meaningful for students, encouraging sustained enthusiasm and participation throughout the 10-Lesson program.

## Teacher Guideline 5 - Assessment Guidelines

This section provides **structured assessment criteria** to help teachers evaluate students' learning progress and engagement throughout each project. Assessments are designed to be **flexible and holistic**, with a focus on skills, creativity, and teamwork rather than just final results.

### 1. Assessment Categories

- **Knowledge and Understanding:** Measures students' grasp of AI, data science, and technology basics.
- **Skills Development:** Evaluates hands-on skills like data collection, coding, and digital design.
- **Engagement and Participation:** Assesses each student's level of involvement, curiosity, and teamwork.
- **Creativity and Problem-Solving:** Looks at students' ability to innovate, think critically, and adapt to challenges.
- **Ethical and Moral Development:** Observes students' understanding of ethical considerations, teamwork, and social responsibility in their projects.

### 2. Suggested Assessment Criteria by Role

Each role has specific criteria to assess students' skill development and contribution to the project.

- **AI-Powered Market Researcher**
  - **Data Collection Quality:** Accuracy and relevance of survey questions and data collection.

- **Interpretation:** Ability to identify trends or patterns in data and articulate findings.
- **Presentation:** Clarity and effectiveness in presenting research results.
- **AI-Powered Data Analyst**
  - **Data Organization:** Completeness and organization of data entries.
  - **Visualization:** Effectiveness of graphs and charts in representing data insights.
  - **Analysis:** Depth of interpretation, including spotting patterns and summarizing key findings.
- **AI-Based Solution Designer**
  - **Creativity:** Originality and practicality of design ideas.
  - **Functionality:** Relevance of design in addressing the project problem.
  - **Presentation Skills:** Ability to clearly explain the design choices and project plan.
- **AI-Based Solution Developer**
  - **Coding Basics:** Proficiency in basic coding commands, sequences, and logic.
  - **Technical Understanding:** Ability to debug, improve, and complete simple code.
  - **Project Application:** How well the code contributes to solving the problem.
- **AI-Powered Digital Marketer**
  - **Creativity in Marketing:** Innovation and appeal of digital content, logos, or posters.
  - **Audience Engagement:** Ability to design materials that capture interest.
  - **Communication Skills:** Clarity in expressing project goals and impact.

### 3. Sample Rubric for Holistic Assessment

Category	Criteria	Excellent	Satisfactory	Needs Improvement
<b>Knowledge and Understanding</b>	Understanding of concepts	Demonstrates thorough understanding of AI and data concepts	Shows general understanding of key concepts	Limited understanding, needs more support

<b>Skills Development</b>	Hands-on ability	Completes tasks with minimal guidance, applies tools effectively	Completes most tasks with guidance	Requires frequent help, lacks confidence
<b>Engagement and Participation</b>	Involvement in activities	Actively participates, takes initiative	Participates in most tasks, shows interest	Low engagement, needs encouragement
<b>Creativity and Problem-Solving</b>	Innovative thinking	Produces creative solutions, adapts to challenges	Produces workable solutions, accepts feedback	Limited creativity, struggles with problem-solving
<b>Ethical and Moral Development</b>	Teamwork and ethics	Consistently demonstrates responsibility and teamwork	Generally responsible, works well with others	Needs guidance to understand teamwork and ethics

#### 4. Reflective Self-Assessment

Encourage students to assess their own progress at the end of each week. Self-assessment questions could include:

- “What was the most interesting thing I learned this week?”
- “What skill am I most proud of practicing?”
- “What would I like to improve in the next project?”

#### Using These Assessment Guidelines

- **Flexible Application:** Teachers can use the rubric and criteria flexibly, adapting them to individual students' progress and needs.
- **Encouragement-Focused:** Emphasis is placed on effort, curiosity, and growth, encouraging students to enjoy the learning process.

- **Feedback Opportunities:** These assessments provide insights for teachers to give constructive feedback, helping students build confidence and refine their skills.

With these **Assessment Guidelines**, teachers have a clear framework to evaluate student progress, celebrate achievements, and offer constructive guidance throughout each project.



## Some of More Real life Problems mapped with Curriculum Concepts using AI and Industry Roles

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### 1. Community Garden with Recycled Materials - Grade 3,4

- **Industry:** Environmental Science
- **Problem:** How can we create a sustainable community garden using recycled materials to reduce waste?

- **Proposed Solution:** Design a community garden where all materials used are sourced from recycling, and develop a system to track material usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Collect data on recycling habits, garden layouts, and analyze the effectiveness of recycled materials.
  - **AI-Based Solution Designer & Developer:** Design the garden layout using digital tools, focusing on sustainability and innovative design.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project timeline, create promotional materials for the community, and raise awareness on environmental benefits.

## Assessments

### Curriculum Assessment:

- **Science:** Understanding plant life cycles, ecosystems, recycling, and environmental sustainability.
- **Math:** Measurement (garden dimensions), data handling (tracking material usage).
- **English:** Writing reports on the design, recycling processes, and presenting findings to the class or community.
- **Social Studies:** Understanding community involvement and the role of individuals in environmental responsibility.

### Ethical & Moral Development:

- Promoting sustainability, resource conservation, and teamwork.

### Industry Interest:

- Developing interest in environmental science and sustainability.

### Role Performance:

- **Market Researcher:** Data collection and analysis accuracy.
- **Solution Designer:** Creativity and practicality in garden design.
- **Digital Marketer:** Effectiveness in promotion and project management.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie.

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## 2. Designing a Solar-Powered Device - Grade 3,4

- **Industry:** Renewable Energy
- **Problem:** How can we use solar energy more efficiently in homes and schools?
- **Proposed Solution:** Design a solar-powered device (e.g., a small fan or light) and track its energy usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Research solar energy usage in homes and schools, analyze data on energy efficiency.
  - **AI-Based Solution Designer & Developer:** Design a functional solar-powered device and develop a visual prototype.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project, create awareness campaigns on solar energy benefits, and coordinate tasks.

### **Assessment:**

#### **Curriculum Assessment:**

- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy tracking) and data analysis (efficiency calculations).
- **English:** Writing manuals on how the solar-powered device works and presenting findings.
- **Technology:** Introduction to basic electronics and renewable energy systems.

#### **Ethical & Moral Development:**

- Promoting responsible energy use and clean energy.

#### **Industry Interest:**

- Sparking interest in renewable energy technologies.

#### **Role Performance:**

- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Creativity and innovation in solar device design.
- **Digital Marketer:** Effectiveness in promoting solar energy usage.

Tools: Canva, Figma, Google Sheets, Google Docs, Microsoft Excel, Trello, ChatGPT, CallAnnie.

### 3. Animal Habitat Conservation Project - Grade 3,4

- **Industry:** Wildlife Conservation
- **Problem:** How can we protect animal habitats and promote conservation?
- **Proposed Solution:** Create a model of an animal habitat and propose solutions to protect the species living there.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research animal habitats and analyze data on endangered species.
- **AI-Based Solution Designer & Developer:** Create a model of an animal habitat using recycled materials.
- **AI-Based Digital Marketer & Project Manager:** Create educational materials and campaigns to raise awareness about animal conservation.

#### Grade 3 Curriculum Assessment:

- **Science:** Animal habitats, ecosystems, conservation.
- **Math:** Data collection and graphing on animal populations.
- **English:** Writing reports on endangered species and creating presentations on conservation.
- **Social Studies:** Understanding the impact of human activities on wildlife.

#### Ethical & Moral Development:

- Understanding environmental responsibility and protecting wildlife.

#### Industry Interest:

- Interest in wildlife conservation and environmental protection.

#### Role Performance:

- **Market Researcher:** Quality of research on animal habitats.
- **Solution Designer:** Creativity in designing the habitat model.
- **Digital Marketer:** Effectiveness in promoting awareness campaigns.

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**Tools:**

- Canva, Figma, Google Docs, Google Forms, Trello, Microsoft Excel, ChatGPT, CallAnnie.

**4. Building a Water Filtration System - Grade 3,4**

- **Industry:** Environmental Engineering
- **Problem:** How can we create a simple, effective water filtration system to provide clean water?
- **Proposed Solution:** Design and build a basic water filtration system using accessible materials.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the effectiveness of water filtration systems and collect data on clean water access.
- **AI-Based Solution Designer & Developer:** Design and build the water filtration system using simple materials.
- **AI-Based Digital Marketer & Project Manager:** Create campaigns to educate the community on water filtration and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Water filtration processes, the water cycle.
- **Math:** Measurement (volume of water filtered) and comparison of water quality data.
- **English:** Writing reports on the water filtration process and results.
- **Social Studies:** Understanding the importance of clean water access.

**Ethical & Moral Development:**

- Promoting sustainability, water conservation, and clean water access.

**Industry Interest:**

- Interest in environmental engineering and public health solutions.

**Role Performance:**

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- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Practicality of the water filtration system.
- **Digital Marketer:** Clarity in educational campaigns on clean water access.

**Tools:**

- **Canva, Trello, Google Sheets, Microsoft Excel, Figma, Google Forms, ChatGPT, CallAnnie.**

**5. Creating a Basic Weather Station - Grade 3,4**

- **Industry:** Meteorology
- **Problem:** How can we monitor local weather and make predictions based on collected data?
- **Proposed Solution:** Build a simple weather station and collect data on temperature, rainfall, and wind patterns.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research weather patterns and analyze local weather data.
- **AI-Based Solution Designer & Developer:** Design and build a basic weather station using available materials.
- **AI-Based Digital Marketer & Project Manager:** Create weather reports and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Weather patterns, atmospheric changes.
- **Math:** Recording and analyzing weather data.
- **English:** Writing weather reports and documenting data findings.
- **Technology:** Using sensors to monitor weather conditions.

**Ethical & Moral Development:**

- Understanding weather patterns and environmental preparedness.

**Industry Interest:**

- Interest in meteorology and climate science.

**Role Performance:**

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- **Market Researcher:** Accuracy in data collection.
- **Solution Designer:** Functionality of the weather station design.
- **Digital Marketer:** Effectiveness in promoting weather awareness.

**Tools:**

- **Google Sheets, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

## 6. Designing a Recycled Art Exhibition - Grade 3,4

- **Industry:** Creative Arts and Environmental Awareness
- **Problem:** How can we use art to promote recycling and sustainability?
- **Proposed Solution:** Design and create art pieces from recycled materials and hold an exhibition.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the use of recycled materials in art and analyze environmental impacts.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create simple animations showcasing how recycled materials are transformed into art.
- **AI-Based Digital Marketer & Project Manager:** Promote the exhibition and manage the timeline, raising awareness of recycling through art.

**Grade 3 Curriculum Assessment:**

- **Science:** Recycling, material science.
- **Math:** Estimation, measurement of materials.
- **English:** Writing descriptions for the art pieces, creating promotional content.
- **Art:** Designing creative, sustainable art from recycled materials.

**Ethical & Moral Development:**

- Promoting environmental sustainability and creativity through recycling.

**Industry Interest:**

- Creative arts, design, and environmental awareness.

**Role Performance:**

- **Market Researcher:** Effectiveness in researching the use of recycled materials.
- **Solution Designer:** Creativity in the design and transformation of recycled materials into art.
- **Digital Marketer:** Success in promoting the exhibition.

**Tools:**

- **Canva, Figma, Scratch Junior, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

## 7. Community Helpers Documentary Project - Grade 3,4

- **Industry:** Social Studies and Media
- **Problem:** How can we showcase the important roles of community helpers?
- **Proposed Solution:** Create a short documentary highlighting different community helpers and their contributions.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research various community helper roles and collect data on their contributions.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to create a simple app for learning about community helpers through interactive content.
- **AI-Based Digital Marketer & Project Manager:** Promote the documentary and app through social media campaigns and manage the project timeline.

**Grade 3 Curriculum Assessment:**

- **Social Studies:** Understanding the role of community helpers.
- **English:** Writing interview questions, documentary scripts.
- **Technology:** Using video editing software and **MIT App Inventor** for the project.
- **Art:** Creating visual aids and posters to promote the documentary.

**Ethical & Moral Development:**

- Promoting respect and appreciation for community helpers.

**Industry Interest:**

- Media production, journalism, and social services.

**Role Performance:**

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- **Market Researcher:** Depth and accuracy of research on community helpers.
- **Solution Designer:** Creativity in designing the interactive app.
- **Digital Marketer:** Effectiveness of promotional campaigns.

#### **Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Adobe Premiere Rush (for video editing), Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **8. Designing a School Recycling Program - Grade 3,4**

- **Industry:** Environmental Management
- **Problem:** How can we reduce waste at school by implementing a recycling program?
- **Proposed Solution:** Design a school-wide recycling program using **MIT App Inventor** to build an app that tracks recycling habits.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the school's current waste management practices and collect data on recycling efforts.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design an app that tracks recycling efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the recycling program through digital campaigns and manage the timeline.

#### **Grade 3 Curriculum Assessment:**

- **Science:** Waste management, recycling.
- **Math:** Data collection and analysis of waste reduction.
- **English:** Writing proposals and reports on recycling.
- **Social Studies:** Community responsibility for environmental protection.

#### **Ethical & Moral Development:**

- Promoting responsibility for environmental sustainability and reducing waste.

#### **Industry Interest:**

- Environmental management and sustainability.

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**Role Performance:**

- **Market Researcher:** Thoroughness in collecting and analyzing data on waste management.
- **Solution Designer:** Practicality and effectiveness of the recycling program app.
- **Digital Marketer:** Success in promoting recycling efforts.

**Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

**9. Creating a Basic Coding Project Using Scratch - Grade 3,4,5**

- **Industry:** Technology and Coding
- **Problem:** How can we use basic coding to create a fun, interactive project?
- **Proposed Solution:** Design a simple game or animation using **Scratch Junior**.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Analyze student preferences for coding projects, collect data on popular game themes.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to design and code the game or animation.
- **AI-Based Digital Marketer & Project Manager:** Promote the coding project to classmates, collect feedback on the game.

**Grade 3 Curriculum Assessment:**

- **Technology:** Introduction to coding and programming logic.
- **Math:** Logical sequencing and problem-solving.
- **English:** Writing instructions and documenting the coding process.
- **Art:** Designing characters and visual elements in the coding project.

**Ethical & Moral Development:**

- Promoting collaboration and responsible technology use.

**Industry Interest:**

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- Programming, game design, and technology development.

#### **Role Performance:**

- **Market Researcher:** Effectiveness in collecting and analyzing coding project preferences.
- **Solution Designer:** Creativity and functionality in the design of the game.
- **Digital Marketer:** Effectiveness in promoting the game.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

### **10. Local History and Culture Exploration - Grade 3,4**

- **Industry:** Social Studies and History
- **Problem:** How can we learn about the local history and culture of our community?
- **Proposed Solution:** Create a visual representation of local history using **Scratch Junior** to develop simple animations or interactive visuals.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research and collect data on local history and cultural events.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create interactive animations or visuals of historical events.
- **AI-Based Digital Marketer & Project Manager:** Promote the project and manage the research timeline.

#### **Grade 3 Curriculum Assessment:**

- **Social Studies:** Local history, traditions, and culture.
- **English:** Writing research reports and presenting findings.
- **Art:** Creating visual representations of historical events.
- **Technology:** Using online tools for research and design.

#### **Ethical & Moral Development:**

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- Promoting respect for cultural diversity and historical preservation.

#### **Industry Interest:**

- History, research, and digital storytelling.

#### **Role Performance:**

- **Market Researcher:** Thoroughness of research on local history.
- **Solution Designer:** Creativity in designing the historical timeline.
- **Digital Marketer:** Effectiveness in promoting cultural awareness.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **11. Smart Water Conservation System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can we use technology to reduce water waste in schools and homes?
- **Proposed Solution:** Design a system that monitors water usage and suggests ways to conserve water.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Collect data on water usage and analyze where most water is being wasted.
- **AI-Based Solution Designer & Developer:** Design a water conservation system using digital tools and sensors.
- **AI-Based Digital Marketer & Project Manager:** Manage the timeline and create awareness campaigns to promote water conservation.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Water cycle, water conservation, ecosystems.
  - **Math:** Measurement (tracking water usage), data handling.
  - **English:** Writing reports and presentations on water conservation.

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- **Social Studies:** Understanding global water issues and community involvement in conservation.

### Ethical & Moral Development:

- Teaching responsibility for conserving natural resources.

### Industry Interest:

- Fostering interest in environmental engineering and water management.

### Role Performance:

- **Market Researcher:** Accuracy in data collection on water usage.
- **Solution Designer:** Practicality of the water conservation system design.
- **Digital Marketer:** Effectiveness of water conservation promotion.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie, MIT App Inventor.

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## 12. Designing a Solar-Powered Classroom - Grade 4,5

- **Industry:** Renewable Energy
- **Problem:** How can we make classrooms more energy-efficient using solar power?
- **Proposed Solution:** Design a system that powers the classroom with solar panels and track energy savings.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research solar energy usage and analyze energy savings data.
- **AI-Based Solution Designer & Developer:** Design the solar-powered system for the classroom using digital tools.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to encourage solar power usage and manage the project.

### Assessments:

- **Curriculum Assessment:**

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- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy usage), data analysis.
- **English:** Writing reports on energy savings and presenting the solar system design.
- **Technology:** Understanding renewable energy technologies and systems.

### **Ethical & Moral Development:**

- Promoting responsible use of energy and sustainable living.

### **Industry Interest:**

- Renewable energy technology and environmental sciences.

### **Role Performance:**

- **Market Researcher:** Quality of research and data analysis.
- **Solution Designer:** Innovation in the solar power system design.
- **Digital Marketer:** Promotion effectiveness and project management.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

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## **13. Eco-Friendly Transportation Solutions - Grade 3,4,5**

- **Industry:** Transportation and Sustainability
- **Problem:** How can we create a transportation system that reduces pollution and energy usage?
- **Proposed Solution:** Design a transportation system (e.g., bicycles, electric buses) that minimizes pollution and energy consumption.

### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research current transportation methods and analyze their environmental impact.
- **AI-Based Solution Designer & Developer:** Design an eco-friendly transportation model.
- **AI-Based Digital Marketer & Project Manager:** Promote the benefits of eco-friendly transportation and manage project timelines.

## Assessments:

- **Curriculum Assessment:**
  - **Science:** Energy sources, pollution, and transportation systems.
  - **Math:** Data handling and analysis on energy use.
  - **English:** Writing proposals for the eco-friendly transportation system.
  - **Social Studies:** Understanding transportation's impact on society and the environment.

## Ethical & Moral Development:

- Promoting responsibility for reducing pollution and protecting the environment.

## Industry Interest:

- Sustainable transportation and environmental engineering.

## Role Performance:

- **Market Researcher:** Quality of research on transportation systems.
- **Solution Designer:** Creativity in designing eco-friendly transportation.
- **Digital Marketer:** Effectiveness in promoting the system and managing the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Google Docs, ChatGPT, CallAnnie.

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## 14. Virtual Health Clinic Simulation - Grade 4,5

- **Industry:** Health/Medicine
- **Problem:** How can we use technology to make healthcare more accessible and efficient?
- **Proposed Solution:** Design a virtual health clinic that uses AI to simulate patient consultations and monitor health metrics.

## AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze data on healthcare access and patient needs.

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- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design a virtual health clinic that offers AI-driven patient monitoring.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual clinic and manage project timelines.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Human body, healthcare, technology in medicine.
  - **Math:** Data analysis on patient health metrics.
  - **English:** Writing patient reports and presenting healthcare solutions.
  - **Technology:** Understanding AI applications in healthcare.

#### **Ethical & Moral Development:**

- Promoting empathy, access to healthcare, and patient privacy.

#### **Industry Interest:**

- Health technologies, telemedicine, and patient care.

#### **Role Performance:**

- **Market Researcher:** Accuracy in healthcare data analysis.
- **Solution Designer:** Innovation in creating a virtual health clinic.
- **Digital Marketer:** Success in promoting the clinic.

**Tools:** MIT App Inventor, Figma, Trello, Canva, Google Docs, ChatGPT, CallAnnie.

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#### **15. Climate Change Awareness Campaign - Grade 4,5**

- **Industry:** Environmental Science
- **Problem:** How can we raise awareness about climate change and its effects on our environment?
- **Proposed Solution:** Design an awareness campaign that educates the public about climate change through digital tools.

#### **AI-Based Roles:**

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- **AI-Based Market Researcher & Data Analyst:** Research climate change effects and collect data on public awareness.
- **AI-Based Solution Designer & Developer:** Create an interactive presentation or website to educate the public on climate change.
- **AI-Based Digital Marketer & Project Manager:** Manage the awareness campaign and promote it using digital tools.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Climate change, ecosystems, sustainability.
  - **Math:** Data analysis of climate trends.
  - **English:** Writing reports and creating climate awareness materials.
  - **Social Studies:** Understanding the societal impact of climate change.

#### **Ethical & Moral Development:**

- Promoting awareness of environmental responsibility and the impact of human activities on the planet.

#### **Industry Interest:**

- Climate science, environmental policy, and digital marketing.

#### **Role Performance:**

- **Market Researcher:** Depth of research on climate change.
- **Solution Designer:** Effectiveness of the digital campaign design.
- **Digital Marketer:** Impact of the awareness campaign and its reach.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

## **16. Designing a Smart Waste Management System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can cities optimize waste collection and reduce environmental impact?
- **Proposed Solution:** Develop a model that uses sensors and data analysis to optimize waste collection routes and schedules.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current waste management practices and analyze data on waste production.
- **AI-Based Solution Designer & Developer:** Design a system that uses sensors to track waste levels and optimize collection routes.
- **AI-Based Digital Marketer & Project Manager:** Manage the project timeline and create awareness materials to educate the community on waste management.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Waste management, environmental impact.
  - **Math:** Data analysis and route optimization.
  - **English:** Writing reports and presenting the waste management solution.
  - **Social Studies:** Understanding the societal and environmental impact of waste management.

### Ethical & Moral Development:

- Promoting environmental responsibility and efficient resource management.

### Industry Interest:

- Environmental engineering and waste management.

### Role Performance:

- **Market Researcher:** Quality of research on waste management systems.
- **Solution Designer:** Innovation and practicality in designing the waste management system.
- **Digital Marketer:** Success in promoting the solution.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, ChatGPT, CallAnnie.

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## 17. Creating a Local History and Culture Website - Grade 5,6

- **Industry:** Social Studies and Media

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- **Problem:** How can we preserve and showcase the local history and culture of our community?
- **Proposed Solution:** Create a website that presents key historical events, cultural artifacts, and traditions of the local community.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research local history and culture, analyze historical data.
- **AI-Based Solution Designer & Developer:** Design and build the website using digital tools to present local history.
- **AI-Based Digital Marketer & Project Manager:** Promote the website and manage the project timeline.

### Assessments:

- **Curriculum Assessment:**
  - **Social Studies:** Local history, traditions, and community.
  - **English:** Writing articles and creating content for the website.
  - **Technology:** Website design and development.
  - **Art:** Designing the visual layout of the website.

### Ethical & Moral Development:

- Teaching respect for cultural diversity and the importance of preserving local history.

### Industry Interest:

- Media production, digital storytelling, and local history.

### Role Performance:

- **Market Researcher:** Depth and accuracy of historical research.
- **Solution Designer:** Creativity in designing the website layout.
- **Digital Marketer:** Effectiveness in promoting the website.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

## 18. Designing an Eco-Friendly School Playground - Grade 4,5

- **Industry:** Environmental Science and Design
- **Problem:** How can we design a school playground that minimizes environmental impact and promotes sustainability?
- **Proposed Solution:** Design a playground using sustainable materials and renewable energy sources (e.g., solar-powered lights).

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research eco-friendly materials and playground designs.
- **AI-Based Solution Designer & Developer:** Design the playground layout using sustainable materials.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to raise awareness about the eco-friendly playground and manage project timelines.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Sustainable materials, renewable energy.
  - **Math:** Measurement and calculation of playground dimensions.
  - **English:** Writing proposals for the playground design.
  - **Art:** Designing the layout of the eco-friendly playground.

### Ethical & Moral Development:

- Promoting sustainability and environmental responsibility.

### Industry Interest:

- Environmental design, landscape architecture, and sustainability.

### Role Performance:

- **Market Researcher:** Accuracy in researching eco-friendly materials.
- **Solution Designer:** Creativity in designing the playground layout.
- **Digital Marketer:** Effectiveness in raising awareness about the playground.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Microsoft Excel, Google Forms, ChatGPT, CallAnnie.

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## 19. Building a Weather Station and Forecasting System - Grade 5,6

- **Industry:** Meteorology and Technology
- **Problem:** How can we create a weather station that helps monitor local weather conditions and forecast future trends?
- **Proposed Solution:** Build a simple weather station to monitor temperature, rainfall, and wind speed, and use data to create weather forecasts.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze weather data from the station.
- **AI-Based Solution Designer & Developer:** Design and build the weather station and integrate sensors for data collection.
- **AI-Based Digital Marketer & Project Manager:** Promote the weather station project and manage data presentation.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Weather systems, data collection, and analysis.
  - **Math:** Data handling and graphing weather data.
  - **English:** Writing weather reports and presenting findings.
  - **Technology:** Building and programming the weather station.

### Ethical & Moral Development:

- Promoting responsibility for environmental monitoring and preparedness.

### Industry Interest:

- Meteorology, climate science, and data analysis.

### Role Performance:

- **Market Researcher:** Thoroughness in collecting and analyzing weather data.
- **Solution Designer:** Effectiveness of the weather station design.
- **Digital Marketer:** Impact of promotional materials for the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

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## 20. Animal Habitat Preservation Project - Grade 5,6

- **Industry:** Wildlife Conservation and Environmental Science
- **Problem:** How can we protect endangered animal habitats and raise awareness about conservation efforts?
- **Proposed Solution:** Design a project that promotes habitat conservation and uses AI to monitor the health of local ecosystems.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research endangered species and analyze habitat loss data.
- **AI-Based Solution Designer & Developer:** Design an app or tool that tracks the health of animal habitats and promotes conservation efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the conservation project and manage community outreach.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Animal habitats, ecosystems, and conservation.
  - **Math:** Data analysis of habitat loss and species numbers.
  - **English:** Writing reports on conservation efforts and habitat protection.
  - **Social Studies:** Understanding human impact on the environment and the need for conservation.

### Ethical & Moral Development:

- Promoting respect for wildlife and the importance of conservation.

### Industry Interest:

- Wildlife conservation, environmental science, and technology.

### Role Performance:

- **Market Researcher:** Thoroughness in researching endangered species.

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- **Solution Designer:** Creativity in designing the conservation tool.
- **Digital Marketer:** Success in promoting conservation efforts.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

## 21. Designing an Eco-Friendly Sports Facility - Grade 5,6

- **Industry:** Environmental Science and Physical Education
- **Problem:** How can we design a sports facility that promotes physical activity and minimizes environmental impact?
- **Proposed Solution:** Create a layout for a sports facility that uses renewable energy, recycled materials, and water conservation practices.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current sports facility designs and analyze data on energy use and environmental impact.
- **AI-Based Solution Designer & Developer:** Design the facility layout using sustainable materials and renewable energy sources.
- **AI-Based Digital Marketer & Project Manager:** Create awareness campaigns promoting physical activity and environmental responsibility.

### Assessments:

- **Curriculum Assessment:**
  - **Physical Education:** Importance of physical activity and sports.
  - **Science:** Renewable energy, recycling, and environmental sustainability.
  - **Math:** Measurement and calculation of facility dimensions and energy savings.
  - **English:** Writing reports on the design and presenting it to the class or school community.

### Ethical & Moral Development:

- Promoting teamwork, physical activity, and environmental responsibility.

### Industry Interest:

- Physical education, environmental science, and sports management.

### Role Performance:

- **Market Researcher:** Quality of research on sports facility designs.
- **Solution Designer:** Creativity and practicality in designing the sports facility.
- **Digital Marketer:** Effectiveness in promoting the facility and encouraging physical activity.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

---

### 22. Creating a School Nutrition Program - Grade 5,6

- **Industry:** Health and Nutrition
- **Problem:** How can we improve student health through better nutrition?
- **Proposed Solution:** Design a healthy meal plan for the school cafeteria that considers balanced nutrition and promotes healthy eating habits.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research healthy meal plans and analyze data on student eating habits.
- **AI-Based Solution Designer & Developer:** Design a nutrition program for the school cafeteria, incorporating local, healthy food options.
- **AI-Based Digital Marketer & Project Manager:** Promote the nutrition program with educational campaigns on healthy eating.

### Assessments:

- **Curriculum Assessment:**
  - **Health Education:** Importance of balanced nutrition and healthy eating.
  - **Science:** Human body and nutrition.
  - **Math:** Measuring portion sizes, data analysis on food choices.
  - **English:** Writing reports on nutrition and presenting it to students and staff.

### Ethical & Moral Development:

- Promoting responsibility for personal health and well-being.

### Industry Interest:

- Nutrition, health sciences, and food management.

### Role Performance:

- **Market Researcher:** Quality of research on healthy food options.
- **Solution Designer:** Creativity and practicality in designing the meal plan.
- **Digital Marketer:** Success in promoting the program.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 23. Financial Literacy Market Simulation - Grade 4,5

- **Industry:** Business and Economics
- **Problem:** How can we teach students the basics of budgeting, saving, and spending?
- **Proposed Solution:** Create a virtual market where students simulate running a small business, including managing a budget and making financial decisions.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Analyze market trends and customer preferences.
- **AI-Based Solution Designer & Developer:** Design a virtual market simulation where students run a small business.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual market and manage business decisions.

### Assessments:

- **Curriculum Assessment:**
  - **Math:** Budgeting, financial planning, and data handling.
  - **English:** Writing reports and presenting business proposals.
  - **Social Studies:** Understanding economic principles and entrepreneurship.

### Ethical & Moral Development:

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- Teaching responsibility in financial decision-making and honesty in business practices.

#### Industry Interest:

- Business, economics, and entrepreneurship.

#### Role Performance:

- Market Researcher:** Effectiveness in researching market trends.
- Solution Designer:** Innovation and creativity in designing the business simulation.
- Digital Marketer:** Success in promoting the market.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

---

### 24. Building Instruments from Recycled Materials - Grade 3,4

- Industry:** Music and Performing Arts
- Problem:** How can we create musical instruments using recycled materials to promote sustainability and creativity?
- Proposed Solution:** Design and build musical instruments from recycled materials, then organize a school performance using these instruments.

#### AI-Based Roles:

- AI-Based Market Researcher & Data Analyst:** Research musical instruments made from recycled materials and analyze sound quality.
- AI-Based Solution Designer & Developer:** Design and build simple instruments using recycled materials.
- AI-Based Digital Marketer & Project Manager:** Organize and promote a school performance using the recycled instruments.

#### Assessments:

- Curriculum Assessment:**
  - Music:** Sound and music theory, performance skills.
  - Science:** Properties of materials, sound waves.

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- **Art:** Designing and building creative instruments.
- **English:** Writing descriptions of instruments and promoting the performance.

#### Ethical & Moral Development:

- Promoting creativity, resourcefulness, and environmental sustainability.

#### Industry Interest:

- Music, environmental science, and performing arts.

#### Role Performance:

- **Market Researcher:** Accuracy in researching recycled materials for instruments.
- **Solution Designer:** Creativity in instrument design.
- **Digital Marketer:** Effectiveness in promoting the performance.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 25. Peer Mentoring and Emotional Intelligence Program - Grade 3,4

- **Industry:** Social and Emotional Learning (SEL)
- **Problem:** How can we promote teamwork, leadership, and emotional intelligence in schools?
- **Proposed Solution:** Organize a peer mentoring program where older students help younger students solve academic or social challenges, fostering leadership and empathy.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect data on peer mentoring programs and analyze their effectiveness.
- **AI-Based Solution Designer & Developer:** Design a mentoring program that pairs students and includes emotional intelligence activities.
- **AI-Based Digital Marketer & Project Manager:** Promote the program within the school and manage the timeline.

#### Assessments:

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- **Curriculum Assessment:**

- **Social Studies:** Understanding leadership, teamwork, and community involvement.
- **English:** Writing reports and reflections on mentoring experiences.
- **Science:** Brain development and emotional intelligence.

### **Ethical & Moral Development:**

- Promoting empathy, leadership, and social responsibility.

### **Industry Interest:**

- Leadership development, education, and social services.

### **Role Performance:**

- **Market Researcher:** Quality of research on mentoring programs.
- **Solution Designer:** Creativity in designing emotional intelligence activities.
- **Digital Marketer:** Success in promoting the mentoring program.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie

# EAD Assessment Criteria

## Step 1 : Research & Data Collection

**Objective:** Gather real-world data related to the project using surveys and research.

**Tasks:**

1. Define the research problem and how AI can help solve it.
2. Design a **Google Forms** survey for data collection.
3. Distribute the survey to at least 10 people.
4. Collect and summarize responses.

 **Deliverables:**

- Research Report (1-page summary)
- Google Forms Survey (at least 10 responses)
- Short Video/Audio explaining findings

**Rubric: Research & Data Collection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Survey Structure</b>	Clear, well-organized, no bias, diverse questions	Mostly clear, some unclear wording	Basic structure, lacks variety in questions	Poorly structured, biased, or incomplete
<b>Data Collection</b>	10+ valid responses collected	7-9 responses, mostly valid	4-6 responses, some missing data	Less than 4 responses, missing critical data
<b>Research Depth</b>	Uses credible sources, includes AI integration	Good sources, some AI references	Limited sources, minimal AI discussion	No sources or AI discussion included

## Step 2.1: Data Analysis & Visualization

**Objective:** Organize and analyze collected data using charts and AI tools.

**Tasks:**

1. Input survey data into **Google Sheets**.
2. Use AI tools to identify patterns in the data.
3. Create visual representations (bar charts, pie charts, graphs).
4. Summarize findings in a short data analysis report.

 **Deliverables:**

- Data Spreadsheet (Google Sheets)
- AI-Generated Graphs/Charts
- Summary of Data Insights

**Rubric: Data Analysis & Visualization**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Data Organization</b>	Data is structured, accurate, and complete	Mostly structured, minor errors	Some organization issues, missing elements	Disorganized, missing major parts
<b>Visualization</b>	Graphs/charts are clear, well-labeled, insightful	Mostly clear, lacks full explanation	Basic graphs, limited insight	No graphs, unclear or missing labels
<b>Analysis Quality</b>	Identifies trends, includes AI insights	Identifies trends, some AI integration	Basic description, no AI insight	No analysis, data left unexplained

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## Step 2.2: User Interface (UI) Design

**Objective:** Design the user interface of the AI assistant using Figma.

**Tasks:**

1. Sketch a user-friendly layout for the AI assistant.
2. Use **Figma** to create a digital wireframe.
3. Ensure buttons, text fields, and chatbot interactions are clear.
4. Conduct a basic **usability test** for improvements.

 **Deliverables:**

- Figma Wireframe
- AI Usability Testing Summary
- User Experience Feedback Report

**Rubric: UI/UX Design**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Wireframe Design</b>	UI well-structured, follows best practices	Mostly clear but some UI issues	Basic layout, lacks usability	No wireframe or unclear layout
<b>User Experience</b>	Intuitive, easy-to-use navigation	Mostly clear, needs minor improvements	Some confusing UI elements	Poorly structured, difficult to use
<b>Usability Testing</b>	Feedback collected, applied improvements	Some usability feedback incorporated	Limited feedback, minimal changes	No usability test performed

---

## Step 3: AI Development & Coding

**Objective:** Build an AI-powered prototype or chatbot for recycling assistance.

**Tasks:**

1. Use **Scratch/Code.org** to develop a chatbot or AI simulation.
2. Implement AI logic to classify recyclable materials.
3. Debug and refine the AI's response accuracy.
4. Test AI functionality through multiple inputs.

📌 **Deliverables:**

- AI Prototype (Scratch/Code.org)
- Debugging Report
- Short Demo Video (Screen recording)

**Rubric: AI Development & Coding**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>AI Logic &amp; Functionality</b>	AI assistant fully functional, handles multiple inputs	Mostly functional, some errors	Basic function, lacks dynamic responses	Non-functional or incomplete code
<b>Coding Structure</b>	Well-organized, follows best practices	Mostly structured, minor redundancies	Some structure, inefficient code	Poorly structured, lacks clarity

<b>Debugging &amp; Refinement</b>	Errors fixed, AI accuracy optimized	Some minor bugs remain	Some debugging attempted	No debugging, significant errors remain
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## Step 5: Branding & Community Engagement

**Objective:** Develop branding materials and promote the AI assistant.

**Tasks:**

1. Use **Canva** to create a logo and branding kit.
2. Design a **poster or social media campaign**.
3. Share the AI assistant with the school or local community.
4. Collect user feedback on branding effectiveness.

 **Deliverables:**

- Canva-based Branding Kit (Logo, Social Media Post)
- Promotional Video or Flyer
- Social Media Campaign Post

**Rubric: Branding & Community Engagement**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Branding Consistency</b>	Logo, colors, and messaging are aligned	Mostly consistent, minor adjustments needed	Basic branding, lacks cohesion	No branding materials included
<b>Social Media Promotion</b>	Engaging, well-designed campaign	Mostly clear, minor visual issues	Basic design, lacks engagement	No social media promotion created
<b>Community Interaction</b>	Successfully reached audience, collected feedback	Some engagement, basic feedback	Limited engagement, no feedback	No promotion or engagement

---

## Step 6: Final Presentation & Reflection

**Objective:** Present the AI assistant, insights, and learning reflections.

**Tasks:**

1. Create a **Google Slides** presentation summarizing the project.
2. Include problem statement, AI features, data insights, branding elements.
3. Deliver a **5-minute presentation**.
4. Write a **reflection essay** on key learnings.

 **Deliverables:**

- Google Slides Presentation
- 5-Minute Video Presentation
- Final Reflection Essay

**Rubric: Final Presentation & Reflection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Presentation Structure</b>	Clear, well-organized, engaging visuals	Mostly clear, some structural issues	Basic slides, lacks flow	Poorly structured, minimal effort
<b>Delivery &amp; Speaking Skills</b>	Confident, clear speech, interactive	Mostly clear, minor hesitations	Needs more confidence, lacks clarity	Unclear delivery, minimal engagement
<b>Reflection Depth</b>	Thoughtful analysis, strong learning points	Good insights, some areas could be deeper	Basic reflections, lacks depth	No reflection, minimal engagement

---

# EAD - AI Powered Kids Incubator

## Level 2 - (Grade 3 - 5)

**Guided Booklet for Schools / Teachers / Parents - Complete Day by Day Roadmap to include kids for AI powered PBL for kids**

(Recommended - At Least 2 Projects / Year for every Kid)

(20 Days - Day by Day Guided Tasks with 1 Project execution)

[\*\*Register Here\*\*](#) to get

- **Free 2025 Subscription on EAD AI-Powered Incubator Platform Level 2(Grade 3 - 5) and Level 3(Grade 6 - 8) Launch** to develop kids with AI and Entrepreneurship
- Teacher Training

Website - <https://technogroup.ai/>

LinkedIn - <https://www.linkedin.com/company/tgo-ead/>

Company Upwork Profile - <https://www.upwork.com/agencies/technogroup/>

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## Introduction

Welcome to **EarlyAgeDevelopment (EAD)**, an AI-powered Kids Incubator designed to prepare young minds for the world of tomorrow! This book is your guide to unlocking the potential of students in grades 3-5 through project-based learning (PBL) that blends core curriculum subjects with real-world problem-solving. By aligning critical thinking, creativity, and collaboration with essential skills, we aim to create an immersive, engaging learning experience that goes beyond traditional education.

At EAD, we believe that every child is capable of making a difference. By engaging in AI-driven projects, students not only gain practical skills but also explore industry applications, from understanding how data informs decisions to creating chatbots that enhance customer interactions. This journey empowers them with insights and tools to shape their future.

### Mission

Our mission at EarlyAgeDevelopment is to inspire and empower young learners with hands-on experiences in AI-driven roles, cultivating curiosity, creativity, and the skills needed to thrive in an ever-evolving world. Through aligned projects, we support both academic growth and real-world preparedness, ensuring students are equipped for the future of work where AI and technology drive every industry.

### Vision

We envision a world where students can bridge school learning with real-world applications seamlessly. Through AI-enhanced, project-based learning, we aspire to foster a generation of problem-solvers, innovators, and leaders who understand their potential across diverse fields. With a focus on creativity, sustainability, and future readiness, EAD provides a path for students to develop skills for tackling global challenges in an AI-powered landscape.

### Why Project-Based Learning (PBL)?

At EAD, we believe students learn best through active engagement. **Project-Based Learning (PBL)** connects academic subjects with industry-aligned, practical projects, making education relevant and exciting. Our projects are crafted to:

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- **Encourage Collaboration:** Students take on roles that reflect real-world, AI-powered careers, promoting teamwork and shared purpose.
- **Foster Critical Thinking:** By addressing industry-specific challenges, students learn to think critically and devise innovative solutions.
- **Promote Creativity:** Through design, development, and presentation, students exercise their creativity while exploring new ideas.

### AI-Powered Roles for Future-Ready Skills

AI is transforming careers across all industries, and our program introduces students to the following future-critical roles:

- **Market Researcher & Data Analyst (Problem Researcher and Data Analyst Kid):** Gathering insights and analyzing data to inform decisions and strategies.
- **AI-Based Solution Architect (Solution Designer Kid):** Using design thinking and development skills to build real-world solutions.
- **AI-Based Digital Marketer & Project Manager (Presenter Kid):** Learning to promote projects, manage timelines, and engage communities effectively.

By exposing students to these roles, we prepare them with an essential understanding of AI and its applications, better positioning them for the future workforce.

### How This Book Prepares Students for the Future

This book equips students to meet curriculum goals while gaining an understanding of how AI impacts industries. The skills they acquire—data analysis, design, development, and project management—are integral to thriving in tomorrow's careers. These projects, designed to be both enjoyable and meaningful, make learning an exciting journey with real impact.

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## How to Use This Book

This guide is designed for teachers, parents, and students, offering a hands-on, project-based learning (PBL) experience tailored for grades 3-5. Each project connects real-world problems with AI-powered roles, engaging students in activities that build problem-solving and critical thinking. The three core roles—Market Researcher & Data Analyst, Designer & Developer, and Digital Marketer & Project Manager—integrate STEM, language arts, and environmental science.

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Projects align with educational curriculums like the US Common Core, UK Curriculum, Cambridge, and IB, so students build essential academic and practical skills.

Parents and teachers can use this book to:

- Facilitate collaboration on meaningful projects.
- Help students build a foundation in AI-powered roles to prepare for future careers.
- Integrate interactive tools like Canva, Figma, Trello, ChatGPT, Google Forms, and more.

## Guided Project Path

The book includes two structured learning sections:

1. **Introduction to AI and Technology Basics (First 10 Lessons):**
  - In the first 10 Lessons, students build foundational knowledge with lessons on key concepts in AI, data collection, and project management.
  - **Lessons 1-5:** Interactive activities introduce students to technology basics—data collection, coding, and teamwork tools like Google Forms, Scratch Junior, and Trello.
  - **Lessons 6-10:** Students deepen their understanding of specific roles through hands-on practice in data analysis, solution design, and digital marketing.
2. **Industry-Focused Project (10 More Lessons):**
  - After the initial preparation, students engage in a curriculum-aligned project that connects academic learning with practical skills, demonstrating how AI roles solve real-world problems across industries.

This book is more than a learning guide—it's a launchpad for future-ready skills that students will carry forward in their academic and professional lives. Dive in and let EAD inspire your child's journey to becoming an AI-enabled problem-solver and innovator of tomorrow.

## Industry-Aligned Projects

Each project addresses real-world problems mapped to the curriculum, with AI-based solutions to prepare kids for future AI-driven roles. These projects are freely available on our public website for students to explore independently or with guided support.

# 10 Lessons - Introduction to AI, Data Science and Technology Basics, Project Based Learning

## Preparing Kids to do AI Based Projects

### Lesson 1: Introduction to AI and Technology Basics

Objective:

On Lesson 1, students will get a broad overview of AI, its impact across different industries, and the essential technological concepts they need to understand. By the end of the Lesson, students will have a general understanding of how AI works, its key applications, and how technology is transforming various fields.

---

Step-by-Step Instructions:

#### 1. Welcome and Overview of Technology (10 minutes)

- **Teacher Explanation:**

Begin with a brief introduction to the importance of technology in today's world. Explain how technology has revolutionized every field, from healthcare to agriculture to entertainment.

- **Discussion:**

Ask the students: "What kind of technology do you use every day? How do you think technology makes things easier for us?"

Let students share their thoughts to get them comfortable with the topic.

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#### 2. Introduction to AI and its Role in Different Industries (20 minutes)

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- **Teacher Explanation:**

Explain what **Artificial Intelligence (AI)** is, and give a simple definition: “AI is when machines or computers can do tasks that normally need human intelligence—like learning, problem-solving, or even recognizing pictures and words.”

- **Examples of AI in Different Industries:**

- **Healthcare:** AI can help doctors diagnose diseases faster and more accurately.
- **Agriculture:** AI helps farmers monitor their crops and predict the weather.
- **Retail:** AI gives us personalized shopping experiences by recommending products.
- **Transportation:** AI is used in self-driving cars and traffic management systems.

- **Activity:**

Show students a few short videos or clips that illustrate these AI applications. Discuss how AI is being used in each field.

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### 3. Hands-on AI Interaction Using Chatbots or Virtual Assistants (30 minutes)

- **Materials Needed:**

Devices with access to simple AI tools, such as **ChatGPT** or **Google Assistant**.

- **Activity:**

Have students interact with a basic AI-powered virtual assistant or chatbot. Each student can ask a question or try to have the assistant complete a simple task (e.g., ask it to tell a joke or give a weather report).

- **Teacher Explanation:**

After the activity, explain how chatbots and virtual assistants use AI to understand language and provide responses.

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### 4. Understanding Technology Basics (30 minutes)

- **Materials Needed:**

Interactive presentation or handouts about basic technology concepts: hardware, software, the internet, data, and coding.

- **Activity:**  
Divide students into small groups and assign each group one basic concept to explore:
    - **Hardware:** What are computers and devices made of?
    - **Software:** What are apps, games, and programs?
    - **Internet:** How does the internet connect people around the world?
    - **Data:** What is data, and how is it used in AI?
    - **Coding:** How do we tell computers what to do?
  - Each group will spend time researching their topic using simple resources provided by the teacher and will present their understanding to the class.
- 

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**  
Ask students to reflect on the different industries where AI is being used. What industry interested them the most, and why? How do they think technology will change in the next 10 years?
  - **Homework Assignment:**  
Ask students to bring in an example of technology they interact with at home (e.g., a smart device, app, or a website they use frequently) and write a paragraph explaining how it helps them.
- 

## End of Lesson 1

By the end of Lesson 1, students will have a general understanding of technology and AI, how it works in different industries, and how to interact with AI systems like chatbots. This lays the foundation for the rest of the week where they will dive deeper into AI and technology concepts.

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## Lesson 2: Exploring AI Roles and Problem-Solving in Technology

### Objective:

On Lesson 2, students will be introduced to the different roles involved in AI-driven projects (Problem Researcher, Data Analyst, AI Solution Designer, Solution Developer,

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and Digital Marketer). The focus will be on understanding the importance of these roles and how they work together to solve real-world problems.

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#### Step-by-Step Instructions:

##### 1. Recap of Lesson 1 and Introduction to Lesson 2 Objectives (10 minutes)

- **Teacher Explanation:**

Recap what students learned about AI and technology basics from Lesson 1. Introduce today's objective: learning about the different roles in AI projects and how each role contributes to solving a problem.

- **Discussion:**

Ask students: "Have you ever worked on a group project before? What roles do people usually take on in group projects?"

---

##### 2. Introduction to AI-Powered Roles (25 minutes)

- **Teacher Explanation:**

Describe the five key roles in AI projects:

- **Problem Researcher:** Gathers information and defines the problem.
- **Data Analyst:** Works with data to find patterns and insights related to the problem.
- **AI Solution Designer:** Designs the AI solution and creates a blueprint for how it will work.
- **Solution Developer:** Develops the actual AI model using programming or coding.
- **Digital Marketer:** Promotes the solution and helps people understand its value.

- **Examples:**

- For a project on **improving traffic management**, the **Problem Researcher** finds the traffic issues, the **Data Analyst** looks at traffic patterns, the **AI Solution Designer** creates a plan for a smart traffic system, the **Solution Developer** builds the AI that runs the traffic lights, and the **Digital Marketer** promotes the benefits to the community.
-

### 3. Team Activity: Role Play and Problem Identification (30 minutes)

- **Materials Needed:**

Whiteboards, markers, and access to simple industry problems (e.g., traffic management, waste management, or water conservation).

- **Activity:**

Split students into small groups, with each group assigned a different industry problem (e.g., water conservation, waste management). Each student in the group will take on one of the five roles:

- **Problem Researcher:** Gathers key information about the problem.
- **Data Analyst:** Looks at the data provided or finds data to understand the scale of the problem.
- **AI Solution Designer:** Starts to think about what kind of AI system could help solve the problem.
- **Solution Developer:** Considers what code or program might be needed.
- **Digital Marketer:** Thinks about how to promote the solution to the public.

- After 20 minutes, each group presents a rough outline of the problem they are trying to solve and how they would use AI.

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### 4. Tool Exploration for Roles (30 minutes)

- **Materials Needed:**

Devices with access to basic tools like Google Scholar (for research), Excel (for data analysis), Figma (for design), and Canva (for marketing).

- **Activity:** Introduce students to the tools they will use for their roles:

- **Problem Researchers:** Use **Google Scholar** to find articles related to the industry problem.
- **Data Analysts:** Start learning how to use **Excel** for basic data input and chart creation.
- **AI Solution Designers:** Explore **Figma** to begin thinking about designing AI solutions.
- **Solution Developers:** Set up a basic coding environment and explore introductory coding concepts.
- **Digital Marketers:** Learn how to use **Canva** to create simple promotional materials.

- Let each student spend 15-20 minutes practicing with their assigned tool.

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**

Ask each student to reflect on the role they explored. Do they think they would enjoy doing this role in real life? How do they think their role will help solve the problem their group is working on?

- **Homework Assignment:**

Each student will write a short paragraph about the role they took on today and one thing they learned about using their assigned tool.

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## End of Lesson 2

By the end of **Lesson 2**, students will have a clearer understanding of the different roles in AI-driven projects and will have started exploring the tools associated with each role. They will begin to grasp how these roles work together to solve real-world problems, setting them up for the deeper exploration of AI in the coming days.

## Lesson 3: Introduction to Data Analysis (1-2 hours)

### Objective:

Introduce students to the basics of data analysis, focusing on how data is collected, interpreted, and visualized. Students will learn to input data, create simple charts, and understand the importance of data in decision-making.

### Materials Needed:

- Survey results from Lesson 2 (Google Forms data)
  - Computers/tablets with access to **Google Sheets**
  - Whiteboard and markers for explanations
- 

### Step-by-Step Instructions:

#### 1. Review Data Collected from Surveys (10 minutes)

- **Teacher Explanation:**

Begin by reviewing the survey results that students collected on Lesson 2. Explain how surveys collect data that can be analyzed to identify trends and insights.

- **Discussion:**

Ask students what they found surprising in their survey responses. Did the results match their predictions? Why is collecting data important in making decisions?

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## 2. Input Data into Google Sheets (15-20 minutes)

- **Activity:**

Demonstrate how to input the survey data into **Google Sheets**. Guide the students as they enter their survey responses (e.g., favorite color, favorite animal) into a table format.

- **Example:**

- Column A: Survey question (e.g., "What's your favorite color?")
    - Column B: Response (e.g., "Blue," "Red," etc.)

- **Teacher Guidance:**

Help students organize their data properly and ensure that it's correctly formatted for analysis. Explain that this step is crucial because messy or unorganized data can lead to mistakes.

---

## 3. Create a Chart to Visualize Data (15-20 minutes)

- **Activity:**

Demonstrate how to select the data in Google Sheets and create a simple bar chart or pie chart. Show students how visualizing data can help them better understand and communicate results.

- **Example:**

Create a bar chart to show the most popular favorite colors among survey respondents.

- **Discussion:**

Ask students how their chart makes the data easier to understand. Discuss why businesses, scientists, and other professionals use data charts to make decisions.

#### 4. Data Interpretation and Patterns (15 minutes)

- **Teacher Explanation:**

Explain that after data is collected and visualized, the next step is **data interpretation**. Show students how to look for patterns in the charts they've created.

- **Example:**

"If 70% of your class picked blue as their favorite color, what does that tell us about color preferences?"

- **Group Discussion:**

In groups, have students discuss the patterns they found in their data. What does the data suggest about their survey topic? How might this information be used in real-world situations (e.g., for product design or marketing)?

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of data analysis. Ask students: "How does data help us make better decisions? Can you think of a time when understanding data would be helpful?"

- **Homework Assignment:**

Each student will collect data from a simple observation (e.g., how many cars pass their street in 10 minutes, how many different animals they see outside) and create a chart to present to the class on Lesson 4.

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#### End of Lesson 3

By the end of Lesson 3, students will understand the process of collecting, entering, and visualizing data using Google Sheets. They will have created simple charts to represent their survey results and begun interpreting data to understand trends and patterns.

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#### **Lesson 4: Introduction to Data Visualization and Problem Solving with AI (1-2 hours)**

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**Objective:**

Teach students how to create data visualizations to better understand information and introduce the role of AI in problem-solving. Students will also explore how AI can use data to make predictions and solve real-world problems.

**Materials Needed:**

- Completed homework (observed data from Lesson 3)
  - Computers/tablets with access to **Google Sheets** or **Google Charts**
  - Whiteboard and markers for explanations
- 

**Step-by-Step Instructions:****1. Review Homework and Discuss Data Observations (10 minutes)**

- **Teacher Explanation:**

Begin by reviewing students' homework. Ask a few students to share the data they collected (e.g., how many cars passed, how many animals they saw, etc.).

- **Discussion:**

Encourage students to reflect on the data they collected. What patterns did they notice? Was the data different from what they expected?

---

**2. Visualizing Data Collected from Homework (20 minutes)**

- **Activity:**

Have students input their homework data into **Google Sheets**. Demonstrate how to create a chart from their data (e.g., bar charts or line graphs).

- **Example:**

If a student counted cars passing their house, they could create a **bar chart** showing the number of cars observed over time.

- **Teacher Guidance:**

Guide students through the chart creation process and ensure they understand how visualizations help in presenting data clearly.

---

### 3. Introduction to Problem Solving with AI (15 minutes)

- **Teacher Explanation:**

Explain that **AI** is like a very smart tool that can look at data and help solve problems. AI systems can predict things, help make decisions, and even come up with new ideas.

- **Example:**

“AI can look at the weather and predict if it’s going to rain tomorrow, or it can look at traffic data and tell us the best way to get to school.”

- **Discussion:**

Ask students how they think AI might use the data they collected. Could AI help predict how many cars will pass by tomorrow, or which color will be most popular next month?

---

### 4. Fun Activity: Predicting the Future with Data (15 minutes)

- **Activity:**

Have students use the data they collected to make a prediction. For example, if a student counted how many cars passed their house, they could predict how many cars will pass tomorrow based on today’s data.

- **Example:**

“If 10 cars passed in 10 minutes today, how many cars do you think will pass tomorrow at the same time?”

- **Teacher Explanation:**

Explain that AI does something similar—it uses data from today to predict what will happen tomorrow. This is called **data-driven decision-making**.

---

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how AI helps people make predictions using data. Ask students: “What are some other ways we could use data to predict things? How could AI help farmers, doctors, or teachers?”

- **Homework Assignment:**

Each student will choose a problem they think AI could help solve. They will write

a paragraph about the problem and how they think AI could use data to find a solution.

---

## End of Lesson 4

By the end of Lesson 4, students will understand how data can be visualized to make it easier to understand and how AI uses data to solve problems and make predictions. They will also have explored how AI could help with real-world problems based on the data they have collected.

## Lesson 5: Introduction to Project Management and Collaboration (1-2 hours)

### Objective:

Introduce students to the basics of project management and team collaboration using tools like Trello. The aim is to help them understand how professionals organize tasks and work together effectively in a project.

### Materials Needed:

- Access to Trello (or a similar project management tool) on tablets or computers.
  - Whiteboard and markers for visual demonstration.
- 

### Step-by-Step Instructions:

#### 1. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain that **project management** is the process of organizing tasks to complete a project efficiently. Compare it to planning a party: before the party can happen, tasks like sending invitations, buying decorations, and preparing food need to be done in the right order.

- **Examples of Project Management:**

- Building a house (you can't put on the roof before the walls).
- Planning a class event (choosing a theme, sending invitations, decorating).

## 2. Introducing Trello (15 minutes)

- **Materials Needed:**

Trello or an equivalent project management tool, pre-set project board for demonstration.

- **Teacher Demonstration:**

Show students how **Trello** works by demonstrating the basics: how to create boards, lists, and task cards.

- **Board:** Represents the entire project (e.g., creating an app, completing a recycling campaign).
  - **Lists:** Organize tasks into categories (e.g., "To Do," "In Progress," "Done").
  - **Cards:** Represent specific tasks (e.g., "Design logo," "Collect survey data").
- 

## 3. Hands-on Activity: Creating a Trello Board (20 minutes)

- **Activity:**

Have students work in groups to create their own **Trello boards** for a class project. Assign each group a project, such as "Building a Recycling App" or "Creating a School Newsletter."

- **Step 1:** Create a board for the project.
- **Step 2:** Create lists like "To Do," "In Progress," and "Done."
- **Step 3:** Add task cards to each list (e.g., "Research recycling facts," "Design app interface," "Write article for newsletter").

- **Group Discussion:**

Ask students how organizing tasks in this way can help them keep track of progress. How does it feel to see tasks move from "To Do" to "Done"?

---

## 4. Fun Challenge: Moving Cards Across Lists (15 minutes)

- **Activity:**

Let students complete a few simple tasks (e.g., design a simple logo in Canva,

collect data from their surveys) and **move cards from "To Do" to "Done"** on Trello.

- This will give them a sense of accomplishment as they visually see their progress.
- 

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Discuss how professionals use project management tools to stay organized in the workplace. Ask students:

"How do you think using a tool like Trello will help us when we start working on our projects next week?"

- **Homework Assignment:**

Students should complete a task related to their role (e.g., finish collecting data for their project or create a draft of their design) and move their task card in Trello from "To Do" to "In Progress."

---

## End of Lesson 5

By the end of Lesson 5, students will have a clear understanding of **project management** and how to use tools like **Trello** to organize tasks and work collaboratively. They will have created their own project boards and started moving tasks along the workflow, preparing them for future project work.

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## Lesson 6: AI-Powered Market Researcher (1-2 hours)

### Objective:

Introduce students to the role of a **Market Researcher** in AI-driven projects. Students will learn how data collection and analysis are used by businesses to understand customer preferences and make decisions.

### Materials Needed:

- Access to Google Forms and Google Sheets.

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- Computers/tablets with internet access.
  - Example data (if needed).
- 

### Step-by-Step Instructions:

#### 1. Introduction to Market Research (10 minutes)

- **Teacher Explanation:**

Explain that a **Market Researcher** helps businesses learn what people like and don't like. They collect information (data) by asking people questions, and then analyze it to help companies decide what products to make or improve.

- **Example:**

A Market Researcher might survey people to find out what flavor of ice cream they like best, or what new toys children are interested in.

---

#### 2. Creating a Simple Survey (15-20 minutes)

- **Materials Needed:**

Google Forms on a computer or tablet.

- **Activity:**

Demonstrate how to create a basic survey using **Google Forms**. Each student will create a short survey with 3-4 questions (e.g., "What's your favorite snack?", "What's your favorite hobby?").

- Have students share the survey link with family members, friends, or classmates to collect responses.

- **Teacher Guidance:**

Help students design clear, easy-to-answer questions. Remind them that the information they gather will be used to help make decisions, just like a real market researcher.

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#### 3. Predicting the Survey Results (15 minutes)

- **Activity:**

Before the survey responses come in, have students predict what the most

popular answers will be. For example, they might guess that “chocolate” will be the most popular snack or that “video games” will be the most popular hobby.

- Have a brief class discussion about their predictions.
- 

#### 4. Analyzing Survey Data (20 minutes)

- **Materials Needed:**

Google Sheets on computers or tablets.

- **Activity:**

Once survey responses are collected, students will input the data into **Google Sheets**. Demonstrate how to create a simple **bar chart** or **pie chart** from the data.

- **Example:**

If the survey asked about favorite snacks, create a bar chart to show how many people picked “chocolate” versus “chips.”

- **Teacher Explanation:**

Explain how businesses use these charts to make decisions. For example, if a survey shows that most people prefer chocolate, a company might decide to make more chocolate-flavored products.

---

#### 5. Group Discussion: How Does Data Help? (10 minutes)

- **Class Discussion:**

Ask students:

“How do the survey results help a company know what people like? How do you think AI can help businesses collect even more data to make better decisions?”

- Encourage students to think about how data is used to understand trends and preferences in the real world.
- 

#### 6. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the role of a **Market Researcher** and how AI plays a role in data collection and decision-making. Ask students:

"What's something new you learned today about how companies use data to make decisions?"

- **Homework Assignment:**

Ask students to think of one product or service they use regularly (e.g., a favorite toy, game, or snack). Have them write a short paragraph about how a company might use market research to improve that product.

---

End of Lesson 6

By the end of Lesson 6, students will have a solid understanding of the **Market Researcher** role, how data is collected using surveys, and how that data is analyzed to help businesses make informed decisions. They will have created their own surveys, predicted outcomes, and analyzed real-world data using charts.

## Lesson 7: AI-Driven Business and Data Analyst (1-2 hours)

Objective:

Introduce students to the role of a **Business and Data Analyst** and how data analysis is used to make informed decisions in various industries. Students will learn how businesses use data to identify trends and opportunities.

Materials Needed:

- Computers/tablets with access to **Google Sheets** or any spreadsheet software.
  - Sample dataset related to business (e.g., sales data, customer preferences).
- 

Step-by-Step Instructions:

### 1. Introduction to Business and Data Analysis (10 minutes)

- **Teacher Explanation:**

Explain the role of a **Business and Data Analyst**. They use data to help companies understand their customers, improve their products, and make better decisions.

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- **Example:**

A data analyst might look at the sales data of a store to see which products are most popular. They can use this information to decide which products to stock more of.

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## 2. Activity: Analyzing Classroom Data (20-25 minutes)

- **Materials Needed:**

Google Sheets with a preloaded sample dataset (e.g., types of products sold and how many were purchased each day).

- **Activity:**

Have students input the data from the sample dataset into **Google Sheets**. The dataset could include details like:

- Products sold (e.g., books, pencils, snacks)
- Number of units sold each day
- Customer preferences (e.g., which products customers rated highly)

- Show students how to create a **bar chart** or **pie chart** from the data to visualize which product is the most popular.

- **Teacher Explanation:**

Explain how visualizing the data helps businesses quickly understand trends (e.g., which products are selling the most). Encourage students to think about how data analysis can help businesses decide what to stock and how much.

---

## 3. Discussion: Identifying Trends (15 minutes)

- **Teacher Guidance:**

Ask students to look at their charts and identify patterns. For example:

- "Are there certain days when more snacks are sold?"
- "Which product is the most popular?"

- Help students understand how finding trends in data helps businesses make smarter decisions. For example, if a certain product sells better on Fridays, businesses may want to stock more of it that day.

- **Group Discussion:**

Encourage students to discuss how the data they analyzed could be used to improve a store's sales strategy. How could a store owner use this data to plan for the future?

#### 4. Fun Task: Business Data Analyst for a Lesson (15 minutes)

- **Activity:**

Let students pretend they are a **Business Data Analyst** for a toy store. Based on their analysis of the sample dataset, they will write a short paragraph explaining which toys the store should stock more of and why. They can use the data and charts they created to support their argument.

---

#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how businesses rely on data to make decisions. Ask students: “What is something new you learned today about how businesses use data to decide what products to sell?”

- **Homework Assignment:**

Students should look around their home or local stores and take note of what products are most popular. Have them write a paragraph predicting which items the store might need to restock based on what's sold out or in high demand.

---

#### End of Lesson 7

By the end of Lesson 7, students will have an understanding of the role of a **Business and Data Analyst** and how data is used to make business decisions. They will have analyzed a sample dataset, created visualizations, and used data to make business recommendations.

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### Lesson 8: Solution Developer (Basic AI Concepts) (1-2 hours)

Objective:

Introduce students to the role of a **Solution Developer**, with a focus on how AI can be used to solve real-world problems by building apps or tools. Students will engage with simple coding concepts and create a basic solution using Scratch Junior.

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## Materials Needed:

- Tablets/computers with **Scratch Junior** or **MIT App Inventor** installed.
- 

## Step-by-Step Instructions:

### 1. Introduction to AI-Powered Solution Development (10 minutes)

- **Teacher Explanation:**

Explain that a **Solution Developer** is responsible for building tools and apps that solve real-world problems using AI. They use coding and technology to create things like mobile apps, websites, or smart devices.

- **Example:**

A solution developer might build an app to help farmers monitor their crops or create a game that helps students practice math.

- **Discussion:**

Ask students what apps or games they use regularly. How do they think those apps were built? How do apps help solve problems in everyday life?

---

### 2. Activity: Building a Simple App with Scratch Junior (30-40 minutes)

- **Materials Needed:**

Scratch Junior or MIT App Inventor on tablets or computers.

- **Activity:**

Guide students in creating a basic app using **Scratch Junior**. The app could be a **simple schedule organizer** where users can input tasks (e.g., homework, chores) and mark them as complete.

- **Step 1:** Show students how to drag blocks to create characters and movement in Scratch Junior.
  - **Step 2:** Have students add buttons that allow users to add or remove tasks.
  - **Step 3:** Guide them in adding basic features like displaying the tasks and marking them as done.

- **Teacher Guidance:**

Help students troubleshoot any issues they encounter and encourage creativity in their app design.

### 3. Fun Challenge: Adding Extra Features (15 minutes)

- **Activity:**

Challenge students to add one or two additional features to their app. For example, they could add sound effects when tasks are completed, or a feature that allows users to set reminders for upcoming tasks.

- Encourage students to think about how additional features can make the app more helpful or fun for users.
- 

### 4. Group Discussion: How Do Apps Solve Problems? (10 minutes)

- **Class Discussion:**

Ask students how the app they created could help people in real life. For example, how would a **schedule organizer** help someone manage their time better? Discuss how apps and tools can make life easier by solving everyday problems.

- Encourage students to think about other apps they could create to solve different problems (e.g., an app to track homework assignments, a game to help people learn math, etc.).
- 

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how apps and tools created by developers help solve problems in different industries. Ask students:

“What’s an app or tool you wish existed? How could it help solve a problem?”

- **Homework Assignment:**

Ask students to come up with an idea for an app that solves a problem in their own life. They should write a short description of the app and explain how it would work.

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### End of Lesson 8

By the end of Lesson 8, students will have a basic understanding of the **Solution Developer** role and how AI-powered apps are built to solve problems. They will have created a simple app using **Scratch Junior** and brainstormed ideas for other apps that could help solve real-world problems.

## Lesson 9: AI-Driven Digital Marketer (1-2 hours)

Objective:

Introduce students to the role of a **Digital Marketer**, focusing on how AI helps companies advertise their products, create branding, and promote their business. Students will design marketing materials using AI-powered tools to understand how digital marketing works in the real world.

Materials Needed:

- Tablets/computers with access to **Canva** or any other free design tool.
- Sample product (real or fictional) for students to market (e.g., a new toy, a school club, or a snack).

---

Step-by-Step Instructions:

### 1. Introduction to Digital Marketing (10 minutes)

- **Teacher Explanation:**

Explain that a **Digital Marketer** helps companies sell their products by creating ads, logos, social media posts, and other promotional materials. Digital marketers use AI to understand what customers want and how to best promote products to them.

- **Example:**

Explain how companies use AI to show ads to people based on their interests. For example, if someone watches a lot of videos about soccer, they might see ads for soccer gear or games.

- **Discussion:**

Ask students if they've ever seen ads on websites or social media. How do they think companies decide what ads to show?

## 2. Activity: Designing a Logo in Canva (30-40 minutes)

- **Materials Needed:**

Access to **Canva** or another design tool on tablets or computers.

- **Activity:**

Have students create a logo for a fictional product, school club, or business.

Guide them through using templates, adding colors, fonts, and images.

- **Step 1:** Show students how to choose a logo template in Canva.
- **Step 2:** Guide them through customizing the template (e.g., changing the name, adding colors, or choosing icons).
- **Step 3:** Have students think about how their logo represents their product or business (e.g., Does it show what the business does? Is it eye-catching?).

- **Teacher Guidance:**

Help students understand the importance of a clear, simple, and memorable logo. Encourage creativity and uniqueness in their designs.

---

## 3. Fun Challenge: Create a Social Media Ad (15 minutes)

- **Activity:**

After students have created their logos, ask them to design a simple social media ad (e.g., an Instagram post or Facebook ad) using Canva. The ad should promote the product or business they created a logo for.

- **Example:**

If a student created a logo for a "Junior Bakers Club," they might create an ad that invites new members to join the club. The ad could feature a fun slogan, an image of baked goods, and their new logo.

---

## 4. Group Discussion: How AI Helps in Digital Marketing (10 minutes)

- **Class Discussion:**

Ask students how they think companies decide where to show their ads. Explain that **AI** helps companies understand what people like and shows ads to the right audience.

- **Example:**

A company might use AI to figure out which colors or slogans work best for their ads. AI can also tell companies which ads are getting the most clicks and which ones need improvement.

---

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of digital marketing. Ask students:  
“How does creating a logo and ad help a company or club stand out? How do you think AI can help companies improve their marketing?”

- **Homework Assignment:**

Students should design a second ad or promotional material for their product or business, using Canva or another tool. They can use this as part of their upcoming class presentation.

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## End of Lesson 9

By the end of Lesson 9, students will have learned the basics of **Digital Marketing** and the role of AI in helping companies advertise their products. They will have created logos and social media ads, gaining hands-on experience with design tools like Canva.

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## Lesson 10: Project Management Overview and Preparation for Actual Projects (1-2 hours)

### Objective:

Introduce students to **Project Management** and prepare them for their upcoming projects. Students will learn how to use Trello or another project management tool to organize tasks, set deadlines, and work collaboratively.

### Materials Needed:

- Access to **Trello** (or any project management tool) on computers or tablets.

- Predefined class projects (e.g., creating a recycling app, designing a community garden).
- 

### Step-by-Step Instructions:

#### 1. Recap of the Week and Introduction to Project Management (10 minutes)

- **Teacher Explanation:**

Start by recapping everything students have learned over the past week:

- AI roles: Market Researcher, Data Analyst, Solution Developer, Digital Marketer.
- Tools they've used: Google Sheets, Canva, Scratch Junior.

- Explain that today's focus will be on **organizing their projects** and preparing for real-world problem-solving using project management tools.

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#### 2. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain the concept of **project management** and how professionals use tools like Trello to plan their work. Project management helps teams break down big projects into smaller, manageable tasks.

- **Example:**

When building a house, workers need to do things in the right order—first, lay the foundation, then build the walls, and finally put on the roof. The same idea applies to other projects.

- **Discussion:**

Ask students how they think managing tasks and deadlines could help them in their schoolwork or future projects.

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#### 3. Introduction to Trello (15 minutes)

- **Materials Needed:**

Access to Trello on tablets or computers.

- **Teacher Demonstration:**

Demonstrate how to use Trello by setting up a **Trello board** for one of the class projects (e.g., designing a recycling app). Show students how to:

- Create **lists** (To Do, In Progress, Done).
  - Add **cards** for each task (e.g., “Research recycling facts,” “Design app interface”).
  - Assign **deadlines** and roles (e.g., assign one student to research and another to design).
- 

#### 4. Group Activity: Setting Up Their Trello Boards (25 minutes)

- **Activity:**

In their project teams, students will create their own **Trello boards** for the upcoming projects. Each group will:

- Create **three lists**: To Do, In Progress, Done.
- Add task **cards** under each list.
- Assign roles and set **deadlines** for each task (e.g., the Data Analyst needs to finish analyzing data by the end of the week, the Solution Developer needs to complete coding within two weeks).
- **Example Project:**  
For a project on designing a community garden, tasks might include:
  - Researching plant types.
  - Drawing garden designs.
  - Building a prototype model.

- **Teacher Guidance:**

Help students think through the tasks and break them down into smaller steps.

Encourage them to set reasonable deadlines and assign tasks based on their team members' strengths.

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#### 5. Fun Activity: Moving Task Cards Across Lists (10 minutes)

- **Activity:**

Let students complete one small task (e.g., researching garden plants) and move their card from **To Do** to **Done**. This helps students see how project management tools help visualize progress.

## 6. Final Discussion: Preparing for Upcoming Projects (10 minutes)

- **Class Discussion:**

Discuss how students will use Trello to manage their projects over the next few weeks. Ask:

- “How does organizing tasks help us work better as a team?”
- “Why is it important to set deadlines for each part of the project?”

- **Teacher Guidance:**

Emphasize that project management helps teams stay on track, meet deadlines, and ensure that all tasks are completed in the right order.

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## 7. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the week and how students will start their projects next week. Ask: “What are you most excited about for your upcoming project? How do you think Trello will help you stay organized?”

- **Homework Assignment:**

Each student should review their assigned tasks on Trello and begin preparing to work on their specific role in the project (e.g., researching, designing, developing).

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## End of Lesson 10

By the end of Lesson 10, students will have a strong understanding of **Project Management** and how to organize their upcoming projects using **Trello**. They will have set up their Trello boards and prepared their project tasks, making them ready to start working on real-world projects the following week.



## Guided Project - Creating a Community Garden with Recycled Materials

**Project Roles:** 3 (“Market Researcher & Data Analyst”, “Solution Designer & Developer”, “Digital Marketer & Project Manager”)

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**Duration:** 10 Lessons (Initial introduction and setup)

### **Project Overview:**

In this project, students will work together to create a sustainable community garden using recycled materials. Each student will take on one of three roles: **Market Researcher & Data Analyst**, **Solution Designer & Developer**, or **Digital Marketer & Project Manager**. They will collaborate to gather community data, design the garden layout, and promote the project to their community. By the end, students will have created a detailed plan for the garden and presented their ideas to their classmates or local community members.

### **Learning Objectives:**

- **Collaboration:** Students will learn to work in teams, share responsibilities, and integrate their work into a cohesive project.
- **Real-World Application:** Students will apply their knowledge of sustainability and recycling to solve a real-world problem (creating a sustainable community garden).
- **Technology Integration:** Students will use tools like Google Forms, Canva, and Trello to manage their project, design promotional materials, and collect community feedback.

### **Curriculum Mapping:**

This project is mapped to multiple subject areas across **US Common Core**, **UK Curriculum**, **Cambridge**, **IB**, and **Pakistan National Curriculum**.

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### **US Common Core Curriculum Mapping:**

#### **1. English Language Arts (ELA):**

- **Writing (W.3.2, W.4.2, W.5.2):** Writing informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- **Speaking & Listening (SL.3.4, SL.4.4, SL.5.4):** Present information clearly, concisely, and logically, supporting main ideas with facts and descriptive details.

**2. Mathematics:**

- **Measurement & Data (MD.3.4, MD.4.4, MD.5.4):** Create and interpret data in graphs, focusing on community survey data and garden layout measurements.
- **Geometry (G.3.1, G.4.1, G.5.1):** Analyze and create garden layouts using geometric shapes and spatial understanding.

**3. Science:**

- **Earth and Human Activity (3-ESS3-1, 4-ESS3-1, 5-ESS3-1):** Focus on human impact on Earth's systems, the benefits of recycling, and sustainability through the creation of the garden.
- 

**UK National Curriculum Mapping:****1. English:**

- **Writing:** Plan, draft, and write clear and coherent informational texts (related to the research and findings from the project).
- **Speaking & Listening:** Develop effective presentation skills by presenting project findings.

**2. Mathematics:**

- **Data Handling:** Use bar charts, tally charts, and pie charts to represent survey data from the community on recycling habits.
- **Measurement:** Calculate the dimensions of the garden and the space needed for different sections, using units of measurement.

**3. Science:**

- **Living Things and Their Habitats:** Learn about plants and ecosystems, linking this to the importance of sustainable gardens and recycling materials.
- 

**Cambridge Curriculum Mapping:****1. English:**

- **Writing & Presenting Information:** Develop skills in writing reports and presenting findings through research and data collection.
- **Speaking & Listening:** Share ideas through discussions and formal presentations during the project.

**2. Mathematics:**

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- **Data Collection and Presentation:** Collect, analyze, and present data from community surveys about recycling and garden preferences.
  - **Geometry:** Use geometric concepts to design the layout of the community garden.
- 3. Science:**
- **Environmental Awareness:** Understand recycling and sustainability, focusing on their application in creating an eco-friendly garden.
- 

### **IB PYP Curriculum Mapping:**

- 1. Language:**
    - **Writing & Research:** Students will gather and present information about recycling and sustainable gardening practices.
    - **Communication:** Students will develop communication skills by presenting their findings to their classmates and community.
  - 2. Mathematics:**
    - **Data Handling:** Interpret survey results and present findings using appropriate visual aids (e.g., bar charts, graphs).
  - 3. Science:**
    - **Science in Society:** Explore how human actions (like recycling) can impact the environment positively, in line with sustainability principles.
- 

### **Pakistan National Curriculum Mapping:**

- 1. English:**
  - **Writing:** Writing informative texts and explanations of the community garden's purpose, sustainability goals, and design process.
  - **Oral Communication:** Present the project's findings to classmates and community members, explaining the importance of recycling and sustainability.
- 2. Mathematics:**
  - **Data Handling:** Collect and analyze survey data, presenting it through graphs and charts.
  - **Geometry:** Use measurement and spatial understanding to plan the layout of the garden.
- 3. Science:**

- **Environmental Science:** Learn about sustainable development, recycling, and human impacts on the environment through the design and creation of the community garden.
- 

## 10 Lessons Roadmap for Market Researcher / Data Analyst

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can recycling reduce waste and help create a sustainable community garden?

**Focus:** The **Market Researcher & Data Analyst** will gather data on community recycling habits, analyze trends, and collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to ensure the garden design aligns with community interests and promotes sustainability. The project will end with a branding effort to promote the initiative.

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#### Lesson 1: Defining the Problem & Creating a Research Plan (1-2 hours)

**Objective:** Understand the project's goals, define the research problem, and develop a data collection plan.

- **Tasks:**

- Use **AI tools** like **ChatGPT** or **Google AI** to research recycling and community gardens. Gather insights to inform survey creation.
- Collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to outline the research problem and define how data will support design and promotional strategies.
- Develop a research plan to collect data on recycling habits, materials available for reuse, and community interest in a garden.

**AI Tools:** ChatGPT, Google AI (for research and planning).

**Connection Points:**

- Share initial insights with the **Designer & Developer** to inform early design concepts.

- Align the research plan with the **Digital Marketer & Project Manager** for effective community engagement.
- 

## Lesson 2: Creating a Survey Using AI Tools (1-2 hours)

**Objective:** Create a survey to gather community data on recycling habits and garden participation.

- **Tasks:**

- Use **Google Forms Auto-Generate** or **ChatGPT** to design a survey with questions like, “How often do you recycle?” and “What recycled materials do you have at home?”
- Collaborate with the **Digital Marketer & Project Manager** to ensure the survey is distributed digitally and promoted within the community.
- Finalize the survey and start distributing it through various channels.

**AI Tools:** Google Forms Auto-Generate, ChatGPT (for survey creation).

**Connection Points:**

- Share the survey questions with the **Designer & Developer** to align community input with garden design.
  - Work with the **Digital Marketer & Project Manager** to distribute the survey.
- 

## Lesson 3: Data Collection (1-2 hours)

**Objective:** Collect survey responses and gather observations about recycling behaviors in the community.

- **Tasks:**

- Collect responses via Google Forms or manually with paper-based surveys.
- Observe recycling behaviors in your school or neighborhood (e.g., what materials are recycled and how often).
- Start sharing preliminary findings with the **Designer & Developer** to inform material selection.

**AI Tools:** Google Forms (for data collection).

**Connection Points:**

- Coordinate with the **Digital Marketer & Project Manager** to ensure the survey reaches the community.
  - Share early insights with the **Designer & Developer** for the garden design.
- 

## **Lesson 4: Organizing Data Using AI (1-2 hours)**

**Objective:** Input the collected data into a spreadsheet and begin using AI tools to organize it.

- **Tasks:**
  - Input the data from surveys into **Google Sheets** or **Excel** for easier manipulation.
  - Use **Google AI** or **Microsoft Power BI** to organize the data into categories, such as materials recycled, community awareness of recycling, and interest in the community garden.

**AI Tools:** Google Sheets, Google AI, Microsoft Power BI (for organizing data).

**Connection Points:**

- Share organized data with the **Designer & Developer** to ensure materials for the garden match the community's recycling habits.
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## **Lesson 5: Data Visualization & Initial Reporting (1-2 hours)**

**Objective:** Use AI tools to create visual representations of the data and begin reporting key findings.

- **Tasks:**
  - Use **Google AI** or **Power BI** to create charts, such as bar graphs and pie charts, that visualize the survey results (e.g., most commonly recycled materials).
  - Prepare a brief initial report to share with the team, summarizing key insights such as which materials are most available for the garden and the community's level of interest in participating.

**AI Tools:** Power BI, Google Sheets (for data visualization).

**Connection Points:**

- Share visual data with the **Designer & Developer** to ensure that garden design aligns with the community's recycling materials.
  - Work with the **Digital Marketer & Project Manager** to present early insights to the public, promoting interest in the garden project.
- 

### **Lesson 6: Data Analysis Using AI & Collaboration (1-2 hours)**

**Objective:** Analyze the survey data using AI tools to uncover trends and collaborate with the other roles.

**● Tasks:**

- Use **Google AI** or **Power BI** to conduct deeper analysis of the data, identifying trends like the most commonly recycled materials and which households are most engaged in recycling.
- Collaborate with the **Designer & Developer** to refine the material selection for the garden based on the data.
- Discuss insights with the **Digital Marketer & Project Manager** to plan the next phase of community engagement based on data trends.

**AI Tools:** Google AI, Power BI (for data analysis).

**Connection Points:**

- Collaborate closely with the **Designer & Developer** to finalize material choices.
  - Share data-driven insights with the **Digital Marketer & Project Manager** for use in promotional campaigns.
- 

### **Lesson 7: Writing the Final Report Using AI Tools (1-2 hours)**

**Objective:** Write a comprehensive report summarizing data findings and their implications for the project.

**● Tasks:**

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- Use **Grammarly** or **ChatGPT** to draft a report summarizing the findings from the survey and data analysis. Include charts and graphs for visual support.
- Discuss the report with the other team members to ensure all roles have the data they need to move forward.

**AI Tools:** Grammarly (for report writing), ChatGPT (for summarizing findings).

**Connection Points:**

- Share the final report with the **Designer & Developer** to finalize material choices for the garden.
  - Provide the report to the **Digital Marketer & Project Manager** to inform promotional materials and campaigns.
- 

### **Lesson 8: Finalizing Recycled Materials List & Collaboration (1-2 hours)**

**Objective:** Collaborate with the team to finalize the list of recycled materials for the garden.

● **Tasks:**

- Work with the **Designer & Developer** to confirm which recycled materials will be used for the garden, based on the survey results and data analysis.
- Ensure the materials are easily accessible in the community and sustainable for the long-term.
- Begin planning how the data can be used in the branding effort, highlighting the environmental impact.

**AI Tools:** Google Sheets, Power BI (for finalizing materials and visualizing data).

**Connection Points:**

- Collaborate with the **Designer & Developer** to finalize the materials and design.
  - Work with the **Digital Marketer & Project Manager** to use data-driven insights in the final promotional materials.
- 

### **Lesson 9: Branding the Project & Preparing for the Final Presentation (1-2 hours)**

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**Objective:** Contribute to the branding effort by sharing data insights that highlight community involvement and sustainability.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to create branding elements (e.g., slogans, logos) that emphasize sustainability and community engagement.
- Use the data collected throughout the project to show how the community's recycling efforts are contributing to the garden.
- Help create a presentation that highlights the key data points, using AI-generated visualizations to support the branding effort.

**AI Tools:** Canva, Power BI (for branding and data visualization).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to finalize the promotional materials.
- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden's design.

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## Lesson 10: Final Presentation & Community Engagement (1-2 hours)

**Objective:** Present the findings to the class or community and contribute to the final branding and community engagement effort.

- **Tasks:**

- Present the final report, showcasing the survey results, data analysis, and the impact of recycling on the garden.
- Work with the **Digital Marketer & Project Manager** to deliver the branding campaign to the community, using data to encourage participation in the garden.
- Conclude the project by discussing the long-term benefits of community engagement in sustainability.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Designer & Developer** and the **Digital Marketer & Project Manager** to deliver a cohesive final presentation.

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- Ensure the branding and data insights are shared with the community to encourage ongoing participation.
- 

## Assessment at Project Level:

### 1. Industry Understanding

- **Assessment Criteria:** Evaluate the student's understanding of the recycling industry, community sustainability efforts, and how data plays a crucial role in environmental decision-making.
- **Questions:**
  - How well does the student understand the impact of recycling on environmental sustainability?
  - Can they explain the connection between recycled materials and their use in the community garden?
  - Have they demonstrated a clear understanding of how data can inform decisions in real-world environmental projects?

### 2. Concept Understanding

- **Assessment Criteria:** Assess the student's grasp of the core concepts, such as data collection, analysis, and visualization, and their ability to apply these concepts in the project.
- **Questions:**
  - How effectively did the student collect and analyze data on recycling habits?
  - Were they able to create clear, accurate visualizations that helped inform the garden's design?
  - Can they explain the process of turning data into actionable insights?

### 3. Role Performance

- **Assessment Criteria:** Measure the student's success in fulfilling the responsibilities of the **Market Researcher & Data Analyst** role, including collaboration with other roles.
- **Questions:**
  - Did the student successfully collect and analyze data to support the garden design and promotional campaign?

- How well did they communicate their findings with the **Designer & Developer** and the **Digital Marketer & Project Manager**?
- Did they contribute effectively to the final report and presentation?

#### 4. Collaboration & Communication

- **Assessment Criteria:** Evaluate how well the student collaborated with their peers and communicated their findings.
- **Questions:**
  - How effectively did the student share insights with other roles throughout the project?
  - Did they collaborate well with the **Designer & Developer** to ensure data-driven design choices?
  - Were they able to communicate data findings clearly to support the **Digital Marketer & Project Manager** in the branding efforts?

#### 5. Branding & Final Presentation

- **Assessment Criteria:** Assess the student's involvement in the final branding and presentation efforts.
- **Questions:**
  - How well did the student use data to contribute to the project's branding, emphasizing community involvement and sustainability?
  - Were they able to present the final findings and demonstrate the impact of the project to the class or community?
  - How effectively did they support the **Digital Marketer & Project Manager** in the promotional campaign?

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#### Learning Outcomes for the Entire Project

- **Industry Understanding:** The student will demonstrate a deep understanding of recycling, sustainability, and how data-driven insights inform real-world projects.
- **Data Skills:** They will acquire skills in using AI tools for data collection, analysis, and visualization, creating clear and actionable insights from raw data.
- **Collaboration:** The student will learn how to effectively collaborate with peers, ensuring the data supports design and marketing efforts.
- **Branding:** The student will contribute to the branding of the community garden project, using data to highlight the impact of recycling and sustainability.

- **Communication:** By presenting their findings, the student will improve their ability to communicate data insights clearly and effectively.

Here's the **10-Lesson detailed plan** for the **Designer & Developer** role in the **Grade 3 Project: Creating a Community Garden with Recycled Materials**, integrating AI tools and connecting with the other roles like **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager**. This plan focuses on the tasks of designing the garden and developing digital components where needed. The project will end with a final presentation, including branding and showcasing the garden's design.

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## 10 Lessons Roadmap for Solution Designer / Developer

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Designer & Developer** will be responsible for designing the community garden based on the research conducted by the **Market Researcher & Data Analyst**, and developing digital components or models that can represent the garden.

Collaboration with the **Digital Marketer & Project Manager** will be essential for branding and final presentation efforts.

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### Lesson 1: Understanding the Project & Gathering Design Inputs (1-2 hours)

**Objective:** Understand the project goals and begin gathering design ideas from the team.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** to understand the community's preferences for recycling and sustainable gardening based on the initial research and data collection plan.
- Review preliminary data about materials available for the garden.
- Begin brainstorming design ideas for how recycled materials can be used effectively in the garden layout.

**AI Tools:** ChatGPT or DALL·E (to generate initial garden design ideas and layouts).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to understand the types of materials available and the community's recycling behaviors.
  - Align with the **Digital Marketer & Project Manager** on initial branding concepts that align with the garden's design and sustainability goals.
- 

## **Lesson 2: Sketching Initial Designs (1-2 hours)**

**Objective:** Create initial design sketches for the community garden using input from the research team.

- **Tasks:**
  - Using **Figma** or **Canva**, create initial sketches of the garden layout, focusing on how different recycled materials (plastic bottles, cardboard) can be incorporated into planters, pathways, and other elements.
  - Collaborate with the **Market Researcher & Data Analyst** to ensure that the design reflects community preferences, based on the survey data.
  - Prepare a few different layout options to present to the team for feedback.

**AI Tools:** Figma, Canva, or DALL·E (for garden design and layout ideas).

**Connection Points:**

- Review the initial sketches with the **Market Researcher & Data Analyst** to ensure that the materials align with the data.
  - Begin discussing the designs with the **Digital Marketer & Project Manager** to align branding with design concepts.
- 

## **Lesson 3: Finalizing the Garden Layout & Material Use (1-2 hours)**

**Objective:** Finalize the layout for the community garden and decide on the use of recycled materials.

- **Tasks:**

- Refine the initial garden sketches based on team feedback, incorporating any additional ideas or materials suggested by the **Market Researcher & Data Analyst**.
- Finalize the list of recycled materials that will be used in the garden design and ensure that all elements are sustainable and practical.
- Begin outlining the specific design elements for each section of the garden, such as planter designs, seating areas, and pathways made from recycled materials.

**AI Tools:** Figma (for finalizing designs), Google Sheets (for organizing the materials list).

#### Connection Points:

- Collaborate closely with the **Market Researcher & Data Analyst** to finalize material choices.
  - Work with the **Digital Marketer & Project Manager** to ensure that the garden's design can be easily branded and promoted.
- 

### Lesson 4: Developing Digital Components & Visual Models (1-2 hours)

**Objective:** Create digital models or visual representations of the community garden.

#### ● Tasks:

- Use **Figma** or **Canva** to create a digital mockup of the garden, showing how the recycled materials will be incorporated into the final design.
- Create a visual model of the garden that can be used in the final presentation and promotional materials. This model should clearly represent the layout, materials, and overall aesthetic of the garden.
- Ensure that the model is easy to understand and visually appealing, as it will be part of the final presentation to the community.

**AI Tools:** Figma, Canva, Google SketchUp (for digital modeling and mockups).

#### Connection Points:

- Share the digital model with the **Market Researcher & Data Analyst** to ensure all materials are represented accurately.
- Work with the **Digital Marketer & Project Manager** to use the visual models in promotional campaigns.

## Lesson 5: Preparing Visual Design & Feedback Integration (1-2 hours)

**Objective:** Prepare the visual design and gather feedback from the team.

- **Tasks:**

- Present the digital model and design sketches to the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** for feedback.
- Make any necessary adjustments based on team feedback, ensuring that the design aligns with community preferences and promotional goals.
- Begin planning how the design will be presented to the community, considering visual elements that highlight the use of recycled materials.

**AI Tools:** Figma, Canva (for revisions based on feedback).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to refine the design and ensure that all elements are data-driven.
  - Work with the **Digital Marketer & Project Manager** to plan how the final design will be showcased to the community.
- 

## Lesson 6: Branding the Garden Design (1-2 hours)

**Objective:** Work with the **Digital Marketer & Project Manager** to create branding elements for the garden.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to develop branding materials, such as logos, slogans, and promotional designs, that reflect the sustainability and community-driven aspects of the garden.
- Ensure that the visual design aligns with the branding elements and that the garden's message of sustainability is clear in all promotional materials.
- Use AI tools like **Canva** to create visual assets for social media and other marketing channels.

**AI Tools:** Canva (for branding and promotional materials).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to ensure the branding is visually consistent with the garden design.
  - Collaborate with the **Market Researcher & Data Analyst** to include data-driven messaging in the branding materials.
- 

## Lesson 7: Refining Digital Models & Preparing for Final Presentation (1-2 hours)

**Objective:** Refine the digital models and prepare for the final presentation.

- **Tasks:**
  - Refine the digital model based on team feedback and ensure that it is ready for the final presentation.
  - Begin preparing slides or visual aids for the final presentation, showcasing the design process, the recycled materials used, and how the garden will benefit the community.
  - Work closely with the **Market Researcher & Data Analyst** to integrate data insights into the presentation.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to include data insights in the presentation.
  - Work with the **Digital Marketer & Project Manager** to ensure that the presentation aligns with the branding strategy.
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## Lesson 8: Finalizing the Garden Design & Preparing Presentation Materials (1-2 hours)

**Objective:** Finalize the garden design and prepare materials for the final presentation.

- **Tasks:**
  - Finalize all visual materials, including digital models, posters, and any other design elements that will be used in the final presentation.
  - Ensure that the final design is visually appealing and accurately represents the garden layout, including the use of recycled materials.

- Share the final design with the **Digital Marketer & Project Manager** to ensure alignment with the overall branding effort.

**AI Tools:** Figma, Canva (for finalizing visual materials).

**Connection Points:**

- Work with the **Market Researcher & Data Analyst** to ensure the final design reflects community input.
  - Collaborate with the **Digital Marketer & Project Manager** to ensure that the branding materials are consistent with the design.
- 

### **Lesson 9: Presenting the Final Garden Design to the Community (1-2 hours)**

**Objective:** Present the final garden design and explain how recycled materials are used in the garden.

- **Tasks:**
  - Present the final design to the class or community, showcasing how recycled materials have been incorporated into the garden layout.
  - Work with the **Digital Marketer & Project Manager** to ensure that the branding message is clear and that the presentation highlights the community's involvement in the project.
  - Use AI tools to create visual aids that make the design easy to understand for the audience.

**AI Tools:** Google Slides, Canva (for final presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure that data-driven insights are included in the presentation.
  - Work with the **Digital Marketer & Project Manager** to deliver a cohesive branding message during the presentation.
- 

### **Lesson 10: Final Branding and Post-Project Collaboration (1-2 hours)**

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**Objective:** Collaborate with the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** to promote the project through branding and share the project's success story with the community.

- **Tasks:**

- Finalize the project presentation and branding effort, ensuring the design reflects the community's involvement and promotes environmental sustainability.
- Participate in a final team discussion to reflect on the project, discussing what worked well and what can be improved for future projects.
- Help create a social media campaign or blog post to share the project's success story with a broader audience, highlighting how the garden project supports environmental sustainability and community involvement.

**AI Tools:** **Canva** (for creating promotional materials), **Grammarly** (for writing social media posts or blog content).

**Connection Points:**

- Collaborate with the **Digital Marketer & Project Manager** to ensure the project is branded and promoted effectively.
- Share the final project design and branding with the community through digital platforms or in-person presentations.

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**Final Assessment at Project Level (for the Designer & Developer Role):**

- **Industry Understanding:**

- Can the student explain how recycled materials were used to design the community garden?
- How well does the student understand the impact of design on environmental sustainability and community engagement?

- **Concept Understanding:**

- Evaluate the student's ability to apply design concepts in creating a sustainable garden layout.
- Did the student use recycled materials effectively and creatively?

- **Role Performance:**

- Did the student fulfill the responsibilities of the **Designer & Developer** role, including creating digital models and refining the garden design?

- How well did the student collaborate with the **Market Researcher & Data Analyst** to incorporate data insights into the design?
  - **Collaboration:**
    - Did the student communicate effectively with the other roles and integrate their input into the final design?
    - How well did the student contribute to the final presentation and branding effort?
  - **Branding & Final Presentation:**
    - Did the student contribute to the branding and promotion of the project, using their design skills to create visually appealing materials?
    - How effectively did the student participate in the final presentation, showcasing the design and promoting the project to the community?
- 

### Learning Outcomes for the Entire Project:

- **Design & Development Skills:** The student will develop skills in using AI tools like **Figma** and **Canva** to create designs and digital models.
- **Industry Knowledge:** The student will gain a deeper understanding of sustainable design and how to incorporate recycled materials into real-world projects.
- **Collaboration & Communication:** The student will improve their ability to work with other roles, ensuring that data and branding are integrated into the design process.
- **Branding & Presentation:** The student will contribute to branding efforts and learn how to present their design in a professional, visually appealing manner.

This 10-Lesson plan focuses on ensuring the **Designer & Developer** role is integrated with the other roles, using AI tools and collaborative feedback to create a sustainable, community-driven garden design. The plan culminates in a final presentation and branding effort that promotes the project's impact.

## 10 Lessons Roadmap for Project Manager / Digital Marketer

Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Digital Marketer & Project Manager** will handle project organization and branding. This includes creating promotional materials, managing timelines using Trello, and working with other roles like the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure the project's success.

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### Lesson 1: Understanding the Project & Setting Up Project Management (1-2 hours)

**Objective:** Understand the project's goals, set up the project management system, and begin organizing the project timeline.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** and the **Designer & Developer** to understand their roles and align on the project's overall goals.
- Set up a **Trello** board to organize the project tasks. Create lists for "To-Do," "In Progress," and "Completed."
- Assign tasks for each role and create a project timeline, including deadlines for survey creation, design feedback, branding, and the final presentation.

**AI Tools:** **Trello, Google Calendar** (for project management).

**Connection Points:**

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- Collaborate with the **Market Researcher & Data Analyst** to schedule tasks related to survey creation and data analysis.
  - Coordinate with the **Designer & Developer** to schedule design feedback and finalize the garden layout.
- 

## Lesson 2: Creating a Branding Strategy (1-2 hours)

**Objective:** Develop a branding strategy for the community garden project, including logos, slogans, and promotional materials.

- **Tasks:**
  - Brainstorm branding ideas with the **Designer & Developer** to create a consistent theme that reflects the garden's sustainability and recycling message.
  - Use **Canva** to design a logo and select a color scheme that represents the community garden's values.
  - Create a simple slogan for the project, emphasizing sustainability and community involvement (e.g., "Grow Green, Recycle Smart").

**AI Tools:** Canva, Adobe Spark (for branding materials).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden design.
  - Work with the **Market Researcher & Data Analyst** to include data insights (such as community interest in recycling) in the branding strategy.
- 

## Lesson 3: Promoting the Survey & Engaging the Community (1-2 hours)

**Objective:** Help distribute the survey created by the **Market Researcher & Data Analyst** and engage the community.

- **Tasks:**
  - Use **social media platforms** or school-based networks to distribute the survey to the community, promoting it as part of the sustainable garden initiative.

- Post on platforms like **ClassDojo** or school newsletters, explaining how community feedback will shape the garden.
- Track survey responses using Trello, updating the board as the community engages.

**AI Tools:** Facebook, Instagram, ClassDojo (for promoting surveys).

**Connection Points:**

- Coordinate with the **Market Researcher & Data Analyst** to ensure survey responses are collected efficiently.
  - Share community engagement data with the **Designer & Developer** for design feedback.
- 

## Lesson 4: Tracking Progress & Adjusting the Timeline (1-2 hours)

**Objective:** Review the project's progress and adjust the timeline if necessary.

- **Tasks:**
  - Use **Trello** to track the completion of tasks, including survey creation, data collection, and initial design sketches.
  - Hold a quick meeting with the team to check if any adjustments are needed for the timeline (e.g., more time for data collection or design revisions).
  - Update the project timeline based on team feedback, ensuring all tasks stay on track for completion by Lesson 10.

**AI Tools:** Trello, Google Calendar (for timeline adjustments).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure enough time is allocated for data analysis.
  - Work with the **Designer & Developer** to adjust the design schedule if needed.
- 

## Lesson 5: Creating Social Media Content for Promotion (1-2 hours)

**Objective:** Create and schedule social media content to promote the community garden project and encourage more participation.

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- **Tasks:**

- Use **Canva** to design promotional posts that highlight the garden's sustainability goals and the use of recycled materials.
- Work with the **Market Researcher & Data Analyst** to include data from the survey, such as what materials the community recycles most.
- Schedule social media posts to go live on specific days leading up to the final presentation, using tools like **Hootsuite**.

**AI Tools:** **Canva, Hootsuite, Facebook, Instagram** (for social media content and scheduling).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to use data insights in social media posts.
- Work with the **Designer & Developer** to ensure the branding and visuals are consistent with the garden design.

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## Lesson 6: Refining the Branding & Promotional Campaign (1-2 hours)

**Objective:** Refine the branding strategy based on community feedback and prepare for the final promotional push.

- **Tasks:**

- Review the branding materials with the **Designer & Developer** to ensure they align with the final garden design.
- Use feedback from the community to adjust slogans, logos, or promotional content if needed.
- Prepare a final promotional push for social media, encouraging community members to attend the presentation or contribute to the garden.

**AI Tools:** **Canva, Google Sheets** (for organizing feedback and refining branding).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure branding and design remain aligned.
- Use insights from the **Market Researcher & Data Analyst** to refine the promotional message.

## Lesson 7: Preparing for the Final Presentation (1-2 hours)

**Objective:** Begin preparing materials for the final presentation, including slides and talking points.

- **Tasks:**

- Use **Google Slides** or **PowerPoint** to start creating the final presentation, which will showcase the project's progress, data insights, and design.
- Include branding elements (logos, slogans) and key visuals from the **Designer & Developer**.
- Work with the **Market Researcher & Data Analyst** to include data-driven insights in the presentation, such as survey results and recycling data.

**AI Tools:** Google Slides, PowerPoint, Canva (for creating the presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure the data is visually presented in the slides.
- Ensure that branding elements from the **Designer & Developer** are included in the presentation.

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## Lesson 8: Finalizing the Presentation & Promotional Strategy (1-2 hours)

**Objective:** Finalize the presentation and promotional strategy for the community garden project.

- **Tasks:**

- Review the presentation with the team and make any necessary revisions.
- Prepare a final promotional post or email to invite community members to the presentation.
- Ensure that the branding is consistent across all promotional materials and presentation slides.

**AI Tools:** Google Slides, Canva (for finalizing presentation and promotional content).

**Connection Points:**

- Work with the **Designer & Developer** and **Market Researcher & Data Analyst** to ensure the presentation is cohesive and reflects the project's goals.

## Lesson 9: Final Presentation Preparation & Rehearsal (1-2 hours)

**Objective:** Rehearse the final presentation and ensure that all materials are ready for delivery.

- **Tasks:**

- Conduct a rehearsal with the team to ensure each role is prepared to present their part of the project.
- Finalize the promotional strategy and ensure that the community is aware of the presentation.
- Check the branding materials and visuals to ensure consistency throughout the presentation.

**AI Tools:** Google Slides, Canva (for final rehearsal and checking visuals).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure everyone is aligned for the presentation.
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## Lesson 10: Delivering the Final Presentation & Branding Campaign (1-2 hours)

**Objective:** Deliver the final presentation and launch the final branding campaign.

- **Tasks:**

- Present the community garden project to the class or community, highlighting how recycling has been integrated into the garden's design.
- Launch the final branding campaign on social media or school platforms, using the content created throughout the project.
- Discuss the impact of the project on the community and encourage further participation in sustainable initiatives.

**AI Tools:** Google Slides, Canva, Facebook, Instagram (for delivering the presentation and launching the branding campaign).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to deliver a cohesive final presentation.

# Teacher Guidelines to Conduct AI Based Projects

## Teacher Guideline 1 - Detailed Tool Instructions

This guide provides teachers with step-by-step instructions on using essential tools for the 10-Lesson Introduction to AI, Data Science, and Technology Basics. It includes screenshots, QR code links to short instructional videos, and sample exercises to make it easy for teachers to practice before introducing these tools to students.

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### Tool 1: Canva (Graphic Design Basics)

- **Purpose:** Canva allows students to create visuals like posters, reports, and presentation slides, which they can use to showcase project findings.
  - **Quick-Start Steps:**
    - **Open Canva:** Go to [canva.com](https://canva.com) and create a free account.
    - **Choose a Template:** Select “Create a Design” and choose a template, like “Poster” or “Presentation.”
    - **Customize Design:** Encourage students to add text, images, and icons. They can drag elements to adjust positions, change colors, and edit fonts.
    - **Save & Download:** When finished, click “Download” to save the design as a PDF or image.
  - **Sample Exercise:** Create a digital poster titled “How AI Helps Us Every Day” with a simple layout and two to three icons or images related to technology.
- 

### Tool 2: Google Forms (Data Collection)

- **Purpose:** Google Forms allows students to create surveys, gather responses, and analyze basic data, such as preferences or community feedback.
- **Quick-Start Steps:**
  - **Access Google Forms:** Go to [forms.google.com](https://forms.google.com) and log in with a Google account.
  - **Start a New Form:** Click “Blank” to start a new form or use a pre-made template.

- **Add Questions:** Select “+” to add different question types (multiple choice, short answer, etc.). Teachers can guide students to add three to five questions for practice.
  - **Share the Form:** Click “Send” and choose the “Link” option to copy and share the form with students or family members for responses.
  - **Review Responses:** Click “Responses” to view and analyze results.
  - **Sample Exercise:** Create a form titled “Favorite School Activities” with questions like “What’s your favorite subject?” and “Which club would you join?”
- 

### Tool 3: Scratch Jr. / Scratch (Basic Coding Concepts)

- **Purpose:** Scratch Jr. (for younger students) and Scratch teach basic coding logic through drag-and-drop programming, helping students understand how computers follow instructions.
  - **Quick-Start Steps:**
    - **Access Scratch:** Go to [scratch.mit.edu](https://scratch.mit.edu) for Scratch or download **Scratch Jr.** on tablets.
    - **Start a New Project:** Click “Create” on Scratch (or open Scratch Jr.) and introduce the interface (sprite area, code blocks).
    - **Add Movements:** Drag “Motion” blocks like “Move 10 Steps” to make the character move.
    - **Add Dialogue:** Use “Looks” blocks like “Say [Hello!]” to add dialogue to the characters.
  - **Sample Exercise:** Create a short animation where a character says “Hello!” and moves across the screen.
- 

### Tool 4: Trello (Simple Project Management)

- **Purpose:** Trello is a simple project management tool that organizes tasks and allows students to track project progress in a visual “board” format.
- **Quick-Start Steps:**
  - **Access Trello:** Go to [trello.com](https://trello.com) and sign up for a free account.
  - **Create a New Board:** Click “Create New Board” and name it according to the project (e.g., “Community Garden Project”).
  - **Add Lists:** Create three lists titled “To Do,” “In Progress,” and “Done.”

- **Add Task Cards:** Under “To Do,” add tasks as cards (e.g., “Research recycling materials” or “Design garden layout”).
  - **Move Cards Across Lists:** Drag cards to “In Progress” when a task starts and to “Done” upon completion.
  - **Sample Exercise:** Set up a simple Trello board for the “Community Garden Project,” with three cards under “To Do.”
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### Tool 5: Google Sheets (Data Analysis Basics)

- **Purpose:** Google Sheets introduces students to basic data handling, allowing them to enter data, create charts, and interpret findings.
- **Quick-Start Steps:**
  - **Access Google Sheets:** Go to [sheets.google.com](https://sheets.google.com) and start a new blank spreadsheet.
  - **Enter Data:** Demonstrate entering data in columns (e.g., “Activity” and “Number of Students”).
  - **Create a Chart:** Highlight data, click “Insert,” then “Chart.” Google Sheets will generate a chart based on selected data.
  - **Customize Chart:** Adjust the chart’s appearance by changing colors, titles, and labels.
- **Sample Exercise:** Input survey data on “Favorite School Activities” and create a bar chart showing the results.

### Teacher Guideline 2: Simplified Technical Explanations & Essential Skills Overview

This section offers **easy-to-understand explanations** for complex concepts in AI and data science, along with an overview of essential skills for each role. Teachers can use these simplified definitions and skill descriptions to introduce foundational concepts and set expectations for the skills students will build across the activities.

### Core AI & Data Science Concepts

- **AI (Artificial Intelligence):**

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- **Simple Explanation:** AI is a “smart helper” that can learn and make decisions, much like how people do.
  - **Example:** Just as Netflix recommends movies based on past viewing habits, AI learns from patterns to give us what we might like.
  - **Machine Learning:**
    - **Simple Explanation:** Machine learning is when computers learn by looking at examples and improving with practice.
    - **Example:** Like learning to recognize different breeds of dogs by seeing many examples, a machine learns to make predictions based on data.
  - **Data:**
    - **Simple Explanation:** Data is information that we can collect, analyze, and use to make decisions.
    - **Example:** Schools collect data on attendance and grades to understand how students are doing.
  - **Coding:**
    - **Simple Explanation:** Coding is giving instructions to a computer to perform specific tasks.
    - **Example:** Just like following a recipe to bake a cake, coding gives step-by-step instructions to make things happen on a computer.
- 

## Essential Skills for Each Role

- **AI-Powered Market Researcher:**
  - **Skills Developed:** Survey creation, data collection, data analysis.
  - **Practical Application:** Learning to gather information from people and analyze trends, such as classmates’ favorite activities.
- **AI-Powered Data Analyst:**
  - **Skills Developed:** Data interpretation, data visualization, basic statistics.
  - **Practical Application:** Using data charts to understand patterns, like which snacks are most popular.
- **AI-Based Solution Designer:**
  - **Skills Developed:** Design thinking, creative problem-solving, prototyping.
  - **Practical Application:** Developing and presenting ideas for real-world problems, like designing a sustainable garden layout.
- **AI-Based Solution Developer:**
  - **Skills Developed:** Coding basics, creating simple applications, understanding logic sequences.

- **Practical Application:** Creating digital animations or simple apps that demonstrate problem-solving, such as coding an animation in Scratch Jr.
  - **AI-Powered Digital Marketer:**
    - **Skills Developed:** Digital content creation, branding basics, public speaking.
    - **Practical Application:** Making posters and presentations to promote projects, helping students learn how to communicate ideas effectively.
- 

## Glossary of Key Terms

- **Artificial Intelligence (AI):** Technology that enables computers to perform tasks that require human-like thinking.
  - **Data:** Information collected for analysis, like survey responses or numerical figures.
  - **Machine Learning:** A branch of AI where computers learn patterns from data to make predictions.
  - **Coding:** Writing instructions in a language computers understand to perform specific tasks.
  - **Project Management:** The process of organizing tasks and tracking progress to complete a project.
- 

## Using This Section

- **Introduce Concepts in Context:** Present these terms and skills in context, relating them to daily project tasks so students understand their practical importance.
  - **Skill Building Across Activities:** Emphasize how each activity will help students gain and practice these skills, which are fundamental for future projects and career paths.
  - **Quick Reference Glossary:** Keep this glossary accessible throughout the project to help both teachers and students reinforce their understanding of new terms.
- 

## Teacher Guideline 3: Flexible Options for Lower-Tech Classrooms

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This section provides **non-digital alternatives** for each project and activity, helping teachers adapt projects to classrooms with limited technology resources. Each activity includes an **offline option** using common classroom materials or low-tech tools, allowing teachers to achieve the same learning goals without relying heavily on computers or internet access.

---

## 1. Canva (Graphic Design Basics)

- **Purpose:** Instead of Canva, students can use **colored paper, markers, and glue** to create posters or designs by hand.
  - **Alternative Steps:**
    1. **Brainstorm & Sketch:** Have students sketch their design ideas on paper first, planning colors, shapes, and text.
    2. **Create the Poster:** Provide colored paper, markers, scissors, and glue for students to create a poster or design.
    3. **Present:** Students present their designs to the class, explaining their choices just as they would if created digitally.
  - **Goal Achieved:** Students learn basic design principles, practice creativity, and share their work, just as they would on Canva.
- 

## 2. Google Forms (Data Collection)

- **Purpose:** For data collection, use **paper surveys** instead of Google Forms.
  - **Alternative Steps:**
    1. **Create a Survey:** Write survey questions on a large sheet of paper or chalkboard. Students copy questions onto their own papers or teachers provide printed handouts.
    2. **Collect Responses:** Each student asks family or classmates to answer the survey questions and records responses by hand.
    3. **Discuss Results:** Students tally responses and analyze results as a class, discussing patterns and trends.
  - **Goal Achieved:** Students learn the basics of data collection, develop survey questions, and analyze responses without needing an online form.
- 

## 3. Scratch Jr. / Scratch (Basic Coding Concepts)

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- **Purpose:** Instead of using Scratch, introduce **coding concepts with role-playing or written instructions.**
  - **Alternative Steps:**
    1. **Define “Instructions”:** Explain that coding involves giving clear instructions, just like following a recipe.
    2. **Create a Simple “Code”:** Write simple instructions for students to follow, such as “Move 2 steps forward, turn left, jump.” This simulates basic coding commands.
    3. **Role-Playing Game:** Assign students to be “computers” and “programmers” and have them follow each other’s instructions to understand coding.
  - **Goal Achieved:** Students understand basic coding principles (sequences, commands) through role-play, preparing them for digital coding later on.
- 

#### 4. Trello (Project Management)

- **Purpose:** Replace Trello with a **physical task board** in the classroom.
  - **Alternative Steps:**
    1. **Set Up a Task Board:** Divide a whiteboard, corkboard, or wall into sections: “To Do,” “In Progress,” and “Done.”
    2. **Create Task Cards:** Write tasks on sticky notes or index cards and place them under “To Do.”
    3. **Move Tasks Physically:** As tasks are completed, students move the sticky notes to “In Progress” and then “Done,” visually tracking project progress.
  - **Goal Achieved:** Students learn project management basics with a physical board, gaining the same organizational skills they would on Trello.
- 

#### 5. Google Sheets (Data Analysis Basics)

- **Purpose:** For data visualization, use **graph paper and markers** instead of Google Sheets.
- **Alternative Steps:**
  1. **Record Data by Hand:** Students list data (e.g., favorite animals or colors) on paper.

2. **Create a Graph:** On graph paper, students create a bar chart or pie chart representing the data they collected.
  3. **Discuss Findings:** Students share their hand-drawn graphs with the class, explaining what the data shows.
- **Goal Achieved:** Students practice data visualization and interpretation skills using manual tools, allowing them to analyze and present data without digital software.
- 

### How to Use These Alternatives

- **Flexible Planning:** Teachers can choose to follow digital or non-digital versions based on classroom resources. These options allow for flexible lesson planning and ensure each student can fully participate.
  - **Encouraging Creativity:** Using hands-on materials like paper, markers, and role-play introduces new elements of creativity, helping students relate abstract concepts to tangible experiences.
  - **Achieving Learning Goals:** Whether digital or physical, these alternatives achieve the same learning objectives in each project, ensuring that all students gain valuable skills in data collection, analysis, design, and project management.
- 

By providing these **low-tech options**, teachers can adapt each project and activity to the resources available, making the content accessible to all classrooms.

Next, we'll move to the **Clear Role Descriptions for Teachers and Students** section, which defines specific responsibilities for each Lesson's activity.

### Teacher Guideline 4 - Student Motivation and Engagement Tips

This section offers **practical strategies** to help teachers keep students engaged and motivated as they explore AI, data science, and project-based learning. From setting small goals to celebrating achievements, these tips focus on making learning enjoyable and helping students build confidence as they develop new skills.

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## 1. Use Gamification Techniques

- **Create Mini-Challenges:** Turn activities into small challenges, such as a “Data Detective” day where students have to uncover patterns in a dataset or a “Design Sprint” where they brainstorm solutions quickly.
- **Reward Progress:** Offer digital badges or certificates for completing key milestones (e.g., “Survey Creator,” “Data Visualizer”), which can be printed or displayed in the classroom.
- **Make It Collaborative:** Allow students to earn points as teams, motivating them to work together and encourage each other.

## 2. Set Clear, Achievable Goals

- **Daily and Weekly Goals:** Break down the 10-Lesson program into daily goals so students know what to expect and can celebrate small wins.
- **Visual Progress Tracker:** Use a board to track the class’s progress, where students can move a marker or add a sticker when a Lesson’s tasks are complete, creating a sense of collective accomplishment.

## 3. Foster Curiosity and Relevance

- **Relate Projects to Real Life:** Show students how each activity is relevant to their lives, like explaining how data collection helps companies decide on new toy designs.
- **Encourage Questions:** Create an “Ask Anything” box where students can submit questions about AI, data science, or any topic that piques their interest. Spend a few minutes each day addressing these questions.
- **Introduce Real-World Examples:** Share age-appropriate examples of AI in action, like how Google Maps uses data to predict traffic or how Netflix suggests movies based on viewing history.

## 4. Celebrate Progress and Effort, Not Just Results

- **Acknowledge Effort:** Highlight students’ hard work and creativity, especially when they try something new or face challenges, reinforcing a growth mindset.
- **Showcase Student Work:** Create a “Student Spotlight” wall or virtual board to display projects, survey results, and designs, celebrating each student’s contributions.

- **Share Success Stories:** Occasionally share stories about young inventors, tech entrepreneurs, or environmental activists who made a difference with creative ideas, inspiring students to think about their potential.

## 5. Encourage Reflection and Self-Assessment

- **End-of-Lesson Reflections:** Have students write or share one thing they learned and one question they have after each Lesson's activity, helping them process what they've gained.
- **Weekly Journaling:** Encourage students to keep a weekly journal of their experiences, including what they enjoyed, what they found challenging, and what they're excited to try next.
- **Peer Feedback:** Create moments for students to share and receive constructive feedback from peers, fostering collaboration and growth.

## 6. Make Learning Fun with Hands-On Activities

- **Incorporate Art and Creativity:** Allow students to incorporate drawings, crafts, or physical models in their projects, especially for roles like the Solution Designer or Digital Marketer.
- **Allow Free Exploration:** Give students "exploration days" where they can use tools like Canva or Scratch for their own mini-projects, letting them practice skills in a low-pressure setting.
- **Involve the Class in Problem-Solving:** Let students take ownership of small project decisions, like choosing survey topics or deciding on themes for presentations, fostering autonomy and pride in their work.

## 7. Create an Inclusive and Supportive Environment

- **Encourage Teamwork:** Pair students with different strengths so they can support each other, learning from each other's skills and experiences.
- **Celebrate Diversity:** Recognize and appreciate diverse ideas, reinforcing that every perspective adds value to the project.
- **Provide Extra Support:** For students who may need extra help with digital tools or understanding concepts, set aside time for one-on-one assistance or pair them with a more confident peer.

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### Using These Tips in the Classroom

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- **Daily Check-Ins:** Begin each day with a brief check-in, asking students how they're feeling about the project and addressing any concerns. This builds rapport and shows students their engagement matters.
- **Make Learning Visible:** Use visual progress trackers, displays, or badges so students can see and celebrate their growth.
- **Feedback Loop:** Use the reflections and self-assessments to adjust the pacing or focus of activities as needed, keeping students motivated.

With these **motivation and engagement tips**, teachers can make each activity dynamic, enjoyable, and meaningful for students, encouraging sustained enthusiasm and participation throughout the 10-Lesson program.

## Teacher Guideline 5 - Assessment Guidelines

This section provides **structured assessment criteria** to help teachers evaluate students' learning progress and engagement throughout each project. Assessments are designed to be **flexible and holistic**, with a focus on skills, creativity, and teamwork rather than just final results.

### 1. Assessment Categories

- **Knowledge and Understanding:** Measures students' grasp of AI, data science, and technology basics.
- **Skills Development:** Evaluates hands-on skills like data collection, coding, and digital design.
- **Engagement and Participation:** Assesses each student's level of involvement, curiosity, and teamwork.
- **Creativity and Problem-Solving:** Looks at students' ability to innovate, think critically, and adapt to challenges.
- **Ethical and Moral Development:** Observes students' understanding of ethical considerations, teamwork, and social responsibility in their projects.

### 2. Suggested Assessment Criteria by Role

Each role has specific criteria to assess students' skill development and contribution to the project.

- **AI-Powered Market Researcher**
  - **Data Collection Quality:** Accuracy and relevance of survey questions and data collection.

- **Interpretation:** Ability to identify trends or patterns in data and articulate findings.
- **Presentation:** Clarity and effectiveness in presenting research results.
- **AI-Powered Data Analyst**
  - **Data Organization:** Completeness and organization of data entries.
  - **Visualization:** Effectiveness of graphs and charts in representing data insights.
  - **Analysis:** Depth of interpretation, including spotting patterns and summarizing key findings.
- **AI-Based Solution Designer**
  - **Creativity:** Originality and practicality of design ideas.
  - **Functionality:** Relevance of design in addressing the project problem.
  - **Presentation Skills:** Ability to clearly explain the design choices and project plan.
- **AI-Based Solution Developer**
  - **Coding Basics:** Proficiency in basic coding commands, sequences, and logic.
  - **Technical Understanding:** Ability to debug, improve, and complete simple code.
  - **Project Application:** How well the code contributes to solving the problem.
- **AI-Powered Digital Marketer**
  - **Creativity in Marketing:** Innovation and appeal of digital content, logos, or posters.
  - **Audience Engagement:** Ability to design materials that capture interest.
  - **Communication Skills:** Clarity in expressing project goals and impact.

### 3. Sample Rubric for Holistic Assessment

Category	Criteria	Excellent	Satisfactory	Needs Improvement
<b>Knowledge and Understanding</b>	Understanding of concepts	Demonstrates thorough understanding of AI and data concepts	Shows general understanding of key concepts	Limited understanding, needs more support

<b>Skills Development</b>	Hands-on ability	Completes tasks with minimal guidance, applies tools effectively	Completes most tasks with guidance	Requires frequent help, lacks confidence
<b>Engagement and Participation</b>	Involvement in activities	Actively participates, takes initiative	Participates in most tasks, shows interest	Low engagement, needs encouragement
<b>Creativity and Problem-Solving</b>	Innovative thinking	Produces creative solutions, adapts to challenges	Produces workable solutions, accepts feedback	Limited creativity, struggles with problem-solving
<b>Ethical and Moral Development</b>	Teamwork and ethics	Consistently demonstrates responsibility and teamwork	Generally responsible, works well with others	Needs guidance to understand teamwork and ethics

#### 4. Reflective Self-Assessment

Encourage students to assess their own progress at the end of each week. Self-assessment questions could include:

- “What was the most interesting thing I learned this week?”
- “What skill am I most proud of practicing?”
- “What would I like to improve in the next project?”

#### Using These Assessment Guidelines

- **Flexible Application:** Teachers can use the rubric and criteria flexibly, adapting them to individual students' progress and needs.
- **Encouragement-Focused:** Emphasis is placed on effort, curiosity, and growth, encouraging students to enjoy the learning process.

- **Feedback Opportunities:** These assessments provide insights for teachers to give constructive feedback, helping students build confidence and refine their skills.

With these **Assessment Guidelines**, teachers have a clear framework to evaluate student progress, celebrate achievements, and offer constructive guidance throughout each project.



## Some of More Real life Problems mapped with Curriculum Concepts using AI and Industry Roles

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### 1. Community Garden with Recycled Materials - Grade 3,4

- **Industry:** Environmental Science
- **Problem:** How can we create a sustainable community garden using recycled materials to reduce waste?

- **Proposed Solution:** Design a community garden where all materials used are sourced from recycling, and develop a system to track material usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Collect data on recycling habits, garden layouts, and analyze the effectiveness of recycled materials.
  - **AI-Based Solution Designer & Developer:** Design the garden layout using digital tools, focusing on sustainability and innovative design.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project timeline, create promotional materials for the community, and raise awareness on environmental benefits.

## Assessments

### Curriculum Assessment:

- **Science:** Understanding plant life cycles, ecosystems, recycling, and environmental sustainability.
- **Math:** Measurement (garden dimensions), data handling (tracking material usage).
- **English:** Writing reports on the design, recycling processes, and presenting findings to the class or community.
- **Social Studies:** Understanding community involvement and the role of individuals in environmental responsibility.

### Ethical & Moral Development:

- Promoting sustainability, resource conservation, and teamwork.

### Industry Interest:

- Developing interest in environmental science and sustainability.

### Role Performance:

- **Market Researcher:** Data collection and analysis accuracy.
- **Solution Designer:** Creativity and practicality in garden design.
- **Digital Marketer:** Effectiveness in promotion and project management.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie.

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## 2. Designing a Solar-Powered Device - Grade 3,4

- **Industry:** Renewable Energy
- **Problem:** How can we use solar energy more efficiently in homes and schools?
- **Proposed Solution:** Design a solar-powered device (e.g., a small fan or light) and track its energy usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Research solar energy usage in homes and schools, analyze data on energy efficiency.
  - **AI-Based Solution Designer & Developer:** Design a functional solar-powered device and develop a visual prototype.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project, create awareness campaigns on solar energy benefits, and coordinate tasks.

### Assessment:

#### Curriculum Assessment:

- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy tracking) and data analysis (efficiency calculations).
- **English:** Writing manuals on how the solar-powered device works and presenting findings.
- **Technology:** Introduction to basic electronics and renewable energy systems.

#### Ethical & Moral Development:

- Promoting responsible energy use and clean energy.

#### Industry Interest:

- Sparking interest in renewable energy technologies.

#### Role Performance:

- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Creativity and innovation in solar device design.
- **Digital Marketer:** Effectiveness in promoting solar energy usage.

Tools: Canva, Figma, Google Sheets, Google Docs, Microsoft Excel, Trello, ChatGPT, CallAnnie.

### 3. Animal Habitat Conservation Project - Grade 3,4

- **Industry:** Wildlife Conservation
- **Problem:** How can we protect animal habitats and promote conservation?
- **Proposed Solution:** Create a model of an animal habitat and propose solutions to protect the species living there.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research animal habitats and analyze data on endangered species.
- **AI-Based Solution Designer & Developer:** Create a model of an animal habitat using recycled materials.
- **AI-Based Digital Marketer & Project Manager:** Create educational materials and campaigns to raise awareness about animal conservation.

#### Grade 3 Curriculum Assessment:

- **Science:** Animal habitats, ecosystems, conservation.
- **Math:** Data collection and graphing on animal populations.
- **English:** Writing reports on endangered species and creating presentations on conservation.
- **Social Studies:** Understanding the impact of human activities on wildlife.

#### Ethical & Moral Development:

- Understanding environmental responsibility and protecting wildlife.

#### Industry Interest:

- Interest in wildlife conservation and environmental protection.

#### Role Performance:

- **Market Researcher:** Quality of research on animal habitats.
- **Solution Designer:** Creativity in designing the habitat model.
- **Digital Marketer:** Effectiveness in promoting awareness campaigns.

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**Tools:**

- Canva, Figma, Google Docs, Google Forms, Trello, Microsoft Excel, ChatGPT, CallAnnie.

**4. Building a Water Filtration System - Grade 3,4**

- **Industry:** Environmental Engineering
- **Problem:** How can we create a simple, effective water filtration system to provide clean water?
- **Proposed Solution:** Design and build a basic water filtration system using accessible materials.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the effectiveness of water filtration systems and collect data on clean water access.
- **AI-Based Solution Designer & Developer:** Design and build the water filtration system using simple materials.
- **AI-Based Digital Marketer & Project Manager:** Create campaigns to educate the community on water filtration and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Water filtration processes, the water cycle.
- **Math:** Measurement (volume of water filtered) and comparison of water quality data.
- **English:** Writing reports on the water filtration process and results.
- **Social Studies:** Understanding the importance of clean water access.

**Ethical & Moral Development:**

- Promoting sustainability, water conservation, and clean water access.

**Industry Interest:**

- Interest in environmental engineering and public health solutions.

**Role Performance:**

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- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Practicality of the water filtration system.
- **Digital Marketer:** Clarity in educational campaigns on clean water access.

**Tools:**

- **Canva, Trello, Google Sheets, Microsoft Excel, Figma, Google Forms, ChatGPT, CallAnnie.**

**5. Creating a Basic Weather Station - Grade 3,4**

- **Industry:** Meteorology
- **Problem:** How can we monitor local weather and make predictions based on collected data?
- **Proposed Solution:** Build a simple weather station and collect data on temperature, rainfall, and wind patterns.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research weather patterns and analyze local weather data.
- **AI-Based Solution Designer & Developer:** Design and build a basic weather station using available materials.
- **AI-Based Digital Marketer & Project Manager:** Create weather reports and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Weather patterns, atmospheric changes.
- **Math:** Recording and analyzing weather data.
- **English:** Writing weather reports and documenting data findings.
- **Technology:** Using sensors to monitor weather conditions.

**Ethical & Moral Development:**

- Understanding weather patterns and environmental preparedness.

**Industry Interest:**

- Interest in meteorology and climate science.

**Role Performance:**

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- **Market Researcher:** Accuracy in data collection.
- **Solution Designer:** Functionality of the weather station design.
- **Digital Marketer:** Effectiveness in promoting weather awareness.

#### Tools:

- **Google Sheets, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

## 6. Designing a Recycled Art Exhibition - Grade 3,4

- **Industry:** Creative Arts and Environmental Awareness
- **Problem:** How can we use art to promote recycling and sustainability?
- **Proposed Solution:** Design and create art pieces from recycled materials and hold an exhibition.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research the use of recycled materials in art and analyze environmental impacts.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create simple animations showcasing how recycled materials are transformed into art.
- **AI-Based Digital Marketer & Project Manager:** Promote the exhibition and manage the timeline, raising awareness of recycling through art.

#### Grade 3 Curriculum Assessment:

- **Science:** Recycling, material science.
- **Math:** Estimation, measurement of materials.
- **English:** Writing descriptions for the art pieces, creating promotional content.
- **Art:** Designing creative, sustainable art from recycled materials.

#### Ethical & Moral Development:

- Promoting environmental sustainability and creativity through recycling.

#### Industry Interest:

- Creative arts, design, and environmental awareness.

#### Role Performance:

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- **Market Researcher:** Effectiveness in researching the use of recycled materials.
- **Solution Designer:** Creativity in the design and transformation of recycled materials into art.
- **Digital Marketer:** Success in promoting the exhibition.

**Tools:**

- **Canva, Figma, Scratch Junior, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

**7. Community Helpers Documentary Project - Grade 3,4**

- **Industry:** Social Studies and Media
- **Problem:** How can we showcase the important roles of community helpers?
- **Proposed Solution:** Create a short documentary highlighting different community helpers and their contributions.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research various community helper roles and collect data on their contributions.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to create a simple app for learning about community helpers through interactive content.
- **AI-Based Digital Marketer & Project Manager:** Promote the documentary and app through social media campaigns and manage the project timeline.

**Grade 3 Curriculum Assessment:**

- **Social Studies:** Understanding the role of community helpers.
- **English:** Writing interview questions, documentary scripts.
- **Technology:** Using video editing software and **MIT App Inventor** for the project.
- **Art:** Creating visual aids and posters to promote the documentary.

**Ethical & Moral Development:**

- Promoting respect and appreciation for community helpers.

**Industry Interest:**

- Media production, journalism, and social services.

**Role Performance:**

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- **Market Researcher:** Depth and accuracy of research on community helpers.
- **Solution Designer:** Creativity in designing the interactive app.
- **Digital Marketer:** Effectiveness of promotional campaigns.

#### **Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Adobe Premiere Rush (for video editing), Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **8. Designing a School Recycling Program - Grade 3,4**

- **Industry:** Environmental Management
- **Problem:** How can we reduce waste at school by implementing a recycling program?
- **Proposed Solution:** Design a school-wide recycling program using **MIT App Inventor** to build an app that tracks recycling habits.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the school's current waste management practices and collect data on recycling efforts.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design an app that tracks recycling efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the recycling program through digital campaigns and manage the timeline.

#### **Grade 3 Curriculum Assessment:**

- **Science:** Waste management, recycling.
- **Math:** Data collection and analysis of waste reduction.
- **English:** Writing proposals and reports on recycling.
- **Social Studies:** Community responsibility for environmental protection.

#### **Ethical & Moral Development:**

- Promoting responsibility for environmental sustainability and reducing waste.

#### **Industry Interest:**

- Environmental management and sustainability.

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**Role Performance:**

- **Market Researcher:** Thoroughness in collecting and analyzing data on waste management.
- **Solution Designer:** Practicality and effectiveness of the recycling program app.
- **Digital Marketer:** Success in promoting recycling efforts.

**Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

**9. Creating a Basic Coding Project Using Scratch - Grade 3,4,5**

- **Industry:** Technology and Coding
- **Problem:** How can we use basic coding to create a fun, interactive project?
- **Proposed Solution:** Design a simple game or animation using **Scratch Junior**.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Analyze student preferences for coding projects, collect data on popular game themes.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to design and code the game or animation.
- **AI-Based Digital Marketer & Project Manager:** Promote the coding project to classmates, collect feedback on the game.

**Grade 3 Curriculum Assessment:**

- **Technology:** Introduction to coding and programming logic.
- **Math:** Logical sequencing and problem-solving.
- **English:** Writing instructions and documenting the coding process.
- **Art:** Designing characters and visual elements in the coding project.

**Ethical & Moral Development:**

- Promoting collaboration and responsible technology use.

**Industry Interest:**

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- Programming, game design, and technology development.

#### **Role Performance:**

- **Market Researcher:** Effectiveness in collecting and analyzing coding project preferences.
- **Solution Designer:** Creativity and functionality in the design of the game.
- **Digital Marketer:** Effectiveness in promoting the game.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

### **10. Local History and Culture Exploration - Grade 3,4**

- **Industry:** Social Studies and History
- **Problem:** How can we learn about the local history and culture of our community?
- **Proposed Solution:** Create a visual representation of local history using **Scratch Junior** to develop simple animations or interactive visuals.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research and collect data on local history and cultural events.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create interactive animations or visuals of historical events.
- **AI-Based Digital Marketer & Project Manager:** Promote the project and manage the research timeline.

#### **Grade 3 Curriculum Assessment:**

- **Social Studies:** Local history, traditions, and culture.
- **English:** Writing research reports and presenting findings.
- **Art:** Creating visual representations of historical events.
- **Technology:** Using online tools for research and design.

#### **Ethical & Moral Development:**

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- Promoting respect for cultural diversity and historical preservation.

#### **Industry Interest:**

- History, research, and digital storytelling.

#### **Role Performance:**

- **Market Researcher:** Thoroughness of research on local history.
- **Solution Designer:** Creativity in designing the historical timeline.
- **Digital Marketer:** Effectiveness in promoting cultural awareness.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **11. Smart Water Conservation System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can we use technology to reduce water waste in schools and homes?
- **Proposed Solution:** Design a system that monitors water usage and suggests ways to conserve water.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Collect data on water usage and analyze where most water is being wasted.
- **AI-Based Solution Designer & Developer:** Design a water conservation system using digital tools and sensors.
- **AI-Based Digital Marketer & Project Manager:** Manage the timeline and create awareness campaigns to promote water conservation.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Water cycle, water conservation, ecosystems.
  - **Math:** Measurement (tracking water usage), data handling.
  - **English:** Writing reports and presentations on water conservation.

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- **Social Studies:** Understanding global water issues and community involvement in conservation.

### Ethical & Moral Development:

- Teaching responsibility for conserving natural resources.

### Industry Interest:

- Fostering interest in environmental engineering and water management.

### Role Performance:

- **Market Researcher:** Accuracy in data collection on water usage.
- **Solution Designer:** Practicality of the water conservation system design.
- **Digital Marketer:** Effectiveness of water conservation promotion.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie, MIT App Inventor.

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## 12. Designing a Solar-Powered Classroom - Grade 4,5

- **Industry:** Renewable Energy
- **Problem:** How can we make classrooms more energy-efficient using solar power?
- **Proposed Solution:** Design a system that powers the classroom with solar panels and track energy savings.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research solar energy usage and analyze energy savings data.
- **AI-Based Solution Designer & Developer:** Design the solar-powered system for the classroom using digital tools.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to encourage solar power usage and manage the project.

### Assessments:

- **Curriculum Assessment:**

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- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy usage), data analysis.
- **English:** Writing reports on energy savings and presenting the solar system design.
- **Technology:** Understanding renewable energy technologies and systems.

#### **Ethical & Moral Development:**

- Promoting responsible use of energy and sustainable living.

#### **Industry Interest:**

- Renewable energy technology and environmental sciences.

#### **Role Performance:**

- **Market Researcher:** Quality of research and data analysis.
- **Solution Designer:** Innovation in the solar power system design.
- **Digital Marketer:** Promotion effectiveness and project management.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

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### **13. Eco-Friendly Transportation Solutions - Grade 3,4,5**

- **Industry:** Transportation and Sustainability
- **Problem:** How can we create a transportation system that reduces pollution and energy usage?
- **Proposed Solution:** Design a transportation system (e.g., bicycles, electric buses) that minimizes pollution and energy consumption.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research current transportation methods and analyze their environmental impact.
- **AI-Based Solution Designer & Developer:** Design an eco-friendly transportation model.
- **AI-Based Digital Marketer & Project Manager:** Promote the benefits of eco-friendly transportation and manage project timelines.

## Assessments:

- **Curriculum Assessment:**
  - **Science:** Energy sources, pollution, and transportation systems.
  - **Math:** Data handling and analysis on energy use.
  - **English:** Writing proposals for the eco-friendly transportation system.
  - **Social Studies:** Understanding transportation's impact on society and the environment.

## Ethical & Moral Development:

- Promoting responsibility for reducing pollution and protecting the environment.

## Industry Interest:

- Sustainable transportation and environmental engineering.

## Role Performance:

- **Market Researcher:** Quality of research on transportation systems.
- **Solution Designer:** Creativity in designing eco-friendly transportation.
- **Digital Marketer:** Effectiveness in promoting the system and managing the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Google Docs, ChatGPT, CallAnnie.

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## 14. Virtual Health Clinic Simulation - Grade 4,5

- **Industry:** Health/Medicine
- **Problem:** How can we use technology to make healthcare more accessible and efficient?
- **Proposed Solution:** Design a virtual health clinic that uses AI to simulate patient consultations and monitor health metrics.

## AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze data on healthcare access and patient needs.

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- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design a virtual health clinic that offers AI-driven patient monitoring.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual clinic and manage project timelines.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Human body, healthcare, technology in medicine.
  - **Math:** Data analysis on patient health metrics.
  - **English:** Writing patient reports and presenting healthcare solutions.
  - **Technology:** Understanding AI applications in healthcare.

#### **Ethical & Moral Development:**

- Promoting empathy, access to healthcare, and patient privacy.

#### **Industry Interest:**

- Health technologies, telemedicine, and patient care.

#### **Role Performance:**

- **Market Researcher:** Accuracy in healthcare data analysis.
- **Solution Designer:** Innovation in creating a virtual health clinic.
- **Digital Marketer:** Success in promoting the clinic.

**Tools:** MIT App Inventor, Figma, Trello, Canva, Google Docs, ChatGPT, CallAnnie.

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#### **15. Climate Change Awareness Campaign - Grade 4,5**

- **Industry:** Environmental Science
- **Problem:** How can we raise awareness about climate change and its effects on our environment?
- **Proposed Solution:** Design an awareness campaign that educates the public about climate change through digital tools.

#### **AI-Based Roles:**

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- **AI-Based Market Researcher & Data Analyst:** Research climate change effects and collect data on public awareness.
- **AI-Based Solution Designer & Developer:** Create an interactive presentation or website to educate the public on climate change.
- **AI-Based Digital Marketer & Project Manager:** Manage the awareness campaign and promote it using digital tools.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Climate change, ecosystems, sustainability.
  - **Math:** Data analysis of climate trends.
  - **English:** Writing reports and creating climate awareness materials.
  - **Social Studies:** Understanding the societal impact of climate change.

#### **Ethical & Moral Development:**

- Promoting awareness of environmental responsibility and the impact of human activities on the planet.

#### **Industry Interest:**

- Climate science, environmental policy, and digital marketing.

#### **Role Performance:**

- **Market Researcher:** Depth of research on climate change.
- **Solution Designer:** Effectiveness of the digital campaign design.
- **Digital Marketer:** Impact of the awareness campaign and its reach.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

## **16. Designing a Smart Waste Management System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can cities optimize waste collection and reduce environmental impact?
- **Proposed Solution:** Develop a model that uses sensors and data analysis to optimize waste collection routes and schedules.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current waste management practices and analyze data on waste production.
- **AI-Based Solution Designer & Developer:** Design a system that uses sensors to track waste levels and optimize collection routes.
- **AI-Based Digital Marketer & Project Manager:** Manage the project timeline and create awareness materials to educate the community on waste management.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Waste management, environmental impact.
  - **Math:** Data analysis and route optimization.
  - **English:** Writing reports and presenting the waste management solution.
  - **Social Studies:** Understanding the societal and environmental impact of waste management.

### Ethical & Moral Development:

- Promoting environmental responsibility and efficient resource management.

### Industry Interest:

- Environmental engineering and waste management.

### Role Performance:

- **Market Researcher:** Quality of research on waste management systems.
- **Solution Designer:** Innovation and practicality in designing the waste management system.
- **Digital Marketer:** Success in promoting the solution.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, ChatGPT, CallAnnie.

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## 17. Creating a Local History and Culture Website - Grade 5,6

- **Industry:** Social Studies and Media

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- **Problem:** How can we preserve and showcase the local history and culture of our community?
- **Proposed Solution:** Create a website that presents key historical events, cultural artifacts, and traditions of the local community.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research local history and culture, analyze historical data.
- **AI-Based Solution Designer & Developer:** Design and build the website using digital tools to present local history.
- **AI-Based Digital Marketer & Project Manager:** Promote the website and manage the project timeline.

#### Assessments:

- **Curriculum Assessment:**
  - **Social Studies:** Local history, traditions, and community.
  - **English:** Writing articles and creating content for the website.
  - **Technology:** Website design and development.
  - **Art:** Designing the visual layout of the website.

#### Ethical & Moral Development:

- Teaching respect for cultural diversity and the importance of preserving local history.

#### Industry Interest:

- Media production, digital storytelling, and local history.

#### Role Performance:

- **Market Researcher:** Depth and accuracy of historical research.
- **Solution Designer:** Creativity in designing the website layout.
- **Digital Marketer:** Effectiveness in promoting the website.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

## 18. Designing an Eco-Friendly School Playground - Grade 4,5

- **Industry:** Environmental Science and Design
- **Problem:** How can we design a school playground that minimizes environmental impact and promotes sustainability?
- **Proposed Solution:** Design a playground using sustainable materials and renewable energy sources (e.g., solar-powered lights).

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research eco-friendly materials and playground designs.
- **AI-Based Solution Designer & Developer:** Design the playground layout using sustainable materials.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to raise awareness about the eco-friendly playground and manage project timelines.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Sustainable materials, renewable energy.
  - **Math:** Measurement and calculation of playground dimensions.
  - **English:** Writing proposals for the playground design.
  - **Art:** Designing the layout of the eco-friendly playground.

### Ethical & Moral Development:

- Promoting sustainability and environmental responsibility.

### Industry Interest:

- Environmental design, landscape architecture, and sustainability.

### Role Performance:

- **Market Researcher:** Accuracy in researching eco-friendly materials.
- **Solution Designer:** Creativity in designing the playground layout.
- **Digital Marketer:** Effectiveness in raising awareness about the playground.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Microsoft Excel, Google Forms, ChatGPT, CallAnnie.

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## 19. Building a Weather Station and Forecasting System - Grade 5,6

- **Industry:** Meteorology and Technology
- **Problem:** How can we create a weather station that helps monitor local weather conditions and forecast future trends?
- **Proposed Solution:** Build a simple weather station to monitor temperature, rainfall, and wind speed, and use data to create weather forecasts.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze weather data from the station.
- **AI-Based Solution Designer & Developer:** Design and build the weather station and integrate sensors for data collection.
- **AI-Based Digital Marketer & Project Manager:** Promote the weather station project and manage data presentation.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Weather systems, data collection, and analysis.
  - **Math:** Data handling and graphing weather data.
  - **English:** Writing weather reports and presenting findings.
  - **Technology:** Building and programming the weather station.

### Ethical & Moral Development:

- Promoting responsibility for environmental monitoring and preparedness.

### Industry Interest:

- Meteorology, climate science, and data analysis.

### Role Performance:

- **Market Researcher:** Thoroughness in collecting and analyzing weather data.
- **Solution Designer:** Effectiveness of the weather station design.
- **Digital Marketer:** Impact of promotional materials for the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

---

## 20. Animal Habitat Preservation Project - Grade 5,6

- **Industry:** Wildlife Conservation and Environmental Science
- **Problem:** How can we protect endangered animal habitats and raise awareness about conservation efforts?
- **Proposed Solution:** Design a project that promotes habitat conservation and uses AI to monitor the health of local ecosystems.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research endangered species and analyze habitat loss data.
- **AI-Based Solution Designer & Developer:** Design an app or tool that tracks the health of animal habitats and promotes conservation efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the conservation project and manage community outreach.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Animal habitats, ecosystems, and conservation.
  - **Math:** Data analysis of habitat loss and species numbers.
  - **English:** Writing reports on conservation efforts and habitat protection.
  - **Social Studies:** Understanding human impact on the environment and the need for conservation.

### Ethical & Moral Development:

- Promoting respect for wildlife and the importance of conservation.

### Industry Interest:

- Wildlife conservation, environmental science, and technology.

### Role Performance:

- **Market Researcher:** Thoroughness in researching endangered species.

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- **Solution Designer:** Creativity in designing the conservation tool.
- **Digital Marketer:** Success in promoting conservation efforts.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

## 21. Designing an Eco-Friendly Sports Facility - Grade 5,6

- **Industry:** Environmental Science and Physical Education
- **Problem:** How can we design a sports facility that promotes physical activity and minimizes environmental impact?
- **Proposed Solution:** Create a layout for a sports facility that uses renewable energy, recycled materials, and water conservation practices.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current sports facility designs and analyze data on energy use and environmental impact.
- **AI-Based Solution Designer & Developer:** Design the facility layout using sustainable materials and renewable energy sources.
- **AI-Based Digital Marketer & Project Manager:** Create awareness campaigns promoting physical activity and environmental responsibility.

### Assessments:

- **Curriculum Assessment:**
  - **Physical Education:** Importance of physical activity and sports.
  - **Science:** Renewable energy, recycling, and environmental sustainability.
  - **Math:** Measurement and calculation of facility dimensions and energy savings.
  - **English:** Writing reports on the design and presenting it to the class or school community.

### Ethical & Moral Development:

- Promoting teamwork, physical activity, and environmental responsibility.

### Industry Interest:

- Physical education, environmental science, and sports management.

### Role Performance:

- **Market Researcher:** Quality of research on sports facility designs.
- **Solution Designer:** Creativity and practicality in designing the sports facility.
- **Digital Marketer:** Effectiveness in promoting the facility and encouraging physical activity.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

---

### 22. Creating a School Nutrition Program - Grade 5,6

- **Industry:** Health and Nutrition
- **Problem:** How can we improve student health through better nutrition?
- **Proposed Solution:** Design a healthy meal plan for the school cafeteria that considers balanced nutrition and promotes healthy eating habits.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research healthy meal plans and analyze data on student eating habits.
- **AI-Based Solution Designer & Developer:** Design a nutrition program for the school cafeteria, incorporating local, healthy food options.
- **AI-Based Digital Marketer & Project Manager:** Promote the nutrition program with educational campaigns on healthy eating.

### Assessments:

- **Curriculum Assessment:**
  - **Health Education:** Importance of balanced nutrition and healthy eating.
  - **Science:** Human body and nutrition.
  - **Math:** Measuring portion sizes, data analysis on food choices.
  - **English:** Writing reports on nutrition and presenting it to students and staff.

### Ethical & Moral Development:

- Promoting responsibility for personal health and well-being.

### Industry Interest:

- Nutrition, health sciences, and food management.

### Role Performance:

- **Market Researcher:** Quality of research on healthy food options.
- **Solution Designer:** Creativity and practicality in designing the meal plan.
- **Digital Marketer:** Success in promoting the program.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 23. Financial Literacy Market Simulation - Grade 4,5

- **Industry:** Business and Economics
- **Problem:** How can we teach students the basics of budgeting, saving, and spending?
- **Proposed Solution:** Create a virtual market where students simulate running a small business, including managing a budget and making financial decisions.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Analyze market trends and customer preferences.
- **AI-Based Solution Designer & Developer:** Design a virtual market simulation where students run a small business.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual market and manage business decisions.

### Assessments:

- **Curriculum Assessment:**
  - **Math:** Budgeting, financial planning, and data handling.
  - **English:** Writing reports and presenting business proposals.
  - **Social Studies:** Understanding economic principles and entrepreneurship.

### Ethical & Moral Development:

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- Teaching responsibility in financial decision-making and honesty in business practices.

#### Industry Interest:

- Business, economics, and entrepreneurship.

#### Role Performance:

- Market Researcher:** Effectiveness in researching market trends.
- Solution Designer:** Innovation and creativity in designing the business simulation.
- Digital Marketer:** Success in promoting the market.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

---

#### 24. Building Instruments from Recycled Materials - Grade 3,4

- Industry:** Music and Performing Arts
- Problem:** How can we create musical instruments using recycled materials to promote sustainability and creativity?
- Proposed Solution:** Design and build musical instruments from recycled materials, then organize a school performance using these instruments.

#### AI-Based Roles:

- AI-Based Market Researcher & Data Analyst:** Research musical instruments made from recycled materials and analyze sound quality.
- AI-Based Solution Designer & Developer:** Design and build simple instruments using recycled materials.
- AI-Based Digital Marketer & Project Manager:** Organize and promote a school performance using the recycled instruments.

#### Assessments:

- Curriculum Assessment:**
  - Music:** Sound and music theory, performance skills.
  - Science:** Properties of materials, sound waves.

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- **Art:** Designing and building creative instruments.
- **English:** Writing descriptions of instruments and promoting the performance.

#### Ethical & Moral Development:

- Promoting creativity, resourcefulness, and environmental sustainability.

#### Industry Interest:

- Music, environmental science, and performing arts.

#### Role Performance:

- **Market Researcher:** Accuracy in researching recycled materials for instruments.
- **Solution Designer:** Creativity in instrument design.
- **Digital Marketer:** Effectiveness in promoting the performance.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 25. Peer Mentoring and Emotional Intelligence Program - Grade 3,4

- **Industry:** Social and Emotional Learning (SEL)
- **Problem:** How can we promote teamwork, leadership, and emotional intelligence in schools?
- **Proposed Solution:** Organize a peer mentoring program where older students help younger students solve academic or social challenges, fostering leadership and empathy.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect data on peer mentoring programs and analyze their effectiveness.
- **AI-Based Solution Designer & Developer:** Design a mentoring program that pairs students and includes emotional intelligence activities.
- **AI-Based Digital Marketer & Project Manager:** Promote the program within the school and manage the timeline.

#### Assessments:

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- **Curriculum Assessment:**

- **Social Studies:** Understanding leadership, teamwork, and community involvement.
- **English:** Writing reports and reflections on mentoring experiences.
- **Science:** Brain development and emotional intelligence.

### **Ethical & Moral Development:**

- Promoting empathy, leadership, and social responsibility.

### **Industry Interest:**

- Leadership development, education, and social services.

### **Role Performance:**

- **Market Researcher:** Quality of research on mentoring programs.
- **Solution Designer:** Creativity in designing emotional intelligence activities.
- **Digital Marketer:** Success in promoting the mentoring program.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie

# EAD Assessment Criteria

## Step 1 : Research & Data Collection

**Objective:** Gather real-world data related to the project using surveys and research.

**Tasks:**

1. Define the research problem and how AI can help solve it.
2. Design a **Google Forms** survey for data collection.
3. Distribute the survey to at least 10 people.
4. Collect and summarize responses.

 **Deliverables:**

- Research Report (1-page summary)
- Google Forms Survey (at least 10 responses)
- Short Video/Audio explaining findings

**Rubric: Research & Data Collection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Survey Structure</b>	Clear, well-organized, no bias, diverse questions	Mostly clear, some unclear wording	Basic structure, lacks variety in questions	Poorly structured, biased, or incomplete
<b>Data Collection</b>	10+ valid responses collected	7-9 responses, mostly valid	4-6 responses, some missing data	Less than 4 responses, missing critical data
<b>Research Depth</b>	Uses credible sources, includes AI integration	Good sources, some AI references	Limited sources, minimal AI discussion	No sources or AI discussion included

---

## Step 2.1: Data Analysis & Visualization

**Objective:** Organize and analyze collected data using charts and AI tools.

**Tasks:**

1. Input survey data into **Google Sheets**.
2. Use AI tools to identify patterns in the data.
3. Create visual representations (bar charts, pie charts, graphs).
4. Summarize findings in a short data analysis report.

 **Deliverables:**

- Data Spreadsheet (Google Sheets)
- AI-Generated Graphs/Charts
- Summary of Data Insights

**Rubric: Data Analysis & Visualization**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Data Organization</b>	Data is structured, accurate, and complete	Mostly structured, minor errors	Some organization issues, missing elements	Disorganized, missing major parts
<b>Visualization</b>	Graphs/charts are clear, well-labeled, insightful	Mostly clear, lacks full explanation	Basic graphs, limited insight	No graphs, unclear or missing labels
<b>Analysis Quality</b>	Identifies trends, includes AI insights	Identifies trends, some AI integration	Basic description, no AI insight	No analysis, data left unexplained

---

## Step 2.2: User Interface (UI) Design

**Objective:** Design the user interface of the AI assistant using Figma.

**Tasks:**

1. Sketch a user-friendly layout for the AI assistant.
2. Use **Figma** to create a digital wireframe.
3. Ensure buttons, text fields, and chatbot interactions are clear.
4. Conduct a basic **usability test** for improvements.

 **Deliverables:**

- Figma Wireframe
- AI Usability Testing Summary
- User Experience Feedback Report

**Rubric: UI/UX Design**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Wireframe Design</b>	UI well-structured, follows best practices	Mostly clear but some UI issues	Basic layout, lacks usability	No wireframe or unclear layout
<b>User Experience</b>	Intuitive, easy-to-use navigation	Mostly clear, needs minor improvements	Some confusing UI elements	Poorly structured, difficult to use
<b>Usability Testing</b>	Feedback collected, applied improvements	Some usability feedback incorporated	Limited feedback, minimal changes	No usability test performed

---

## Step 3: AI Development & Coding

**Objective:** Build an AI-powered prototype or chatbot for recycling assistance.

**Tasks:**

1. Use **Scratch/Code.org** to develop a chatbot or AI simulation.
2. Implement AI logic to classify recyclable materials.
3. Debug and refine the AI's response accuracy.
4. Test AI functionality through multiple inputs.

📌 **Deliverables:**

- AI Prototype (Scratch/Code.org)
- Debugging Report
- Short Demo Video (Screen recording)

**Rubric: AI Development & Coding**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>AI Logic &amp; Functionality</b>	AI assistant fully functional, handles multiple inputs	Mostly functional, some errors	Basic function, lacks dynamic responses	Non-functional or incomplete code
<b>Coding Structure</b>	Well-organized, follows best practices	Mostly structured, minor redundancies	Some structure, inefficient code	Poorly structured, lacks clarity

<b>Debugging &amp; Refinement</b>	Errors fixed, AI accuracy optimized	Some minor bugs remain	Some debugging attempted	No debugging, significant errors remain
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## Step 5: Branding & Community Engagement

**Objective:** Develop branding materials and promote the AI assistant.

**Tasks:**

1. Use **Canva** to create a logo and branding kit.
2. Design a **poster or social media campaign**.
3. Share the AI assistant with the school or local community.
4. Collect user feedback on branding effectiveness.

 **Deliverables:**

- Canva-based Branding Kit (Logo, Social Media Post)
- Promotional Video or Flyer
- Social Media Campaign Post

**Rubric: Branding & Community Engagement**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Branding Consistency</b>	Logo, colors, and messaging are aligned	Mostly consistent, minor adjustments needed	Basic branding, lacks cohesion	No branding materials included
<b>Social Media Promotion</b>	Engaging, well-designed campaign	Mostly clear, minor visual issues	Basic design, lacks engagement	No social media promotion created
<b>Community Interaction</b>	Successfully reached audience, collected feedback	Some engagement, basic feedback	Limited engagement, no feedback	No promotion or engagement

---

## Step 6: Final Presentation & Reflection

**Objective:** Present the AI assistant, insights, and learning reflections.

**Tasks:**

1. Create a **Google Slides** presentation summarizing the project.
2. Include problem statement, AI features, data insights, branding elements.
3. Deliver a **5-minute presentation**.
4. Write a **reflection essay** on key learnings.

 **Deliverables:**

- Google Slides Presentation
- 5-Minute Video Presentation
- Final Reflection Essay

**Rubric: Final Presentation & Reflection**

Criteria	Excellent (10 pts)	Good (7-9 pts)	Needs Improvement (4-6 pts)	Incomplete (0-3 pts)
<b>Presentation Structure</b>	Clear, well-organized, engaging visuals	Mostly clear, some structural issues	Basic slides, lacks flow	Poorly structured, minimal effort
<b>Delivery &amp; Speaking Skills</b>	Confident, clear speech, interactive	Mostly clear, minor hesitations	Needs more confidence, lacks clarity	Unclear delivery, minimal engagement
<b>Reflection Depth</b>	Thoughtful analysis, strong learning points	Good insights, some areas could be deeper	Basic reflections, lacks depth	No reflection, minimal engagement

---

# EAD - AI Powered Kids Incubator

## Level 2 - (Grade 3 - 5)

**Guided Booklet for Schools / Teachers / Parents - Complete Day by Day Roadmap to include kids for AI powered PBL for kids**

(Recommended - At Least 2 Projects / Year for every Kid)

(20 Days - Day by Day Guided Tasks with 1 Project execution)

[\*\*Register Here\*\*](#) to get

- **Free 2025 Subscription on EAD AI-Powered Incubator Platform Level 2(Grade 3 - 5) and Level 3(Grade 6 - 8) Launch** to develop kids with AI and Entrepreneurship
- Teacher Training

Website - <https://technogroup.ai/>

LinkedIn - <https://www.linkedin.com/company/tgo-ead/>

Company Upwork Profile - <https://www.upwork.com/agencies/technogroup/>

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## Introduction

Welcome to **EarlyAgeDevelopment (EAD)**, an AI-powered Kids Incubator designed to prepare young minds for the world of tomorrow! This book is your guide to unlocking the potential of students in grades 3-5 through project-based learning (PBL) that blends core curriculum subjects with real-world problem-solving. By aligning critical thinking, creativity, and collaboration with essential skills, we aim to create an immersive, engaging learning experience that goes beyond traditional education.

At EAD, we believe that every child is capable of making a difference. By engaging in AI-driven projects, students not only gain practical skills but also explore industry applications, from understanding how data informs decisions to creating chatbots that enhance customer interactions. This journey empowers them with insights and tools to shape their future.

### Mission

Our mission at EarlyAgeDevelopment is to inspire and empower young learners with hands-on experiences in AI-driven roles, cultivating curiosity, creativity, and the skills needed to thrive in an ever-evolving world. Through aligned projects, we support both academic growth and real-world preparedness, ensuring students are equipped for the future of work where AI and technology drive every industry.

### Vision

We envision a world where students can bridge school learning with real-world applications seamlessly. Through AI-enhanced, project-based learning, we aspire to foster a generation of problem-solvers, innovators, and leaders who understand their potential across diverse fields. With a focus on creativity, sustainability, and future readiness, EAD provides a path for students to develop skills for tackling global challenges in an AI-powered landscape.

### Why Project-Based Learning (PBL)?

At EAD, we believe students learn best through active engagement. **Project-Based Learning (PBL)** connects academic subjects with industry-aligned, practical projects, making education relevant and exciting. Our projects are crafted to:

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- **Encourage Collaboration:** Students take on roles that reflect real-world, AI-powered careers, promoting teamwork and shared purpose.
- **Foster Critical Thinking:** By addressing industry-specific challenges, students learn to think critically and devise innovative solutions.
- **Promote Creativity:** Through design, development, and presentation, students exercise their creativity while exploring new ideas.

### AI-Powered Roles for Future-Ready Skills

AI is transforming careers across all industries, and our program introduces students to the following future-critical roles:

- **Market Researcher & Data Analyst (Problem Researcher and Data Analyst Kid):** Gathering insights and analyzing data to inform decisions and strategies.
- **AI-Based Solution Architect (Solution Designer Kid):** Using design thinking and development skills to build real-world solutions.
- **AI-Based Digital Marketer & Project Manager (Presenter Kid):** Learning to promote projects, manage timelines, and engage communities effectively.

By exposing students to these roles, we prepare them with an essential understanding of AI and its applications, better positioning them for the future workforce.

### How This Book Prepares Students for the Future

This book equips students to meet curriculum goals while gaining an understanding of how AI impacts industries. The skills they acquire—data analysis, design, development, and project management—are integral to thriving in tomorrow's careers. These projects, designed to be both enjoyable and meaningful, make learning an exciting journey with real impact.

---

## How to Use This Book

This guide is designed for teachers, parents, and students, offering a hands-on, project-based learning (PBL) experience tailored for grades 3-5. Each project connects real-world problems with AI-powered roles, engaging students in activities that build problem-solving and critical thinking. The three core roles—Market Researcher & Data Analyst, Designer & Developer, and Digital Marketer & Project Manager—integrate STEM, language arts, and environmental science.

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Projects align with educational curriculums like the US Common Core, UK Curriculum, Cambridge, and IB, so students build essential academic and practical skills.

Parents and teachers can use this book to:

- Facilitate collaboration on meaningful projects.
- Help students build a foundation in AI-powered roles to prepare for future careers.
- Integrate interactive tools like Canva, Figma, Trello, ChatGPT, Google Forms, and more.

## Guided Project Path

The book includes two structured learning sections:

1. **Introduction to AI and Technology Basics (First 10 Lessons):**
  - In the first 10 Lessons, students build foundational knowledge with lessons on key concepts in AI, data collection, and project management.
  - **Lessons 1-5:** Interactive activities introduce students to technology basics—data collection, coding, and teamwork tools like Google Forms, Scratch Junior, and Trello.
  - **Lessons 6-10:** Students deepen their understanding of specific roles through hands-on practice in data analysis, solution design, and digital marketing.
2. **Industry-Focused Project (10 More Lessons):**
  - After the initial preparation, students engage in a curriculum-aligned project that connects academic learning with practical skills, demonstrating how AI roles solve real-world problems across industries.

This book is more than a learning guide—it's a launchpad for future-ready skills that students will carry forward in their academic and professional lives. Dive in and let EAD inspire your child's journey to becoming an AI-enabled problem-solver and innovator of tomorrow.

## Industry-Aligned Projects

Each project addresses real-world problems mapped to the curriculum, with AI-based solutions to prepare kids for future AI-driven roles. These projects are freely available on our public website for students to explore independently or with guided support.

# 10 Lessons - Introduction to AI, Data Science and Technology Basics, Project Based Learning

## Preparing Kids to do AI Based Projects

### Lesson 1: Introduction to AI and Technology Basics

Objective:

On Lesson 1, students will get a broad overview of AI, its impact across different industries, and the essential technological concepts they need to understand. By the end of the Lesson, students will have a general understanding of how AI works, its key applications, and how technology is transforming various fields.

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Step-by-Step Instructions:

#### 1. Welcome and Overview of Technology (10 minutes)

- **Teacher Explanation:**

Begin with a brief introduction to the importance of technology in today's world. Explain how technology has revolutionized every field, from healthcare to agriculture to entertainment.

- **Discussion:**

Ask the students: "What kind of technology do you use every day? How do you think technology makes things easier for us?"

Let students share their thoughts to get them comfortable with the topic.

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#### 2. Introduction to AI and its Role in Different Industries (20 minutes)

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- **Teacher Explanation:**

Explain what **Artificial Intelligence (AI)** is, and give a simple definition: “AI is when machines or computers can do tasks that normally need human intelligence—like learning, problem-solving, or even recognizing pictures and words.”

- **Examples of AI in Different Industries:**

- **Healthcare:** AI can help doctors diagnose diseases faster and more accurately.
- **Agriculture:** AI helps farmers monitor their crops and predict the weather.
- **Retail:** AI gives us personalized shopping experiences by recommending products.
- **Transportation:** AI is used in self-driving cars and traffic management systems.

- **Activity:**

Show students a few short videos or clips that illustrate these AI applications. Discuss how AI is being used in each field.

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### 3. Hands-on AI Interaction Using Chatbots or Virtual Assistants (30 minutes)

- **Materials Needed:**

Devices with access to simple AI tools, such as **ChatGPT** or **Google Assistant**.

- **Activity:**

Have students interact with a basic AI-powered virtual assistant or chatbot. Each student can ask a question or try to have the assistant complete a simple task (e.g., ask it to tell a joke or give a weather report).

- **Teacher Explanation:**

After the activity, explain how chatbots and virtual assistants use AI to understand language and provide responses.

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### 4. Understanding Technology Basics (30 minutes)

- **Materials Needed:**

Interactive presentation or handouts about basic technology concepts: hardware, software, the internet, data, and coding.

- **Activity:**  
Divide students into small groups and assign each group one basic concept to explore:
    - **Hardware:** What are computers and devices made of?
    - **Software:** What are apps, games, and programs?
    - **Internet:** How does the internet connect people around the world?
    - **Data:** What is data, and how is it used in AI?
    - **Coding:** How do we tell computers what to do?
  - Each group will spend time researching their topic using simple resources provided by the teacher and will present their understanding to the class.
- 

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**  
Ask students to reflect on the different industries where AI is being used. What industry interested them the most, and why? How do they think technology will change in the next 10 years?
  - **Homework Assignment:**  
Ask students to bring in an example of technology they interact with at home (e.g., a smart device, app, or a website they use frequently) and write a paragraph explaining how it helps them.
- 

## End of Lesson 1

By the end of Lesson 1, students will have a general understanding of technology and AI, how it works in different industries, and how to interact with AI systems like chatbots. This lays the foundation for the rest of the week where they will dive deeper into AI and technology concepts.

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## Lesson 2: Exploring AI Roles and Problem-Solving in Technology

### Objective:

On Lesson 2, students will be introduced to the different roles involved in AI-driven projects (Problem Researcher, Data Analyst, AI Solution Designer, Solution Developer,

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and Digital Marketer). The focus will be on understanding the importance of these roles and how they work together to solve real-world problems.

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#### Step-by-Step Instructions:

##### 1. Recap of Lesson 1 and Introduction to Lesson 2 Objectives (10 minutes)

- **Teacher Explanation:**

Recap what students learned about AI and technology basics from Lesson 1. Introduce today's objective: learning about the different roles in AI projects and how each role contributes to solving a problem.

- **Discussion:**

Ask students: "Have you ever worked on a group project before? What roles do people usually take on in group projects?"

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##### 2. Introduction to AI-Powered Roles (25 minutes)

- **Teacher Explanation:**

Describe the five key roles in AI projects:

- **Problem Researcher:** Gathers information and defines the problem.
- **Data Analyst:** Works with data to find patterns and insights related to the problem.
- **AI Solution Designer:** Designs the AI solution and creates a blueprint for how it will work.
- **Solution Developer:** Develops the actual AI model using programming or coding.
- **Digital Marketer:** Promotes the solution and helps people understand its value.

- **Examples:**

- For a project on **improving traffic management**, the **Problem Researcher** finds the traffic issues, the **Data Analyst** looks at traffic patterns, the **AI Solution Designer** creates a plan for a smart traffic system, the **Solution Developer** builds the AI that runs the traffic lights, and the **Digital Marketer** promotes the benefits to the community.
-

### 3. Team Activity: Role Play and Problem Identification (30 minutes)

- **Materials Needed:**

Whiteboards, markers, and access to simple industry problems (e.g., traffic management, waste management, or water conservation).

- **Activity:**

Split students into small groups, with each group assigned a different industry problem (e.g., water conservation, waste management). Each student in the group will take on one of the five roles:

- **Problem Researcher:** Gathers key information about the problem.
- **Data Analyst:** Looks at the data provided or finds data to understand the scale of the problem.
- **AI Solution Designer:** Starts to think about what kind of AI system could help solve the problem.
- **Solution Developer:** Considers what code or program might be needed.
- **Digital Marketer:** Thinks about how to promote the solution to the public.

- After 20 minutes, each group presents a rough outline of the problem they are trying to solve and how they would use AI.

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### 4. Tool Exploration for Roles (30 minutes)

- **Materials Needed:**

Devices with access to basic tools like Google Scholar (for research), Excel (for data analysis), Figma (for design), and Canva (for marketing).

- **Activity:** Introduce students to the tools they will use for their roles:

- **Problem Researchers:** Use **Google Scholar** to find articles related to the industry problem.
- **Data Analysts:** Start learning how to use **Excel** for basic data input and chart creation.
- **AI Solution Designers:** Explore **Figma** to begin thinking about designing AI solutions.
- **Solution Developers:** Set up a basic coding environment and explore introductory coding concepts.
- **Digital Marketers:** Learn how to use **Canva** to create simple promotional materials.

- Let each student spend 15-20 minutes practicing with their assigned tool.

## 5. Reflection and Homework Assignment (10 minutes)

- **Class Reflection:**

Ask each student to reflect on the role they explored. Do they think they would enjoy doing this role in real life? How do they think their role will help solve the problem their group is working on?

- **Homework Assignment:**

Each student will write a short paragraph about the role they took on today and one thing they learned about using their assigned tool.

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## End of Lesson 2

By the end of **Lesson 2**, students will have a clearer understanding of the different roles in AI-driven projects and will have started exploring the tools associated with each role. They will begin to grasp how these roles work together to solve real-world problems, setting them up for the deeper exploration of AI in the coming days.

## Lesson 3: Introduction to Data Analysis (1-2 hours)

### Objective:

Introduce students to the basics of data analysis, focusing on how data is collected, interpreted, and visualized. Students will learn to input data, create simple charts, and understand the importance of data in decision-making.

### Materials Needed:

- Survey results from Lesson 2 (Google Forms data)
  - Computers/tablets with access to **Google Sheets**
  - Whiteboard and markers for explanations
- 

### Step-by-Step Instructions:

#### 1. Review Data Collected from Surveys (10 minutes)

- **Teacher Explanation:**

Begin by reviewing the survey results that students collected on Lesson 2. Explain how surveys collect data that can be analyzed to identify trends and insights.

- **Discussion:**

Ask students what they found surprising in their survey responses. Did the results match their predictions? Why is collecting data important in making decisions?

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## 2. Input Data into Google Sheets (15-20 minutes)

- **Activity:**

Demonstrate how to input the survey data into **Google Sheets**. Guide the students as they enter their survey responses (e.g., favorite color, favorite animal) into a table format.

- **Example:**

- Column A: Survey question (e.g., "What's your favorite color?")
    - Column B: Response (e.g., "Blue," "Red," etc.)

- **Teacher Guidance:**

Help students organize their data properly and ensure that it's correctly formatted for analysis. Explain that this step is crucial because messy or unorganized data can lead to mistakes.

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## 3. Create a Chart to Visualize Data (15-20 minutes)

- **Activity:**

Demonstrate how to select the data in Google Sheets and create a simple bar chart or pie chart. Show students how visualizing data can help them better understand and communicate results.

- **Example:**

Create a bar chart to show the most popular favorite colors among survey respondents.

- **Discussion:**

Ask students how their chart makes the data easier to understand. Discuss why businesses, scientists, and other professionals use data charts to make decisions.

#### 4. Data Interpretation and Patterns (15 minutes)

- **Teacher Explanation:**

Explain that after data is collected and visualized, the next step is **data interpretation**. Show students how to look for patterns in the charts they've created.

- **Example:**

"If 70% of your class picked blue as their favorite color, what does that tell us about color preferences?"

- **Group Discussion:**

In groups, have students discuss the patterns they found in their data. What does the data suggest about their survey topic? How might this information be used in real-world situations (e.g., for product design or marketing)?

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#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of data analysis. Ask students: "How does data help us make better decisions? Can you think of a time when understanding data would be helpful?"

- **Homework Assignment:**

Each student will collect data from a simple observation (e.g., how many cars pass their street in 10 minutes, how many different animals they see outside) and create a chart to present to the class on Lesson 4.

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#### End of Lesson 3

By the end of Lesson 3, students will understand the process of collecting, entering, and visualizing data using Google Sheets. They will have created simple charts to represent their survey results and begun interpreting data to understand trends and patterns.

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#### **Lesson 4: Introduction to Data Visualization and Problem Solving with AI (1-2 hours)**

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**Objective:**

Teach students how to create data visualizations to better understand information and introduce the role of AI in problem-solving. Students will also explore how AI can use data to make predictions and solve real-world problems.

**Materials Needed:**

- Completed homework (observed data from Lesson 3)
  - Computers/tablets with access to **Google Sheets** or **Google Charts**
  - Whiteboard and markers for explanations
- 

**Step-by-Step Instructions:****1. Review Homework and Discuss Data Observations (10 minutes)**

- **Teacher Explanation:**

Begin by reviewing students' homework. Ask a few students to share the data they collected (e.g., how many cars passed, how many animals they saw, etc.).

- **Discussion:**

Encourage students to reflect on the data they collected. What patterns did they notice? Was the data different from what they expected?

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**2. Visualizing Data Collected from Homework (20 minutes)**

- **Activity:**

Have students input their homework data into **Google Sheets**. Demonstrate how to create a chart from their data (e.g., bar charts or line graphs).

- **Example:**

If a student counted cars passing their house, they could create a **bar chart** showing the number of cars observed over time.

- **Teacher Guidance:**

Guide students through the chart creation process and ensure they understand how visualizations help in presenting data clearly.

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### 3. Introduction to Problem Solving with AI (15 minutes)

- **Teacher Explanation:**

Explain that **AI** is like a very smart tool that can look at data and help solve problems. AI systems can predict things, help make decisions, and even come up with new ideas.

- **Example:**

“AI can look at the weather and predict if it’s going to rain tomorrow, or it can look at traffic data and tell us the best way to get to school.”

- **Discussion:**

Ask students how they think AI might use the data they collected. Could AI help predict how many cars will pass by tomorrow, or which color will be most popular next month?

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### 4. Fun Activity: Predicting the Future with Data (15 minutes)

- **Activity:**

Have students use the data they collected to make a prediction. For example, if a student counted how many cars passed their house, they could predict how many cars will pass tomorrow based on today’s data.

- **Example:**

“If 10 cars passed in 10 minutes today, how many cars do you think will pass tomorrow at the same time?”

- **Teacher Explanation:**

Explain that AI does something similar—it uses data from today to predict what will happen tomorrow. This is called **data-driven decision-making**.

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### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how AI helps people make predictions using data. Ask students: “What are some other ways we could use data to predict things? How could AI help farmers, doctors, or teachers?”

- **Homework Assignment:**

Each student will choose a problem they think AI could help solve. They will write

a paragraph about the problem and how they think AI could use data to find a solution.

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## End of Lesson 4

By the end of Lesson 4, students will understand how data can be visualized to make it easier to understand and how AI uses data to solve problems and make predictions. They will also have explored how AI could help with real-world problems based on the data they have collected.

## **Lesson 5: Introduction to Project Management and Collaboration (1-2 hours)**

### Objective:

Introduce students to the basics of project management and team collaboration using tools like Trello. The aim is to help them understand how professionals organize tasks and work together effectively in a project.

### Materials Needed:

- Access to Trello (or a similar project management tool) on tablets or computers.
  - Whiteboard and markers for visual demonstration.
- 

### Step-by-Step Instructions:

#### 1. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain that **project management** is the process of organizing tasks to complete a project efficiently. Compare it to planning a party: before the party can happen, tasks like sending invitations, buying decorations, and preparing food need to be done in the right order.

- **Examples of Project Management:**

- Building a house (you can't put on the roof before the walls).
- Planning a class event (choosing a theme, sending invitations, decorating).

## 2. Introducing Trello (15 minutes)

- **Materials Needed:**

Trello or an equivalent project management tool, pre-set project board for demonstration.

- **Teacher Demonstration:**

Show students how **Trello** works by demonstrating the basics: how to create boards, lists, and task cards.

- **Board:** Represents the entire project (e.g., creating an app, completing a recycling campaign).
  - **Lists:** Organize tasks into categories (e.g., "To Do," "In Progress," "Done").
  - **Cards:** Represent specific tasks (e.g., "Design logo," "Collect survey data").
- 

## 3. Hands-on Activity: Creating a Trello Board (20 minutes)

- **Activity:**

Have students work in groups to create their own **Trello boards** for a class project. Assign each group a project, such as "Building a Recycling App" or "Creating a School Newsletter."

- **Step 1:** Create a board for the project.
- **Step 2:** Create lists like "To Do," "In Progress," and "Done."
- **Step 3:** Add task cards to each list (e.g., "Research recycling facts," "Design app interface," "Write article for newsletter").

- **Group Discussion:**

Ask students how organizing tasks in this way can help them keep track of progress. How does it feel to see tasks move from "To Do" to "Done"?

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## 4. Fun Challenge: Moving Cards Across Lists (15 minutes)

- **Activity:**

Let students complete a few simple tasks (e.g., design a simple logo in Canva,

collect data from their surveys) and **move cards from "To Do" to "Done"** on Trello.

- This will give them a sense of accomplishment as they visually see their progress.
- 

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Discuss how professionals use project management tools to stay organized in the workplace. Ask students:

"How do you think using a tool like Trello will help us when we start working on our projects next week?"

- **Homework Assignment:**

Students should complete a task related to their role (e.g., finish collecting data for their project or create a draft of their design) and move their task card in Trello from "To Do" to "In Progress."

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## End of Lesson 5

By the end of Lesson 5, students will have a clear understanding of **project management** and how to use tools like **Trello** to organize tasks and work collaboratively. They will have created their own project boards and started moving tasks along the workflow, preparing them for future project work.

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## Lesson 6: AI-Powered Market Researcher (1-2 hours)

### Objective:

Introduce students to the role of a **Market Researcher** in AI-driven projects. Students will learn how data collection and analysis are used by businesses to understand customer preferences and make decisions.

### Materials Needed:

- Access to Google Forms and Google Sheets.

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- Computers/tablets with internet access.
  - Example data (if needed).
- 

### Step-by-Step Instructions:

#### 1. Introduction to Market Research (10 minutes)

- **Teacher Explanation:**

Explain that a **Market Researcher** helps businesses learn what people like and don't like. They collect information (data) by asking people questions, and then analyze it to help companies decide what products to make or improve.

- **Example:**

A Market Researcher might survey people to find out what flavor of ice cream they like best, or what new toys children are interested in.

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#### 2. Creating a Simple Survey (15-20 minutes)

- **Materials Needed:**

Google Forms on a computer or tablet.

- **Activity:**

Demonstrate how to create a basic survey using **Google Forms**. Each student will create a short survey with 3-4 questions (e.g., "What's your favorite snack?", "What's your favorite hobby?").

- Have students share the survey link with family members, friends, or classmates to collect responses.

- **Teacher Guidance:**

Help students design clear, easy-to-answer questions. Remind them that the information they gather will be used to help make decisions, just like a real market researcher.

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#### 3. Predicting the Survey Results (15 minutes)

- **Activity:**

Before the survey responses come in, have students predict what the most

popular answers will be. For example, they might guess that “chocolate” will be the most popular snack or that “video games” will be the most popular hobby.

- Have a brief class discussion about their predictions.
- 

#### 4. Analyzing Survey Data (20 minutes)

- **Materials Needed:**

Google Sheets on computers or tablets.

- **Activity:**

Once survey responses are collected, students will input the data into **Google Sheets**. Demonstrate how to create a simple **bar chart** or **pie chart** from the data.

- **Example:**

If the survey asked about favorite snacks, create a bar chart to show how many people picked “chocolate” versus “chips.”

- **Teacher Explanation:**

Explain how businesses use these charts to make decisions. For example, if a survey shows that most people prefer chocolate, a company might decide to make more chocolate-flavored products.

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#### 5. Group Discussion: How Does Data Help? (10 minutes)

- **Class Discussion:**

Ask students:

“How do the survey results help a company know what people like? How do you think AI can help businesses collect even more data to make better decisions?”

- Encourage students to think about how data is used to understand trends and preferences in the real world.
- 

#### 6. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the role of a **Market Researcher** and how AI plays a role in data collection and decision-making. Ask students:

"What's something new you learned today about how companies use data to make decisions?"

- **Homework Assignment:**

Ask students to think of one product or service they use regularly (e.g., a favorite toy, game, or snack). Have them write a short paragraph about how a company might use market research to improve that product.

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## End of Lesson 6

By the end of Lesson 6, students will have a solid understanding of the **Market Researcher** role, how data is collected using surveys, and how that data is analyzed to help businesses make informed decisions. They will have created their own surveys, predicted outcomes, and analyzed real-world data using charts.

## Lesson 7: AI-Driven Business and Data Analyst (1-2 hours)

### Objective:

Introduce students to the role of a **Business and Data Analyst** and how data analysis is used to make informed decisions in various industries. Students will learn how businesses use data to identify trends and opportunities.

### Materials Needed:

- Computers/tablets with access to **Google Sheets** or any spreadsheet software.
  - Sample dataset related to business (e.g., sales data, customer preferences).
- 

### Step-by-Step Instructions:

#### 1. Introduction to Business and Data Analysis (10 minutes)

- **Teacher Explanation:**

Explain the role of a **Business and Data Analyst**. They use data to help companies understand their customers, improve their products, and make better decisions.

- **Example:**

A data analyst might look at the sales data of a store to see which products are most popular. They can use this information to decide which products to stock more of.

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## 2. Activity: Analyzing Classroom Data (20-25 minutes)

- **Materials Needed:**

Google Sheets with a preloaded sample dataset (e.g., types of products sold and how many were purchased each day).

- **Activity:**

Have students input the data from the sample dataset into **Google Sheets**. The dataset could include details like:

- Products sold (e.g., books, pencils, snacks)
- Number of units sold each day
- Customer preferences (e.g., which products customers rated highly)

- Show students how to create a **bar chart** or **pie chart** from the data to visualize which product is the most popular.

- **Teacher Explanation:**

Explain how visualizing the data helps businesses quickly understand trends (e.g., which products are selling the most). Encourage students to think about how data analysis can help businesses decide what to stock and how much.

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## 3. Discussion: Identifying Trends (15 minutes)

- **Teacher Guidance:**

Ask students to look at their charts and identify patterns. For example:

- "Are there certain days when more snacks are sold?"
- "Which product is the most popular?"

- Help students understand how finding trends in data helps businesses make smarter decisions. For example, if a certain product sells better on Fridays, businesses may want to stock more of it that day.

- **Group Discussion:**

Encourage students to discuss how the data they analyzed could be used to improve a store's sales strategy. How could a store owner use this data to plan for the future?

#### 4. Fun Task: Business Data Analyst for a Lesson (15 minutes)

- **Activity:**

Let students pretend they are a **Business Data Analyst** for a toy store. Based on their analysis of the sample dataset, they will write a short paragraph explaining which toys the store should stock more of and why. They can use the data and charts they created to support their argument.

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#### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how businesses rely on data to make decisions. Ask students: “What is something new you learned today about how businesses use data to decide what products to sell?”

- **Homework Assignment:**

Students should look around their home or local stores and take note of what products are most popular. Have them write a paragraph predicting which items the store might need to restock based on what's sold out or in high demand.

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#### End of Lesson 7

By the end of Lesson 7, students will have an understanding of the role of a **Business and Data Analyst** and how data is used to make business decisions. They will have analyzed a sample dataset, created visualizations, and used data to make business recommendations.

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### Lesson 8: Solution Developer (Basic AI Concepts) (1-2 hours)

Objective:

Introduce students to the role of a **Solution Developer**, with a focus on how AI can be used to solve real-world problems by building apps or tools. Students will engage with simple coding concepts and create a basic solution using Scratch Junior.

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## Materials Needed:

- Tablets/computers with **Scratch Junior** or **MIT App Inventor** installed.
- 

## Step-by-Step Instructions:

### 1. Introduction to AI-Powered Solution Development (10 minutes)

- **Teacher Explanation:**

Explain that a **Solution Developer** is responsible for building tools and apps that solve real-world problems using AI. They use coding and technology to create things like mobile apps, websites, or smart devices.

- **Example:**

A solution developer might build an app to help farmers monitor their crops or create a game that helps students practice math.

- **Discussion:**

Ask students what apps or games they use regularly. How do they think those apps were built? How do apps help solve problems in everyday life?

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### 2. Activity: Building a Simple App with Scratch Junior (30-40 minutes)

- **Materials Needed:**

Scratch Junior or MIT App Inventor on tablets or computers.

- **Activity:**

Guide students in creating a basic app using **Scratch Junior**. The app could be a **simple schedule organizer** where users can input tasks (e.g., homework, chores) and mark them as complete.

- **Step 1:** Show students how to drag blocks to create characters and movement in Scratch Junior.
  - **Step 2:** Have students add buttons that allow users to add or remove tasks.
  - **Step 3:** Guide them in adding basic features like displaying the tasks and marking them as done.

- **Teacher Guidance:**

Help students troubleshoot any issues they encounter and encourage creativity in their app design.

### 3. Fun Challenge: Adding Extra Features (15 minutes)

- **Activity:**

Challenge students to add one or two additional features to their app. For example, they could add sound effects when tasks are completed, or a feature that allows users to set reminders for upcoming tasks.

- Encourage students to think about how additional features can make the app more helpful or fun for users.
- 

### 4. Group Discussion: How Do Apps Solve Problems? (10 minutes)

- **Class Discussion:**

Ask students how the app they created could help people in real life. For example, how would a **schedule organizer** help someone manage their time better? Discuss how apps and tools can make life easier by solving everyday problems.

- Encourage students to think about other apps they could create to solve different problems (e.g., an app to track homework assignments, a game to help people learn math, etc.).
- 

### 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on how apps and tools created by developers help solve problems in different industries. Ask students:

“What’s an app or tool you wish existed? How could it help solve a problem?”

- **Homework Assignment:**

Ask students to come up with an idea for an app that solves a problem in their own life. They should write a short description of the app and explain how it would work.

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### End of Lesson 8

By the end of Lesson 8, students will have a basic understanding of the **Solution Developer** role and how AI-powered apps are built to solve problems. They will have created a simple app using **Scratch Junior** and brainstormed ideas for other apps that could help solve real-world problems.

## Lesson 9: AI-Driven Digital Marketer (1-2 hours)

Objective:

Introduce students to the role of a **Digital Marketer**, focusing on how AI helps companies advertise their products, create branding, and promote their business. Students will design marketing materials using AI-powered tools to understand how digital marketing works in the real world.

Materials Needed:

- Tablets/computers with access to **Canva** or any other free design tool.
- Sample product (real or fictional) for students to market (e.g., a new toy, a school club, or a snack).

---

Step-by-Step Instructions:

### 1. Introduction to Digital Marketing (10 minutes)

- **Teacher Explanation:**

Explain that a **Digital Marketer** helps companies sell their products by creating ads, logos, social media posts, and other promotional materials. Digital marketers use AI to understand what customers want and how to best promote products to them.

- **Example:**

Explain how companies use AI to show ads to people based on their interests. For example, if someone watches a lot of videos about soccer, they might see ads for soccer gear or games.

- **Discussion:**

Ask students if they've ever seen ads on websites or social media. How do they think companies decide what ads to show?

## 2. Activity: Designing a Logo in Canva (30-40 minutes)

- **Materials Needed:**

Access to **Canva** or another design tool on tablets or computers.

- **Activity:**

Have students create a logo for a fictional product, school club, or business.

Guide them through using templates, adding colors, fonts, and images.

- **Step 1:** Show students how to choose a logo template in Canva.
- **Step 2:** Guide them through customizing the template (e.g., changing the name, adding colors, or choosing icons).
- **Step 3:** Have students think about how their logo represents their product or business (e.g., Does it show what the business does? Is it eye-catching?).

- **Teacher Guidance:**

Help students understand the importance of a clear, simple, and memorable logo. Encourage creativity and uniqueness in their designs.

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## 3. Fun Challenge: Create a Social Media Ad (15 minutes)

- **Activity:**

After students have created their logos, ask them to design a simple social media ad (e.g., an Instagram post or Facebook ad) using Canva. The ad should promote the product or business they created a logo for.

- **Example:**

If a student created a logo for a "Junior Bakers Club," they might create an ad that invites new members to join the club. The ad could feature a fun slogan, an image of baked goods, and their new logo.

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## 4. Group Discussion: How AI Helps in Digital Marketing (10 minutes)

- **Class Discussion:**

Ask students how they think companies decide where to show their ads. Explain that **AI** helps companies understand what people like and shows ads to the right audience.

- **Example:**

A company might use AI to figure out which colors or slogans work best for their ads. AI can also tell companies which ads are getting the most clicks and which ones need improvement.

---

## 5. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the importance of digital marketing. Ask students:  
“How does creating a logo and ad help a company or club stand out? How do you think AI can help companies improve their marketing?”

- **Homework Assignment:**

Students should design a second ad or promotional material for their product or business, using Canva or another tool. They can use this as part of their upcoming class presentation.

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## End of Lesson 9

By the end of Lesson 9, students will have learned the basics of **Digital Marketing** and the role of AI in helping companies advertise their products. They will have created logos and social media ads, gaining hands-on experience with design tools like Canva.

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## Lesson 10: Project Management Overview and Preparation for Actual Projects (1-2 hours)

### Objective:

Introduce students to **Project Management** and prepare them for their upcoming projects. Students will learn how to use Trello or another project management tool to organize tasks, set deadlines, and work collaboratively.

### Materials Needed:

- Access to **Trello** (or any project management tool) on computers or tablets.

- Predefined class projects (e.g., creating a recycling app, designing a community garden).
- 

### Step-by-Step Instructions:

#### 1. Recap of the Week and Introduction to Project Management (10 minutes)

- **Teacher Explanation:**

Start by recapping everything students have learned over the past week:

- AI roles: Market Researcher, Data Analyst, Solution Developer, Digital Marketer.
- Tools they've used: Google Sheets, Canva, Scratch Junior.

- Explain that today's focus will be on **organizing their projects** and preparing for real-world problem-solving using project management tools.

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#### 2. What is Project Management? (10 minutes)

- **Teacher Explanation:**

Explain the concept of **project management** and how professionals use tools like Trello to plan their work. Project management helps teams break down big projects into smaller, manageable tasks.

- **Example:**

When building a house, workers need to do things in the right order—first, lay the foundation, then build the walls, and finally put on the roof. The same idea applies to other projects.

- **Discussion:**

Ask students how they think managing tasks and deadlines could help them in their schoolwork or future projects.

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#### 3. Introduction to Trello (15 minutes)

- **Materials Needed:**

Access to Trello on tablets or computers.

- **Teacher Demonstration:**

Demonstrate how to use Trello by setting up a **Trello board** for one of the class projects (e.g., designing a recycling app). Show students how to:

- Create **lists** (To Do, In Progress, Done).
  - Add **cards** for each task (e.g., “Research recycling facts,” “Design app interface”).
  - Assign **deadlines** and roles (e.g., assign one student to research and another to design).
- 

#### 4. Group Activity: Setting Up Their Trello Boards (25 minutes)

- **Activity:**

In their project teams, students will create their own **Trello boards** for the upcoming projects. Each group will:

- Create **three lists**: To Do, In Progress, Done.
- Add task **cards** under each list.
- Assign roles and set **deadlines** for each task (e.g., the Data Analyst needs to finish analyzing data by the end of the week, the Solution Developer needs to complete coding within two weeks).
- **Example Project:**  
For a project on designing a community garden, tasks might include:
  - Researching plant types.
  - Drawing garden designs.
  - Building a prototype model.

- **Teacher Guidance:**

Help students think through the tasks and break them down into smaller steps.

Encourage them to set reasonable deadlines and assign tasks based on their team members' strengths.

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#### 5. Fun Activity: Moving Task Cards Across Lists (10 minutes)

- **Activity:**

Let students complete one small task (e.g., researching garden plants) and move their card from **To Do** to **Done**. This helps students see how project management tools help visualize progress.

## 6. Final Discussion: Preparing for Upcoming Projects (10 minutes)

- **Class Discussion:**

Discuss how students will use Trello to manage their projects over the next few weeks. Ask:

- “How does organizing tasks help us work better as a team?”
- “Why is it important to set deadlines for each part of the project?”

- **Teacher Guidance:**

Emphasize that project management helps teams stay on track, meet deadlines, and ensure that all tasks are completed in the right order.

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## 7. Wrap-up and Homework Assignment (5-10 minutes)

- **Class Reflection:**

Reflect on the week and how students will start their projects next week. Ask: “What are you most excited about for your upcoming project? How do you think Trello will help you stay organized?”

- **Homework Assignment:**

Each student should review their assigned tasks on Trello and begin preparing to work on their specific role in the project (e.g., researching, designing, developing).

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## End of Lesson 10

By the end of Lesson 10, students will have a strong understanding of **Project Management** and how to organize their upcoming projects using **Trello**. They will have set up their Trello boards and prepared their project tasks, making them ready to start working on real-world projects the following week.



## Guided Project - Creating a Community Garden with Recycled Materials

**Project Roles:** 3 (“Market Researcher & Data Analyst”, “Solution Designer & Developer”, “Digital Marketer & Project Manager”)

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**Duration:** 10 Lessons (Initial introduction and setup)

### **Project Overview:**

In this project, students will work together to create a sustainable community garden using recycled materials. Each student will take on one of three roles: **Market Researcher & Data Analyst**, **Solution Designer & Developer**, or **Digital Marketer & Project Manager**. They will collaborate to gather community data, design the garden layout, and promote the project to their community. By the end, students will have created a detailed plan for the garden and presented their ideas to their classmates or local community members.

### **Learning Objectives:**

- **Collaboration:** Students will learn to work in teams, share responsibilities, and integrate their work into a cohesive project.
- **Real-World Application:** Students will apply their knowledge of sustainability and recycling to solve a real-world problem (creating a sustainable community garden).
- **Technology Integration:** Students will use tools like Google Forms, Canva, and Trello to manage their project, design promotional materials, and collect community feedback.

### **Curriculum Mapping:**

This project is mapped to multiple subject areas across **US Common Core**, **UK Curriculum**, **Cambridge**, **IB**, and **Pakistan National Curriculum**.

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### **US Common Core Curriculum Mapping:**

#### **1. English Language Arts (ELA):**

- **Writing (W.3.2, W.4.2, W.5.2):** Writing informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- **Speaking & Listening (SL.3.4, SL.4.4, SL.5.4):** Present information clearly, concisely, and logically, supporting main ideas with facts and descriptive details.

**2. Mathematics:**

- **Measurement & Data (MD.3.4, MD.4.4, MD.5.4):** Create and interpret data in graphs, focusing on community survey data and garden layout measurements.
- **Geometry (G.3.1, G.4.1, G.5.1):** Analyze and create garden layouts using geometric shapes and spatial understanding.

**3. Science:**

- **Earth and Human Activity (3-ESS3-1, 4-ESS3-1, 5-ESS3-1):** Focus on human impact on Earth's systems, the benefits of recycling, and sustainability through the creation of the garden.
- 

**UK National Curriculum Mapping:****1. English:**

- **Writing:** Plan, draft, and write clear and coherent informational texts (related to the research and findings from the project).
- **Speaking & Listening:** Develop effective presentation skills by presenting project findings.

**2. Mathematics:**

- **Data Handling:** Use bar charts, tally charts, and pie charts to represent survey data from the community on recycling habits.
- **Measurement:** Calculate the dimensions of the garden and the space needed for different sections, using units of measurement.

**3. Science:**

- **Living Things and Their Habitats:** Learn about plants and ecosystems, linking this to the importance of sustainable gardens and recycling materials.
- 

**Cambridge Curriculum Mapping:****1. English:**

- **Writing & Presenting Information:** Develop skills in writing reports and presenting findings through research and data collection.
- **Speaking & Listening:** Share ideas through discussions and formal presentations during the project.

**2. Mathematics:**

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- **Data Collection and Presentation:** Collect, analyze, and present data from community surveys about recycling and garden preferences.
  - **Geometry:** Use geometric concepts to design the layout of the community garden.
- 3. Science:**
- **Environmental Awareness:** Understand recycling and sustainability, focusing on their application in creating an eco-friendly garden.
- 

### **IB PYP Curriculum Mapping:**

- 1. Language:**
    - **Writing & Research:** Students will gather and present information about recycling and sustainable gardening practices.
    - **Communication:** Students will develop communication skills by presenting their findings to their classmates and community.
  - 2. Mathematics:**
    - **Data Handling:** Interpret survey results and present findings using appropriate visual aids (e.g., bar charts, graphs).
  - 3. Science:**
    - **Science in Society:** Explore how human actions (like recycling) can impact the environment positively, in line with sustainability principles.
- 

### **Pakistan National Curriculum Mapping:**

- 1. English:**
  - **Writing:** Writing informative texts and explanations of the community garden's purpose, sustainability goals, and design process.
  - **Oral Communication:** Present the project's findings to classmates and community members, explaining the importance of recycling and sustainability.
- 2. Mathematics:**
  - **Data Handling:** Collect and analyze survey data, presenting it through graphs and charts.
  - **Geometry:** Use measurement and spatial understanding to plan the layout of the garden.
- 3. Science:**

- **Environmental Science:** Learn about sustainable development, recycling, and human impacts on the environment through the design and creation of the community garden.
- 

## 10 Lessons Roadmap for Market Researcher / Data Analyst

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can recycling reduce waste and help create a sustainable community garden?

**Focus:** The **Market Researcher & Data Analyst** will gather data on community recycling habits, analyze trends, and collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to ensure the garden design aligns with community interests and promotes sustainability. The project will end with a branding effort to promote the initiative.

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#### Lesson 1: Defining the Problem & Creating a Research Plan (1-2 hours)

**Objective:** Understand the project's goals, define the research problem, and develop a data collection plan.

- **Tasks:**

- Use **AI tools** like **ChatGPT** or **Google AI** to research recycling and community gardens. Gather insights to inform survey creation.
- Collaborate with the **Designer & Developer** and **Digital Marketer & Project Manager** to outline the research problem and define how data will support design and promotional strategies.
- Develop a research plan to collect data on recycling habits, materials available for reuse, and community interest in a garden.

**AI Tools:** ChatGPT, Google AI (for research and planning).

**Connection Points:**

- Share initial insights with the **Designer & Developer** to inform early design concepts.

- Align the research plan with the **Digital Marketer & Project Manager** for effective community engagement.
- 

## Lesson 2: Creating a Survey Using AI Tools (1-2 hours)

**Objective:** Create a survey to gather community data on recycling habits and garden participation.

- **Tasks:**

- Use **Google Forms Auto-Generate** or **ChatGPT** to design a survey with questions like, “How often do you recycle?” and “What recycled materials do you have at home?”
- Collaborate with the **Digital Marketer & Project Manager** to ensure the survey is distributed digitally and promoted within the community.
- Finalize the survey and start distributing it through various channels.

**AI Tools:** Google Forms Auto-Generate, ChatGPT (for survey creation).

**Connection Points:**

- Share the survey questions with the **Designer & Developer** to align community input with garden design.
  - Work with the **Digital Marketer & Project Manager** to distribute the survey.
- 

## Lesson 3: Data Collection (1-2 hours)

**Objective:** Collect survey responses and gather observations about recycling behaviors in the community.

- **Tasks:**

- Collect responses via Google Forms or manually with paper-based surveys.
- Observe recycling behaviors in your school or neighborhood (e.g., what materials are recycled and how often).
- Start sharing preliminary findings with the **Designer & Developer** to inform material selection.

**AI Tools:** Google Forms (for data collection).

**Connection Points:**

- Coordinate with the **Digital Marketer & Project Manager** to ensure the survey reaches the community.
  - Share early insights with the **Designer & Developer** for the garden design.
- 

## **Lesson 4: Organizing Data Using AI (1-2 hours)**

**Objective:** Input the collected data into a spreadsheet and begin using AI tools to organize it.

- **Tasks:**
  - Input the data from surveys into **Google Sheets** or **Excel** for easier manipulation.
  - Use **Google AI** or **Microsoft Power BI** to organize the data into categories, such as materials recycled, community awareness of recycling, and interest in the community garden.

**AI Tools:** Google Sheets, Google AI, Microsoft Power BI (for organizing data).

**Connection Points:**

- Share organized data with the **Designer & Developer** to ensure materials for the garden match the community's recycling habits.
- 

## **Lesson 5: Data Visualization & Initial Reporting (1-2 hours)**

**Objective:** Use AI tools to create visual representations of the data and begin reporting key findings.

- **Tasks:**
  - Use **Google AI** or **Power BI** to create charts, such as bar graphs and pie charts, that visualize the survey results (e.g., most commonly recycled materials).
  - Prepare a brief initial report to share with the team, summarizing key insights such as which materials are most available for the garden and the community's level of interest in participating.

**AI Tools:** Power BI, Google Sheets (for data visualization).

**Connection Points:**

- Share visual data with the **Designer & Developer** to ensure that garden design aligns with the community's recycling materials.
  - Work with the **Digital Marketer & Project Manager** to present early insights to the public, promoting interest in the garden project.
- 

### **Lesson 6: Data Analysis Using AI & Collaboration (1-2 hours)**

**Objective:** Analyze the survey data using AI tools to uncover trends and collaborate with the other roles.

**● Tasks:**

- Use **Google AI** or **Power BI** to conduct deeper analysis of the data, identifying trends like the most commonly recycled materials and which households are most engaged in recycling.
- Collaborate with the **Designer & Developer** to refine the material selection for the garden based on the data.
- Discuss insights with the **Digital Marketer & Project Manager** to plan the next phase of community engagement based on data trends.

**AI Tools:** Google AI, Power BI (for data analysis).

**Connection Points:**

- Collaborate closely with the **Designer & Developer** to finalize material choices.
  - Share data-driven insights with the **Digital Marketer & Project Manager** for use in promotional campaigns.
- 

### **Lesson 7: Writing the Final Report Using AI Tools (1-2 hours)**

**Objective:** Write a comprehensive report summarizing data findings and their implications for the project.

**● Tasks:**

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- Use **Grammarly** or **ChatGPT** to draft a report summarizing the findings from the survey and data analysis. Include charts and graphs for visual support.
- Discuss the report with the other team members to ensure all roles have the data they need to move forward.

**AI Tools:** Grammarly (for report writing), ChatGPT (for summarizing findings).

**Connection Points:**

- Share the final report with the **Designer & Developer** to finalize material choices for the garden.
  - Provide the report to the **Digital Marketer & Project Manager** to inform promotional materials and campaigns.
- 

### **Lesson 8: Finalizing Recycled Materials List & Collaboration (1-2 hours)**

**Objective:** Collaborate with the team to finalize the list of recycled materials for the garden.

● **Tasks:**

- Work with the **Designer & Developer** to confirm which recycled materials will be used for the garden, based on the survey results and data analysis.
- Ensure the materials are easily accessible in the community and sustainable for the long-term.
- Begin planning how the data can be used in the branding effort, highlighting the environmental impact.

**AI Tools:** Google Sheets, Power BI (for finalizing materials and visualizing data).

**Connection Points:**

- Collaborate with the **Designer & Developer** to finalize the materials and design.
  - Work with the **Digital Marketer & Project Manager** to use data-driven insights in the final promotional materials.
- 

### **Lesson 9: Branding the Project & Preparing for the Final Presentation (1-2 hours)**

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**Objective:** Contribute to the branding effort by sharing data insights that highlight community involvement and sustainability.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to create branding elements (e.g., slogans, logos) that emphasize sustainability and community engagement.
- Use the data collected throughout the project to show how the community's recycling efforts are contributing to the garden.
- Help create a presentation that highlights the key data points, using AI-generated visualizations to support the branding effort.

**AI Tools:** Canva, Power BI (for branding and data visualization).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to finalize the promotional materials.
- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden's design.

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## Lesson 10: Final Presentation & Community Engagement (1-2 hours)

**Objective:** Present the findings to the class or community and contribute to the final branding and community engagement effort.

- **Tasks:**

- Present the final report, showcasing the survey results, data analysis, and the impact of recycling on the garden.
- Work with the **Digital Marketer & Project Manager** to deliver the branding campaign to the community, using data to encourage participation in the garden.
- Conclude the project by discussing the long-term benefits of community engagement in sustainability.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Designer & Developer** and the **Digital Marketer & Project Manager** to deliver a cohesive final presentation.

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- Ensure the branding and data insights are shared with the community to encourage ongoing participation.
- 

## Assessment at Project Level:

### 1. Industry Understanding

- **Assessment Criteria:** Evaluate the student's understanding of the recycling industry, community sustainability efforts, and how data plays a crucial role in environmental decision-making.
- **Questions:**
  - How well does the student understand the impact of recycling on environmental sustainability?
  - Can they explain the connection between recycled materials and their use in the community garden?
  - Have they demonstrated a clear understanding of how data can inform decisions in real-world environmental projects?

### 2. Concept Understanding

- **Assessment Criteria:** Assess the student's grasp of the core concepts, such as data collection, analysis, and visualization, and their ability to apply these concepts in the project.
- **Questions:**
  - How effectively did the student collect and analyze data on recycling habits?
  - Were they able to create clear, accurate visualizations that helped inform the garden's design?
  - Can they explain the process of turning data into actionable insights?

### 3. Role Performance

- **Assessment Criteria:** Measure the student's success in fulfilling the responsibilities of the **Market Researcher & Data Analyst** role, including collaboration with other roles.
- **Questions:**
  - Did the student successfully collect and analyze data to support the garden design and promotional campaign?

- How well did they communicate their findings with the **Designer & Developer** and the **Digital Marketer & Project Manager**?
- Did they contribute effectively to the final report and presentation?

#### 4. Collaboration & Communication

- **Assessment Criteria:** Evaluate how well the student collaborated with their peers and communicated their findings.
- **Questions:**
  - How effectively did the student share insights with other roles throughout the project?
  - Did they collaborate well with the **Designer & Developer** to ensure data-driven design choices?
  - Were they able to communicate data findings clearly to support the **Digital Marketer & Project Manager** in the branding efforts?

#### 5. Branding & Final Presentation

- **Assessment Criteria:** Assess the student's involvement in the final branding and presentation efforts.
- **Questions:**
  - How well did the student use data to contribute to the project's branding, emphasizing community involvement and sustainability?
  - Were they able to present the final findings and demonstrate the impact of the project to the class or community?
  - How effectively did they support the **Digital Marketer & Project Manager** in the promotional campaign?

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#### Learning Outcomes for the Entire Project

- **Industry Understanding:** The student will demonstrate a deep understanding of recycling, sustainability, and how data-driven insights inform real-world projects.
- **Data Skills:** They will acquire skills in using AI tools for data collection, analysis, and visualization, creating clear and actionable insights from raw data.
- **Collaboration:** The student will learn how to effectively collaborate with peers, ensuring the data supports design and marketing efforts.
- **Branding:** The student will contribute to the branding of the community garden project, using data to highlight the impact of recycling and sustainability.

- **Communication:** By presenting their findings, the student will improve their ability to communicate data insights clearly and effectively.

Here's the **10-Lesson detailed plan** for the **Designer & Developer** role in the **Grade 3 Project: Creating a Community Garden with Recycled Materials**, integrating AI tools and connecting with the other roles like **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager**. This plan focuses on the tasks of designing the garden and developing digital components where needed. The project will end with a final presentation, including branding and showcasing the garden's design.

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## 10 Lessons Roadmap for Solution Designer / Developer

### Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Designer & Developer** will be responsible for designing the community garden based on the research conducted by the **Market Researcher & Data Analyst**, and developing digital components or models that can represent the garden.

Collaboration with the **Digital Marketer & Project Manager** will be essential for branding and final presentation efforts.

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### Lesson 1: Understanding the Project & Gathering Design Inputs (1-2 hours)

**Objective:** Understand the project goals and begin gathering design ideas from the team.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** to understand the community's preferences for recycling and sustainable gardening based on the initial research and data collection plan.
- Review preliminary data about materials available for the garden.
- Begin brainstorming design ideas for how recycled materials can be used effectively in the garden layout.

**AI Tools:** ChatGPT or DALL·E (to generate initial garden design ideas and layouts).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to understand the types of materials available and the community's recycling behaviors.
  - Align with the **Digital Marketer & Project Manager** on initial branding concepts that align with the garden's design and sustainability goals.
- 

### **Lesson 2: Sketching Initial Designs (1-2 hours)**

**Objective:** Create initial design sketches for the community garden using input from the research team.

- **Tasks:**
  - Using **Figma** or **Canva**, create initial sketches of the garden layout, focusing on how different recycled materials (plastic bottles, cardboard) can be incorporated into planters, pathways, and other elements.
  - Collaborate with the **Market Researcher & Data Analyst** to ensure that the design reflects community preferences, based on the survey data.
  - Prepare a few different layout options to present to the team for feedback.

**AI Tools:** Figma, Canva, or DALL·E (for garden design and layout ideas).

**Connection Points:**

- Review the initial sketches with the **Market Researcher & Data Analyst** to ensure that the materials align with the data.
  - Begin discussing the designs with the **Digital Marketer & Project Manager** to align branding with design concepts.
- 

### **Lesson 3: Finalizing the Garden Layout & Material Use (1-2 hours)**

**Objective:** Finalize the layout for the community garden and decide on the use of recycled materials.

- **Tasks:**

- Refine the initial garden sketches based on team feedback, incorporating any additional ideas or materials suggested by the **Market Researcher & Data Analyst**.
- Finalize the list of recycled materials that will be used in the garden design and ensure that all elements are sustainable and practical.
- Begin outlining the specific design elements for each section of the garden, such as planter designs, seating areas, and pathways made from recycled materials.

**AI Tools:** Figma (for finalizing designs), Google Sheets (for organizing the materials list).

#### Connection Points:

- Collaborate closely with the **Market Researcher & Data Analyst** to finalize material choices.
  - Work with the **Digital Marketer & Project Manager** to ensure that the garden's design can be easily branded and promoted.
- 

## Lesson 4: Developing Digital Components & Visual Models (1-2 hours)

**Objective:** Create digital models or visual representations of the community garden.

#### ● Tasks:

- Use **Figma** or **Canva** to create a digital mockup of the garden, showing how the recycled materials will be incorporated into the final design.
- Create a visual model of the garden that can be used in the final presentation and promotional materials. This model should clearly represent the layout, materials, and overall aesthetic of the garden.
- Ensure that the model is easy to understand and visually appealing, as it will be part of the final presentation to the community.

**AI Tools:** Figma, Canva, Google SketchUp (for digital modeling and mockups).

#### Connection Points:

- Share the digital model with the **Market Researcher & Data Analyst** to ensure all materials are represented accurately.
- Work with the **Digital Marketer & Project Manager** to use the visual models in promotional campaigns.

## Lesson 5: Preparing Visual Design & Feedback Integration (1-2 hours)

**Objective:** Prepare the visual design and gather feedback from the team.

- **Tasks:**

- Present the digital model and design sketches to the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** for feedback.
- Make any necessary adjustments based on team feedback, ensuring that the design aligns with community preferences and promotional goals.
- Begin planning how the design will be presented to the community, considering visual elements that highlight the use of recycled materials.

**AI Tools:** Figma, Canva (for revisions based on feedback).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to refine the design and ensure that all elements are data-driven.
  - Work with the **Digital Marketer & Project Manager** to plan how the final design will be showcased to the community.
- 

## Lesson 6: Branding the Garden Design (1-2 hours)

**Objective:** Work with the **Digital Marketer & Project Manager** to create branding elements for the garden.

- **Tasks:**

- Collaborate with the **Digital Marketer & Project Manager** to develop branding materials, such as logos, slogans, and promotional designs, that reflect the sustainability and community-driven aspects of the garden.
- Ensure that the visual design aligns with the branding elements and that the garden's message of sustainability is clear in all promotional materials.
- Use AI tools like **Canva** to create visual assets for social media and other marketing channels.

**AI Tools:** Canva (for branding and promotional materials).

**Connection Points:**

- Work with the **Digital Marketer & Project Manager** to ensure the branding is visually consistent with the garden design.
  - Collaborate with the **Market Researcher & Data Analyst** to include data-driven messaging in the branding materials.
- 

## Lesson 7: Refining Digital Models & Preparing for Final Presentation (1-2 hours)

**Objective:** Refine the digital models and prepare for the final presentation.

- **Tasks:**
  - Refine the digital model based on team feedback and ensure that it is ready for the final presentation.
  - Begin preparing slides or visual aids for the final presentation, showcasing the design process, the recycled materials used, and how the garden will benefit the community.
  - Work closely with the **Market Researcher & Data Analyst** to integrate data insights into the presentation.

**AI Tools:** Google Slides, Canva (for presentation creation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to include data insights in the presentation.
  - Work with the **Digital Marketer & Project Manager** to ensure that the presentation aligns with the branding strategy.
- 

## Lesson 8: Finalizing the Garden Design & Preparing Presentation Materials (1-2 hours)

**Objective:** Finalize the garden design and prepare materials for the final presentation.

- **Tasks:**
  - Finalize all visual materials, including digital models, posters, and any other design elements that will be used in the final presentation.
  - Ensure that the final design is visually appealing and accurately represents the garden layout, including the use of recycled materials.

- Share the final design with the **Digital Marketer & Project Manager** to ensure alignment with the overall branding effort.

**AI Tools:** Figma, Canva (for finalizing visual materials).

**Connection Points:**

- Work with the **Market Researcher & Data Analyst** to ensure the final design reflects community input.
  - Collaborate with the **Digital Marketer & Project Manager** to ensure that the branding materials are consistent with the design.
- 

### Lesson 9: Presenting the Final Garden Design to the Community (1-2 hours)

**Objective:** Present the final garden design and explain how recycled materials are used in the garden.

- **Tasks:**
  - Present the final design to the class or community, showcasing how recycled materials have been incorporated into the garden layout.
  - Work with the **Digital Marketer & Project Manager** to ensure that the branding message is clear and that the presentation highlights the community's involvement in the project.
  - Use AI tools to create visual aids that make the design easy to understand for the audience.

**AI Tools:** Google Slides, Canva (for final presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure that data-driven insights are included in the presentation.
  - Work with the **Digital Marketer & Project Manager** to deliver a cohesive branding message during the presentation.
- 

### Lesson 10: Final Branding and Post-Project Collaboration (1-2 hours)

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**Objective:** Collaborate with the **Market Researcher & Data Analyst** and **Digital Marketer & Project Manager** to promote the project through branding and share the project's success story with the community.

- **Tasks:**

- Finalize the project presentation and branding effort, ensuring the design reflects the community's involvement and promotes environmental sustainability.
- Participate in a final team discussion to reflect on the project, discussing what worked well and what can be improved for future projects.
- Help create a social media campaign or blog post to share the project's success story with a broader audience, highlighting how the garden project supports environmental sustainability and community involvement.

**AI Tools:** **Canva** (for creating promotional materials), **Grammarly** (for writing social media posts or blog content).

**Connection Points:**

- Collaborate with the **Digital Marketer & Project Manager** to ensure the project is branded and promoted effectively.
- Share the final project design and branding with the community through digital platforms or in-person presentations.

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**Final Assessment at Project Level (for the Designer & Developer Role):**

- **Industry Understanding:**

- Can the student explain how recycled materials were used to design the community garden?
- How well does the student understand the impact of design on environmental sustainability and community engagement?

- **Concept Understanding:**

- Evaluate the student's ability to apply design concepts in creating a sustainable garden layout.
- Did the student use recycled materials effectively and creatively?

- **Role Performance:**

- Did the student fulfill the responsibilities of the **Designer & Developer** role, including creating digital models and refining the garden design?

- How well did the student collaborate with the **Market Researcher & Data Analyst** to incorporate data insights into the design?
  - **Collaboration:**
    - Did the student communicate effectively with the other roles and integrate their input into the final design?
    - How well did the student contribute to the final presentation and branding effort?
  - **Branding & Final Presentation:**
    - Did the student contribute to the branding and promotion of the project, using their design skills to create visually appealing materials?
    - How effectively did the student participate in the final presentation, showcasing the design and promoting the project to the community?
- 

### Learning Outcomes for the Entire Project:

- **Design & Development Skills:** The student will develop skills in using AI tools like **Figma** and **Canva** to create designs and digital models.
- **Industry Knowledge:** The student will gain a deeper understanding of sustainable design and how to incorporate recycled materials into real-world projects.
- **Collaboration & Communication:** The student will improve their ability to work with other roles, ensuring that data and branding are integrated into the design process.
- **Branding & Presentation:** The student will contribute to branding efforts and learn how to present their design in a professional, visually appealing manner.

This 10-Lesson plan focuses on ensuring the **Designer & Developer** role is integrated with the other roles, using AI tools and collaborative feedback to create a sustainable, community-driven garden design. The plan culminates in a final presentation and branding effort that promotes the project's impact.

## 10 Lessons Roadmap for Project Manager / Digital Marketer

Guided Project - Creating a Community Garden with Recycled Materials

**Project Title:** Creating a Community Garden with Recycled Materials

**Problem:** How can we use recycling to reduce waste and create a sustainable community garden?

**Focus:** The **Digital Marketer & Project Manager** will handle project organization and branding. This includes creating promotional materials, managing timelines using Trello, and working with other roles like the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure the project's success.

---

### Lesson 1: Understanding the Project & Setting Up Project Management (1-2 hours)

**Objective:** Understand the project's goals, set up the project management system, and begin organizing the project timeline.

- **Tasks:**

- Meet with the **Market Researcher & Data Analyst** and the **Designer & Developer** to understand their roles and align on the project's overall goals.
- Set up a **Trello** board to organize the project tasks. Create lists for "To-Do," "In Progress," and "Completed."
- Assign tasks for each role and create a project timeline, including deadlines for survey creation, design feedback, branding, and the final presentation.

**AI Tools:** **Trello, Google Calendar** (for project management).

**Connection Points:**

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- Collaborate with the **Market Researcher & Data Analyst** to schedule tasks related to survey creation and data analysis.
  - Coordinate with the **Designer & Developer** to schedule design feedback and finalize the garden layout.
- 

## Lesson 2: Creating a Branding Strategy (1-2 hours)

**Objective:** Develop a branding strategy for the community garden project, including logos, slogans, and promotional materials.

- **Tasks:**
  - Brainstorm branding ideas with the **Designer & Developer** to create a consistent theme that reflects the garden's sustainability and recycling message.
  - Use **Canva** to design a logo and select a color scheme that represents the community garden's values.
  - Create a simple slogan for the project, emphasizing sustainability and community involvement (e.g., "Grow Green, Recycle Smart").

**AI Tools:** Canva, Adobe Spark (for branding materials).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure the branding aligns with the garden design.
  - Work with the **Market Researcher & Data Analyst** to include data insights (such as community interest in recycling) in the branding strategy.
- 

## Lesson 3: Promoting the Survey & Engaging the Community (1-2 hours)

**Objective:** Help distribute the survey created by the **Market Researcher & Data Analyst** and engage the community.

- **Tasks:**
  - Use **social media platforms** or school-based networks to distribute the survey to the community, promoting it as part of the sustainable garden initiative.

- Post on platforms like **ClassDojo** or school newsletters, explaining how community feedback will shape the garden.
- Track survey responses using Trello, updating the board as the community engages.

**AI Tools:** Facebook, Instagram, ClassDojo (for promoting surveys).

**Connection Points:**

- Coordinate with the **Market Researcher & Data Analyst** to ensure survey responses are collected efficiently.
  - Share community engagement data with the **Designer & Developer** for design feedback.
- 

## Lesson 4: Tracking Progress & Adjusting the Timeline (1-2 hours)

**Objective:** Review the project's progress and adjust the timeline if necessary.

- **Tasks:**
  - Use **Trello** to track the completion of tasks, including survey creation, data collection, and initial design sketches.
  - Hold a quick meeting with the team to check if any adjustments are needed for the timeline (e.g., more time for data collection or design revisions).
  - Update the project timeline based on team feedback, ensuring all tasks stay on track for completion by Lesson 10.

**AI Tools:** Trello, Google Calendar (for timeline adjustments).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure enough time is allocated for data analysis.
  - Work with the **Designer & Developer** to adjust the design schedule if needed.
- 

## Lesson 5: Creating Social Media Content for Promotion (1-2 hours)

**Objective:** Create and schedule social media content to promote the community garden project and encourage more participation.

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- **Tasks:**

- Use **Canva** to design promotional posts that highlight the garden's sustainability goals and the use of recycled materials.
- Work with the **Market Researcher & Data Analyst** to include data from the survey, such as what materials the community recycles most.
- Schedule social media posts to go live on specific days leading up to the final presentation, using tools like **Hootsuite**.

**AI Tools:** **Canva, Hootsuite, Facebook, Instagram** (for social media content and scheduling).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to use data insights in social media posts.
  - Work with the **Designer & Developer** to ensure the branding and visuals are consistent with the garden design.
- 

## Lesson 6: Refining the Branding & Promotional Campaign (1-2 hours)

**Objective:** Refine the branding strategy based on community feedback and prepare for the final promotional push.

- **Tasks:**

- Review the branding materials with the **Designer & Developer** to ensure they align with the final garden design.
- Use feedback from the community to adjust slogans, logos, or promotional content if needed.
- Prepare a final promotional push for social media, encouraging community members to attend the presentation or contribute to the garden.

**AI Tools:** **Canva, Google Sheets** (for organizing feedback and refining branding).

**Connection Points:**

- Collaborate with the **Designer & Developer** to ensure branding and design remain aligned.
  - Use insights from the **Market Researcher & Data Analyst** to refine the promotional message.
-

## Lesson 7: Preparing for the Final Presentation (1-2 hours)

**Objective:** Begin preparing materials for the final presentation, including slides and talking points.

- **Tasks:**

- Use **Google Slides** or **PowerPoint** to start creating the final presentation, which will showcase the project's progress, data insights, and design.
- Include branding elements (logos, slogans) and key visuals from the **Designer & Developer**.
- Work with the **Market Researcher & Data Analyst** to include data-driven insights in the presentation, such as survey results and recycling data.

**AI Tools:** Google Slides, PowerPoint, Canva (for creating the presentation).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** to ensure the data is visually presented in the slides.
- Ensure that branding elements from the **Designer & Developer** are included in the presentation.

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## Lesson 8: Finalizing the Presentation & Promotional Strategy (1-2 hours)

**Objective:** Finalize the presentation and promotional strategy for the community garden project.

- **Tasks:**

- Review the presentation with the team and make any necessary revisions.
- Prepare a final promotional post or email to invite community members to the presentation.
- Ensure that the branding is consistent across all promotional materials and presentation slides.

**AI Tools:** Google Slides, Canva (for finalizing presentation and promotional content).

**Connection Points:**

- Work with the **Designer & Developer** and **Market Researcher & Data Analyst** to ensure the presentation is cohesive and reflects the project's goals.

## Lesson 9: Final Presentation Preparation & Rehearsal (1-2 hours)

**Objective:** Rehearse the final presentation and ensure that all materials are ready for delivery.

- **Tasks:**

- Conduct a rehearsal with the team to ensure each role is prepared to present their part of the project.
- Finalize the promotional strategy and ensure that the community is aware of the presentation.
- Check the branding materials and visuals to ensure consistency throughout the presentation.

**AI Tools:** Google Slides, Canva (for final rehearsal and checking visuals).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to ensure everyone is aligned for the presentation.
- 

## Lesson 10: Delivering the Final Presentation & Branding Campaign (1-2 hours)

**Objective:** Deliver the final presentation and launch the final branding campaign.

- **Tasks:**

- Present the community garden project to the class or community, highlighting how recycling has been integrated into the garden's design.
- Launch the final branding campaign on social media or school platforms, using the content created throughout the project.
- Discuss the impact of the project on the community and encourage further participation in sustainable initiatives.

**AI Tools:** Google Slides, Canva, Facebook, Instagram (for delivering the presentation and launching the branding campaign).

**Connection Points:**

- Collaborate with the **Market Researcher & Data Analyst** and **Designer & Developer** to deliver a cohesive final presentation.

# Teacher Guidelines to Conduct AI Based Projects

## Teacher Guideline 1 - Detailed Tool Instructions

This guide provides teachers with step-by-step instructions on using essential tools for the 10-Lesson Introduction to AI, Data Science, and Technology Basics. It includes screenshots, QR code links to short instructional videos, and sample exercises to make it easy for teachers to practice before introducing these tools to students.

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### Tool 1: Canva (Graphic Design Basics)

- **Purpose:** Canva allows students to create visuals like posters, reports, and presentation slides, which they can use to showcase project findings.
  - **Quick-Start Steps:**
    - **Open Canva:** Go to [canva.com](https://canva.com) and create a free account.
    - **Choose a Template:** Select “Create a Design” and choose a template, like “Poster” or “Presentation.”
    - **Customize Design:** Encourage students to add text, images, and icons. They can drag elements to adjust positions, change colors, and edit fonts.
    - **Save & Download:** When finished, click “Download” to save the design as a PDF or image.
  - **Sample Exercise:** Create a digital poster titled “How AI Helps Us Every Day” with a simple layout and two to three icons or images related to technology.
- 

### Tool 2: Google Forms (Data Collection)

- **Purpose:** Google Forms allows students to create surveys, gather responses, and analyze basic data, such as preferences or community feedback.
- **Quick-Start Steps:**
  - **Access Google Forms:** Go to [forms.google.com](https://forms.google.com) and log in with a Google account.
  - **Start a New Form:** Click “Blank” to start a new form or use a pre-made template.

- **Add Questions:** Select “+” to add different question types (multiple choice, short answer, etc.). Teachers can guide students to add three to five questions for practice.
  - **Share the Form:** Click “Send” and choose the “Link” option to copy and share the form with students or family members for responses.
  - **Review Responses:** Click “Responses” to view and analyze results.
  - **Sample Exercise:** Create a form titled “Favorite School Activities” with questions like “What’s your favorite subject?” and “Which club would you join?”
- 

### Tool 3: Scratch Jr. / Scratch (Basic Coding Concepts)

- **Purpose:** Scratch Jr. (for younger students) and Scratch teach basic coding logic through drag-and-drop programming, helping students understand how computers follow instructions.
  - **Quick-Start Steps:**
    - **Access Scratch:** Go to [scratch.mit.edu](https://scratch.mit.edu) for Scratch or download **Scratch Jr.** on tablets.
    - **Start a New Project:** Click “Create” on Scratch (or open Scratch Jr.) and introduce the interface (sprite area, code blocks).
    - **Add Movements:** Drag “Motion” blocks like “Move 10 Steps” to make the character move.
    - **Add Dialogue:** Use “Looks” blocks like “Say [Hello!]” to add dialogue to the characters.
  - **Sample Exercise:** Create a short animation where a character says “Hello!” and moves across the screen.
- 

### Tool 4: Trello (Simple Project Management)

- **Purpose:** Trello is a simple project management tool that organizes tasks and allows students to track project progress in a visual “board” format.
- **Quick-Start Steps:**
  - **Access Trello:** Go to [trello.com](https://trello.com) and sign up for a free account.
  - **Create a New Board:** Click “Create New Board” and name it according to the project (e.g., “Community Garden Project”).
  - **Add Lists:** Create three lists titled “To Do,” “In Progress,” and “Done.”

- **Add Task Cards:** Under “To Do,” add tasks as cards (e.g., “Research recycling materials” or “Design garden layout”).
  - **Move Cards Across Lists:** Drag cards to “In Progress” when a task starts and to “Done” upon completion.
  - **Sample Exercise:** Set up a simple Trello board for the “Community Garden Project,” with three cards under “To Do.”
- 

### Tool 5: Google Sheets (Data Analysis Basics)

- **Purpose:** Google Sheets introduces students to basic data handling, allowing them to enter data, create charts, and interpret findings.
- **Quick-Start Steps:**
  - **Access Google Sheets:** Go to [sheets.google.com](https://sheets.google.com) and start a new blank spreadsheet.
  - **Enter Data:** Demonstrate entering data in columns (e.g., “Activity” and “Number of Students”).
  - **Create a Chart:** Highlight data, click “Insert,” then “Chart.” Google Sheets will generate a chart based on selected data.
  - **Customize Chart:** Adjust the chart’s appearance by changing colors, titles, and labels.
- **Sample Exercise:** Input survey data on “Favorite School Activities” and create a bar chart showing the results.

### Teacher Guideline 2: Simplified Technical Explanations & Essential Skills Overview

This section offers **easy-to-understand explanations** for complex concepts in AI and data science, along with an overview of essential skills for each role. Teachers can use these simplified definitions and skill descriptions to introduce foundational concepts and set expectations for the skills students will build across the activities.

### Core AI & Data Science Concepts

- **AI (Artificial Intelligence):**

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- **Simple Explanation:** AI is a “smart helper” that can learn and make decisions, much like how people do.
  - **Example:** Just as Netflix recommends movies based on past viewing habits, AI learns from patterns to give us what we might like.
  - **Machine Learning:**
    - **Simple Explanation:** Machine learning is when computers learn by looking at examples and improving with practice.
    - **Example:** Like learning to recognize different breeds of dogs by seeing many examples, a machine learns to make predictions based on data.
  - **Data:**
    - **Simple Explanation:** Data is information that we can collect, analyze, and use to make decisions.
    - **Example:** Schools collect data on attendance and grades to understand how students are doing.
  - **Coding:**
    - **Simple Explanation:** Coding is giving instructions to a computer to perform specific tasks.
    - **Example:** Just like following a recipe to bake a cake, coding gives step-by-step instructions to make things happen on a computer.
- 

## Essential Skills for Each Role

- **AI-Powered Market Researcher:**
  - **Skills Developed:** Survey creation, data collection, data analysis.
  - **Practical Application:** Learning to gather information from people and analyze trends, such as classmates’ favorite activities.
- **AI-Powered Data Analyst:**
  - **Skills Developed:** Data interpretation, data visualization, basic statistics.
  - **Practical Application:** Using data charts to understand patterns, like which snacks are most popular.
- **AI-Based Solution Designer:**
  - **Skills Developed:** Design thinking, creative problem-solving, prototyping.
  - **Practical Application:** Developing and presenting ideas for real-world problems, like designing a sustainable garden layout.
- **AI-Based Solution Developer:**
  - **Skills Developed:** Coding basics, creating simple applications, understanding logic sequences.

- **Practical Application:** Creating digital animations or simple apps that demonstrate problem-solving, such as coding an animation in Scratch Jr.
  - **AI-Powered Digital Marketer:**
    - **Skills Developed:** Digital content creation, branding basics, public speaking.
    - **Practical Application:** Making posters and presentations to promote projects, helping students learn how to communicate ideas effectively.
- 

## Glossary of Key Terms

- **Artificial Intelligence (AI):** Technology that enables computers to perform tasks that require human-like thinking.
  - **Data:** Information collected for analysis, like survey responses or numerical figures.
  - **Machine Learning:** A branch of AI where computers learn patterns from data to make predictions.
  - **Coding:** Writing instructions in a language computers understand to perform specific tasks.
  - **Project Management:** The process of organizing tasks and tracking progress to complete a project.
- 

## Using This Section

- **Introduce Concepts in Context:** Present these terms and skills in context, relating them to daily project tasks so students understand their practical importance.
  - **Skill Building Across Activities:** Emphasize how each activity will help students gain and practice these skills, which are fundamental for future projects and career paths.
  - **Quick Reference Glossary:** Keep this glossary accessible throughout the project to help both teachers and students reinforce their understanding of new terms.
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## Teacher Guideline 3: Flexible Options for Lower-Tech Classrooms

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This section provides **non-digital alternatives** for each project and activity, helping teachers adapt projects to classrooms with limited technology resources. Each activity includes an **offline option** using common classroom materials or low-tech tools, allowing teachers to achieve the same learning goals without relying heavily on computers or internet access.

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## 1. Canva (Graphic Design Basics)

- **Purpose:** Instead of Canva, students can use **colored paper, markers, and glue** to create posters or designs by hand.
  - **Alternative Steps:**
    1. **Brainstorm & Sketch:** Have students sketch their design ideas on paper first, planning colors, shapes, and text.
    2. **Create the Poster:** Provide colored paper, markers, scissors, and glue for students to create a poster or design.
    3. **Present:** Students present their designs to the class, explaining their choices just as they would if created digitally.
  - **Goal Achieved:** Students learn basic design principles, practice creativity, and share their work, just as they would on Canva.
- 

## 2. Google Forms (Data Collection)

- **Purpose:** For data collection, use **paper surveys** instead of Google Forms.
  - **Alternative Steps:**
    1. **Create a Survey:** Write survey questions on a large sheet of paper or chalkboard. Students copy questions onto their own papers or teachers provide printed handouts.
    2. **Collect Responses:** Each student asks family or classmates to answer the survey questions and records responses by hand.
    3. **Discuss Results:** Students tally responses and analyze results as a class, discussing patterns and trends.
  - **Goal Achieved:** Students learn the basics of data collection, develop survey questions, and analyze responses without needing an online form.
- 

## 3. Scratch Jr. / Scratch (Basic Coding Concepts)

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- **Purpose:** Instead of using Scratch, introduce **coding concepts with role-playing or written instructions.**
  - **Alternative Steps:**
    1. **Define “Instructions”:** Explain that coding involves giving clear instructions, just like following a recipe.
    2. **Create a Simple “Code”:** Write simple instructions for students to follow, such as “Move 2 steps forward, turn left, jump.” This simulates basic coding commands.
    3. **Role-Playing Game:** Assign students to be “computers” and “programmers” and have them follow each other’s instructions to understand coding.
  - **Goal Achieved:** Students understand basic coding principles (sequences, commands) through role-play, preparing them for digital coding later on.
- 

#### 4. Trello (Project Management)

- **Purpose:** Replace Trello with a **physical task board** in the classroom.
  - **Alternative Steps:**
    1. **Set Up a Task Board:** Divide a whiteboard, corkboard, or wall into sections: “To Do,” “In Progress,” and “Done.”
    2. **Create Task Cards:** Write tasks on sticky notes or index cards and place them under “To Do.”
    3. **Move Tasks Physically:** As tasks are completed, students move the sticky notes to “In Progress” and then “Done,” visually tracking project progress.
  - **Goal Achieved:** Students learn project management basics with a physical board, gaining the same organizational skills they would on Trello.
- 

#### 5. Google Sheets (Data Analysis Basics)

- **Purpose:** For data visualization, use **graph paper and markers** instead of Google Sheets.
- **Alternative Steps:**
  1. **Record Data by Hand:** Students list data (e.g., favorite animals or colors) on paper.

2. **Create a Graph:** On graph paper, students create a bar chart or pie chart representing the data they collected.
  3. **Discuss Findings:** Students share their hand-drawn graphs with the class, explaining what the data shows.
- **Goal Achieved:** Students practice data visualization and interpretation skills using manual tools, allowing them to analyze and present data without digital software.
- 

### How to Use These Alternatives

- **Flexible Planning:** Teachers can choose to follow digital or non-digital versions based on classroom resources. These options allow for flexible lesson planning and ensure each student can fully participate.
  - **Encouraging Creativity:** Using hands-on materials like paper, markers, and role-play introduces new elements of creativity, helping students relate abstract concepts to tangible experiences.
  - **Achieving Learning Goals:** Whether digital or physical, these alternatives achieve the same learning objectives in each project, ensuring that all students gain valuable skills in data collection, analysis, design, and project management.
- 

By providing these **low-tech options**, teachers can adapt each project and activity to the resources available, making the content accessible to all classrooms.

Next, we'll move to the **Clear Role Descriptions for Teachers and Students** section, which defines specific responsibilities for each Lesson's activity.

### Teacher Guideline 4 - Student Motivation and Engagement Tips

This section offers **practical strategies** to help teachers keep students engaged and motivated as they explore AI, data science, and project-based learning. From setting small goals to celebrating achievements, these tips focus on making learning enjoyable and helping students build confidence as they develop new skills.

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## 1. Use Gamification Techniques

- **Create Mini-Challenges:** Turn activities into small challenges, such as a “Data Detective” day where students have to uncover patterns in a dataset or a “Design Sprint” where they brainstorm solutions quickly.
- **Reward Progress:** Offer digital badges or certificates for completing key milestones (e.g., “Survey Creator,” “Data Visualizer”), which can be printed or displayed in the classroom.
- **Make It Collaborative:** Allow students to earn points as teams, motivating them to work together and encourage each other.

## 2. Set Clear, Achievable Goals

- **Daily and Weekly Goals:** Break down the 10-Lesson program into daily goals so students know what to expect and can celebrate small wins.
- **Visual Progress Tracker:** Use a board to track the class’s progress, where students can move a marker or add a sticker when a Lesson’s tasks are complete, creating a sense of collective accomplishment.

## 3. Foster Curiosity and Relevance

- **Relate Projects to Real Life:** Show students how each activity is relevant to their lives, like explaining how data collection helps companies decide on new toy designs.
- **Encourage Questions:** Create an “Ask Anything” box where students can submit questions about AI, data science, or any topic that piques their interest. Spend a few minutes each day addressing these questions.
- **Introduce Real-World Examples:** Share age-appropriate examples of AI in action, like how Google Maps uses data to predict traffic or how Netflix suggests movies based on viewing history.

## 4. Celebrate Progress and Effort, Not Just Results

- **Acknowledge Effort:** Highlight students’ hard work and creativity, especially when they try something new or face challenges, reinforcing a growth mindset.
- **Showcase Student Work:** Create a “Student Spotlight” wall or virtual board to display projects, survey results, and designs, celebrating each student’s contributions.

- **Share Success Stories:** Occasionally share stories about young inventors, tech entrepreneurs, or environmental activists who made a difference with creative ideas, inspiring students to think about their potential.

## 5. Encourage Reflection and Self-Assessment

- **End-of-Lesson Reflections:** Have students write or share one thing they learned and one question they have after each Lesson's activity, helping them process what they've gained.
- **Weekly Journaling:** Encourage students to keep a weekly journal of their experiences, including what they enjoyed, what they found challenging, and what they're excited to try next.
- **Peer Feedback:** Create moments for students to share and receive constructive feedback from peers, fostering collaboration and growth.

## 6. Make Learning Fun with Hands-On Activities

- **Incorporate Art and Creativity:** Allow students to incorporate drawings, crafts, or physical models in their projects, especially for roles like the Solution Designer or Digital Marketer.
- **Allow Free Exploration:** Give students "exploration days" where they can use tools like Canva or Scratch for their own mini-projects, letting them practice skills in a low-pressure setting.
- **Involve the Class in Problem-Solving:** Let students take ownership of small project decisions, like choosing survey topics or deciding on themes for presentations, fostering autonomy and pride in their work.

## 7. Create an Inclusive and Supportive Environment

- **Encourage Teamwork:** Pair students with different strengths so they can support each other, learning from each other's skills and experiences.
- **Celebrate Diversity:** Recognize and appreciate diverse ideas, reinforcing that every perspective adds value to the project.
- **Provide Extra Support:** For students who may need extra help with digital tools or understanding concepts, set aside time for one-on-one assistance or pair them with a more confident peer.

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### Using These Tips in the Classroom

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- **Daily Check-Ins:** Begin each day with a brief check-in, asking students how they're feeling about the project and addressing any concerns. This builds rapport and shows students their engagement matters.
- **Make Learning Visible:** Use visual progress trackers, displays, or badges so students can see and celebrate their growth.
- **Feedback Loop:** Use the reflections and self-assessments to adjust the pacing or focus of activities as needed, keeping students motivated.

With these **motivation and engagement tips**, teachers can make each activity dynamic, enjoyable, and meaningful for students, encouraging sustained enthusiasm and participation throughout the 10-Lesson program.

## Teacher Guideline 5 - Assessment Guidelines

This section provides **structured assessment criteria** to help teachers evaluate students' learning progress and engagement throughout each project. Assessments are designed to be **flexible and holistic**, with a focus on skills, creativity, and teamwork rather than just final results.

### 1. Assessment Categories

- **Knowledge and Understanding:** Measures students' grasp of AI, data science, and technology basics.
- **Skills Development:** Evaluates hands-on skills like data collection, coding, and digital design.
- **Engagement and Participation:** Assesses each student's level of involvement, curiosity, and teamwork.
- **Creativity and Problem-Solving:** Looks at students' ability to innovate, think critically, and adapt to challenges.
- **Ethical and Moral Development:** Observes students' understanding of ethical considerations, teamwork, and social responsibility in their projects.

### 2. Suggested Assessment Criteria by Role

Each role has specific criteria to assess students' skill development and contribution to the project.

- **AI-Powered Market Researcher**
  - **Data Collection Quality:** Accuracy and relevance of survey questions and data collection.

- **Interpretation:** Ability to identify trends or patterns in data and articulate findings.
- **Presentation:** Clarity and effectiveness in presenting research results.
- **AI-Powered Data Analyst**
  - **Data Organization:** Completeness and organization of data entries.
  - **Visualization:** Effectiveness of graphs and charts in representing data insights.
  - **Analysis:** Depth of interpretation, including spotting patterns and summarizing key findings.
- **AI-Based Solution Designer**
  - **Creativity:** Originality and practicality of design ideas.
  - **Functionality:** Relevance of design in addressing the project problem.
  - **Presentation Skills:** Ability to clearly explain the design choices and project plan.
- **AI-Based Solution Developer**
  - **Coding Basics:** Proficiency in basic coding commands, sequences, and logic.
  - **Technical Understanding:** Ability to debug, improve, and complete simple code.
  - **Project Application:** How well the code contributes to solving the problem.
- **AI-Powered Digital Marketer**
  - **Creativity in Marketing:** Innovation and appeal of digital content, logos, or posters.
  - **Audience Engagement:** Ability to design materials that capture interest.
  - **Communication Skills:** Clarity in expressing project goals and impact.

### 3. Sample Rubric for Holistic Assessment

Category	Criteria	Excellent	Satisfactory	Needs Improvement
<b>Knowledge and Understanding</b>	Understanding of concepts	Demonstrates thorough understanding of AI and data concepts	Shows general understanding of key concepts	Limited understanding, needs more support

<b>Skills Development</b>	Hands-on ability	Completes tasks with minimal guidance, applies tools effectively	Completes most tasks with guidance	Requires frequent help, lacks confidence
<b>Engagement and Participation</b>	Involvement in activities	Actively participates, takes initiative	Participates in most tasks, shows interest	Low engagement, needs encouragement
<b>Creativity and Problem-Solving</b>	Innovative thinking	Produces creative solutions, adapts to challenges	Produces workable solutions, accepts feedback	Limited creativity, struggles with problem-solving
<b>Ethical and Moral Development</b>	Teamwork and ethics	Consistently demonstrates responsibility and teamwork	Generally responsible, works well with others	Needs guidance to understand teamwork and ethics

#### 4. Reflective Self-Assessment

Encourage students to assess their own progress at the end of each week. Self-assessment questions could include:

- “What was the most interesting thing I learned this week?”
- “What skill am I most proud of practicing?”
- “What would I like to improve in the next project?”

#### Using These Assessment Guidelines

- **Flexible Application:** Teachers can use the rubric and criteria flexibly, adapting them to individual students' progress and needs.
- **Encouragement-Focused:** Emphasis is placed on effort, curiosity, and growth, encouraging students to enjoy the learning process.

- **Feedback Opportunities:** These assessments provide insights for teachers to give constructive feedback, helping students build confidence and refine their skills.

With these **Assessment Guidelines**, teachers have a clear framework to evaluate student progress, celebrate achievements, and offer constructive guidance throughout each project.



## Some of More Real life Problems mapped with Curriculum Concepts using AI and Industry Roles

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### 1. Community Garden with Recycled Materials - Grade 3,4

- **Industry:** Environmental Science
- **Problem:** How can we create a sustainable community garden using recycled materials to reduce waste?

- **Proposed Solution:** Design a community garden where all materials used are sourced from recycling, and develop a system to track material usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Collect data on recycling habits, garden layouts, and analyze the effectiveness of recycled materials.
  - **AI-Based Solution Designer & Developer:** Design the garden layout using digital tools, focusing on sustainability and innovative design.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project timeline, create promotional materials for the community, and raise awareness on environmental benefits.

## Assessments

### Curriculum Assessment:

- **Science:** Understanding plant life cycles, ecosystems, recycling, and environmental sustainability.
- **Math:** Measurement (garden dimensions), data handling (tracking material usage).
- **English:** Writing reports on the design, recycling processes, and presenting findings to the class or community.
- **Social Studies:** Understanding community involvement and the role of individuals in environmental responsibility.

### Ethical & Moral Development:

- Promoting sustainability, resource conservation, and teamwork.

### Industry Interest:

- Developing interest in environmental science and sustainability.

### Role Performance:

- **Market Researcher:** Data collection and analysis accuracy.
- **Solution Designer:** Creativity and practicality in garden design.
- **Digital Marketer:** Effectiveness in promotion and project management.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie.

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## 2. Designing a Solar-Powered Device - Grade 3,4

- **Industry:** Renewable Energy
- **Problem:** How can we use solar energy more efficiently in homes and schools?
- **Proposed Solution:** Design a solar-powered device (e.g., a small fan or light) and track its energy usage.
- **AI-Based Roles:**
  - **AI-Based Market Researcher & Data Analyst:** Research solar energy usage in homes and schools, analyze data on energy efficiency.
  - **AI-Based Solution Designer & Developer:** Design a functional solar-powered device and develop a visual prototype.
  - **AI-Based Digital Marketer & Project Manager:** Manage the project, create awareness campaigns on solar energy benefits, and coordinate tasks.

### Assessment:

#### Curriculum Assessment:

- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy tracking) and data analysis (efficiency calculations).
- **English:** Writing manuals on how the solar-powered device works and presenting findings.
- **Technology:** Introduction to basic electronics and renewable energy systems.

#### Ethical & Moral Development:

- Promoting responsible energy use and clean energy.

#### Industry Interest:

- Sparking interest in renewable energy technologies.

#### Role Performance:

- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Creativity and innovation in solar device design.
- **Digital Marketer:** Effectiveness in promoting solar energy usage.

Tools: Canva, Figma, Google Sheets, Google Docs, Microsoft Excel, Trello, ChatGPT, CallAnnie.

### 3. Animal Habitat Conservation Project - Grade 3,4

- **Industry:** Wildlife Conservation
- **Problem:** How can we protect animal habitats and promote conservation?
- **Proposed Solution:** Create a model of an animal habitat and propose solutions to protect the species living there.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research animal habitats and analyze data on endangered species.
- **AI-Based Solution Designer & Developer:** Create a model of an animal habitat using recycled materials.
- **AI-Based Digital Marketer & Project Manager:** Create educational materials and campaigns to raise awareness about animal conservation.

#### Grade 3 Curriculum Assessment:

- **Science:** Animal habitats, ecosystems, conservation.
- **Math:** Data collection and graphing on animal populations.
- **English:** Writing reports on endangered species and creating presentations on conservation.
- **Social Studies:** Understanding the impact of human activities on wildlife.

#### Ethical & Moral Development:

- Understanding environmental responsibility and protecting wildlife.

#### Industry Interest:

- Interest in wildlife conservation and environmental protection.

#### Role Performance:

- **Market Researcher:** Quality of research on animal habitats.
- **Solution Designer:** Creativity in designing the habitat model.
- **Digital Marketer:** Effectiveness in promoting awareness campaigns.

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**Tools:**

- **Canva, Figma, Google Docs, Google Forms, Trello, Microsoft Excel, ChatGPT, CallAnnie.**

**4. Building a Water Filtration System - Grade 3,4**

- **Industry:** Environmental Engineering
- **Problem:** How can we create a simple, effective water filtration system to provide clean water?
- **Proposed Solution:** Design and build a basic water filtration system using accessible materials.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the effectiveness of water filtration systems and collect data on clean water access.
- **AI-Based Solution Designer & Developer:** Design and build the water filtration system using simple materials.
- **AI-Based Digital Marketer & Project Manager:** Create campaigns to educate the community on water filtration and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Water filtration processes, the water cycle.
- **Math:** Measurement (volume of water filtered) and comparison of water quality data.
- **English:** Writing reports on the water filtration process and results.
- **Social Studies:** Understanding the importance of clean water access.

**Ethical & Moral Development:**

- Promoting sustainability, water conservation, and clean water access.

**Industry Interest:**

- Interest in environmental engineering and public health solutions.

**Role Performance:**

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- **Market Researcher:** Thoroughness in data collection.
- **Solution Designer:** Practicality of the water filtration system.
- **Digital Marketer:** Clarity in educational campaigns on clean water access.

**Tools:**

- **Canva, Trello, Google Sheets, Microsoft Excel, Figma, Google Forms, ChatGPT, CallAnnie.**

**5. Creating a Basic Weather Station - Grade 3,4**

- **Industry:** Meteorology
- **Problem:** How can we monitor local weather and make predictions based on collected data?
- **Proposed Solution:** Build a simple weather station and collect data on temperature, rainfall, and wind patterns.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research weather patterns and analyze local weather data.
- **AI-Based Solution Designer & Developer:** Design and build a basic weather station using available materials.
- **AI-Based Digital Marketer & Project Manager:** Create weather reports and manage project timelines.

**Grade 3 Curriculum Assessment:**

- **Science:** Weather patterns, atmospheric changes.
- **Math:** Recording and analyzing weather data.
- **English:** Writing weather reports and documenting data findings.
- **Technology:** Using sensors to monitor weather conditions.

**Ethical & Moral Development:**

- Understanding weather patterns and environmental preparedness.

**Industry Interest:**

- Interest in meteorology and climate science.

**Role Performance:**

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- **Market Researcher:** Accuracy in data collection.
- **Solution Designer:** Functionality of the weather station design.
- **Digital Marketer:** Effectiveness in promoting weather awareness.

**Tools:**

- **Google Sheets, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

## 6. Designing a Recycled Art Exhibition - Grade 3,4

- **Industry:** Creative Arts and Environmental Awareness
- **Problem:** How can we use art to promote recycling and sustainability?
- **Proposed Solution:** Design and create art pieces from recycled materials and hold an exhibition.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the use of recycled materials in art and analyze environmental impacts.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create simple animations showcasing how recycled materials are transformed into art.
- **AI-Based Digital Marketer & Project Manager:** Promote the exhibition and manage the timeline, raising awareness of recycling through art.

**Grade 3 Curriculum Assessment:**

- **Science:** Recycling, material science.
- **Math:** Estimation, measurement of materials.
- **English:** Writing descriptions for the art pieces, creating promotional content.
- **Art:** Designing creative, sustainable art from recycled materials.

**Ethical & Moral Development:**

- Promoting environmental sustainability and creativity through recycling.

**Industry Interest:**

- Creative arts, design, and environmental awareness.

**Role Performance:**

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- **Market Researcher:** Effectiveness in researching the use of recycled materials.
- **Solution Designer:** Creativity in the design and transformation of recycled materials into art.
- **Digital Marketer:** Success in promoting the exhibition.

**Tools:**

- **Canva, Figma, Scratch Junior, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

## 7. Community Helpers Documentary Project - Grade 3,4

- **Industry:** Social Studies and Media
- **Problem:** How can we showcase the important roles of community helpers?
- **Proposed Solution:** Create a short documentary highlighting different community helpers and their contributions.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research various community helper roles and collect data on their contributions.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to create a simple app for learning about community helpers through interactive content.
- **AI-Based Digital Marketer & Project Manager:** Promote the documentary and app through social media campaigns and manage the project timeline.

**Grade 3 Curriculum Assessment:**

- **Social Studies:** Understanding the role of community helpers.
- **English:** Writing interview questions, documentary scripts.
- **Technology:** Using video editing software and **MIT App Inventor** for the project.
- **Art:** Creating visual aids and posters to promote the documentary.

**Ethical & Moral Development:**

- Promoting respect and appreciation for community helpers.

**Industry Interest:**

- Media production, journalism, and social services.

**Role Performance:**

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- **Market Researcher:** Depth and accuracy of research on community helpers.
- **Solution Designer:** Creativity in designing the interactive app.
- **Digital Marketer:** Effectiveness of promotional campaigns.

#### **Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Adobe Premiere Rush (for video editing), Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **8. Designing a School Recycling Program - Grade 3,4**

- **Industry:** Environmental Management
- **Problem:** How can we reduce waste at school by implementing a recycling program?
- **Proposed Solution:** Design a school-wide recycling program using **MIT App Inventor** to build an app that tracks recycling habits.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research the school's current waste management practices and collect data on recycling efforts.
- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design an app that tracks recycling efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the recycling program through digital campaigns and manage the timeline.

#### **Grade 3 Curriculum Assessment:**

- **Science:** Waste management, recycling.
- **Math:** Data collection and analysis of waste reduction.
- **English:** Writing proposals and reports on recycling.
- **Social Studies:** Community responsibility for environmental protection.

#### **Ethical & Moral Development:**

- Promoting responsibility for environmental sustainability and reducing waste.

#### **Industry Interest:**

- Environmental management and sustainability.

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**Role Performance:**

- **Market Researcher:** Thoroughness in collecting and analyzing data on waste management.
- **Solution Designer:** Practicality and effectiveness of the recycling program app.
- **Digital Marketer:** Success in promoting recycling efforts.

**Tools:**

- **MIT App Inventor, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

**9. Creating a Basic Coding Project Using Scratch - Grade 3,4,5**

- **Industry:** Technology and Coding
- **Problem:** How can we use basic coding to create a fun, interactive project?
- **Proposed Solution:** Design a simple game or animation using **Scratch Junior**.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Analyze student preferences for coding projects, collect data on popular game themes.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to design and code the game or animation.
- **AI-Based Digital Marketer & Project Manager:** Promote the coding project to classmates, collect feedback on the game.

**Grade 3 Curriculum Assessment:**

- **Technology:** Introduction to coding and programming logic.
- **Math:** Logical sequencing and problem-solving.
- **English:** Writing instructions and documenting the coding process.
- **Art:** Designing characters and visual elements in the coding project.

**Ethical & Moral Development:**

- Promoting collaboration and responsible technology use.

**Industry Interest:**

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- Programming, game design, and technology development.

#### **Role Performance:**

- **Market Researcher:** Effectiveness in collecting and analyzing coding project preferences.
- **Solution Designer:** Creativity and functionality in the design of the game.
- **Digital Marketer:** Effectiveness in promoting the game.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Forms, Microsoft Excel, ChatGPT, CallAnnie.**

### **10. Local History and Culture Exploration - Grade 3,4**

- **Industry:** Social Studies and History
- **Problem:** How can we learn about the local history and culture of our community?
- **Proposed Solution:** Create a visual representation of local history using **Scratch Junior** to develop simple animations or interactive visuals.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research and collect data on local history and cultural events.
- **AI-Based Solution Designer & Developer:** Use **Scratch Junior** to create interactive animations or visuals of historical events.
- **AI-Based Digital Marketer & Project Manager:** Promote the project and manage the research timeline.

#### **Grade 3 Curriculum Assessment:**

- **Social Studies:** Local history, traditions, and culture.
- **English:** Writing research reports and presenting findings.
- **Art:** Creating visual representations of historical events.
- **Technology:** Using online tools for research and design.

#### **Ethical & Moral Development:**

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- Promoting respect for cultural diversity and historical preservation.

#### **Industry Interest:**

- History, research, and digital storytelling.

#### **Role Performance:**

- **Market Researcher:** Thoroughness of research on local history.
- **Solution Designer:** Creativity in designing the historical timeline.
- **Digital Marketer:** Effectiveness in promoting cultural awareness.

#### **Tools:**

- **Scratch Junior, Canva, Figma, Trello, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.**

### **11. Smart Water Conservation System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can we use technology to reduce water waste in schools and homes?
- **Proposed Solution:** Design a system that monitors water usage and suggests ways to conserve water.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Collect data on water usage and analyze where most water is being wasted.
- **AI-Based Solution Designer & Developer:** Design a water conservation system using digital tools and sensors.
- **AI-Based Digital Marketer & Project Manager:** Manage the timeline and create awareness campaigns to promote water conservation.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Water cycle, water conservation, ecosystems.
  - **Math:** Measurement (tracking water usage), data handling.
  - **English:** Writing reports and presentations on water conservation.

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- **Social Studies:** Understanding global water issues and community involvement in conservation.

### Ethical & Moral Development:

- Teaching responsibility for conserving natural resources.

### Industry Interest:

- Fostering interest in environmental engineering and water management.

### Role Performance:

- **Market Researcher:** Accuracy in data collection on water usage.
- **Solution Designer:** Practicality of the water conservation system design.
- **Digital Marketer:** Effectiveness of water conservation promotion.

**Tools:** Canva, Trello, Figma, Google Forms, Google Docs, ChatGPT, CallAnnie, MIT App Inventor.

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## 12. Designing a Solar-Powered Classroom - Grade 4,5

- **Industry:** Renewable Energy
- **Problem:** How can we make classrooms more energy-efficient using solar power?
- **Proposed Solution:** Design a system that powers the classroom with solar panels and track energy savings.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research solar energy usage and analyze energy savings data.
- **AI-Based Solution Designer & Developer:** Design the solar-powered system for the classroom using digital tools.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to encourage solar power usage and manage the project.

### Assessments:

- **Curriculum Assessment:**

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- **Science:** Renewable energy sources, solar power.
- **Math:** Measurement (energy usage), data analysis.
- **English:** Writing reports on energy savings and presenting the solar system design.
- **Technology:** Understanding renewable energy technologies and systems.

### **Ethical & Moral Development:**

- Promoting responsible use of energy and sustainable living.

### **Industry Interest:**

- Renewable energy technology and environmental sciences.

### **Role Performance:**

- **Market Researcher:** Quality of research and data analysis.
- **Solution Designer:** Innovation in the solar power system design.
- **Digital Marketer:** Promotion effectiveness and project management.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

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## **13. Eco-Friendly Transportation Solutions - Grade 3,4,5**

- **Industry:** Transportation and Sustainability
- **Problem:** How can we create a transportation system that reduces pollution and energy usage?
- **Proposed Solution:** Design a transportation system (e.g., bicycles, electric buses) that minimizes pollution and energy consumption.

### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research current transportation methods and analyze their environmental impact.
- **AI-Based Solution Designer & Developer:** Design an eco-friendly transportation model.
- **AI-Based Digital Marketer & Project Manager:** Promote the benefits of eco-friendly transportation and manage project timelines.

## Assessments:

- **Curriculum Assessment:**
  - **Science:** Energy sources, pollution, and transportation systems.
  - **Math:** Data handling and analysis on energy use.
  - **English:** Writing proposals for the eco-friendly transportation system.
  - **Social Studies:** Understanding transportation's impact on society and the environment.

## Ethical & Moral Development:

- Promoting responsibility for reducing pollution and protecting the environment.

## Industry Interest:

- Sustainable transportation and environmental engineering.

## Role Performance:

- **Market Researcher:** Quality of research on transportation systems.
- **Solution Designer:** Creativity in designing eco-friendly transportation.
- **Digital Marketer:** Effectiveness in promoting the system and managing the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Google Docs, ChatGPT, CallAnnie.

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## 14. Virtual Health Clinic Simulation - Grade 4,5

- **Industry:** Health/Medicine
- **Problem:** How can we use technology to make healthcare more accessible and efficient?
- **Proposed Solution:** Design a virtual health clinic that uses AI to simulate patient consultations and monitor health metrics.

## AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze data on healthcare access and patient needs.

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- **AI-Based Solution Designer & Developer:** Use **MIT App Inventor** to design a virtual health clinic that offers AI-driven patient monitoring.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual clinic and manage project timelines.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Human body, healthcare, technology in medicine.
  - **Math:** Data analysis on patient health metrics.
  - **English:** Writing patient reports and presenting healthcare solutions.
  - **Technology:** Understanding AI applications in healthcare.

#### **Ethical & Moral Development:**

- Promoting empathy, access to healthcare, and patient privacy.

#### **Industry Interest:**

- Health technologies, telemedicine, and patient care.

#### **Role Performance:**

- **Market Researcher:** Accuracy in healthcare data analysis.
- **Solution Designer:** Innovation in creating a virtual health clinic.
- **Digital Marketer:** Success in promoting the clinic.

**Tools:** MIT App Inventor, Figma, Trello, Canva, Google Docs, ChatGPT, CallAnnie.

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#### **15. Climate Change Awareness Campaign - Grade 4,5**

- **Industry:** Environmental Science
- **Problem:** How can we raise awareness about climate change and its effects on our environment?
- **Proposed Solution:** Design an awareness campaign that educates the public about climate change through digital tools.

#### **AI-Based Roles:**

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- **AI-Based Market Researcher & Data Analyst:** Research climate change effects and collect data on public awareness.
- **AI-Based Solution Designer & Developer:** Create an interactive presentation or website to educate the public on climate change.
- **AI-Based Digital Marketer & Project Manager:** Manage the awareness campaign and promote it using digital tools.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Science:** Climate change, ecosystems, sustainability.
  - **Math:** Data analysis of climate trends.
  - **English:** Writing reports and creating climate awareness materials.
  - **Social Studies:** Understanding the societal impact of climate change.

#### **Ethical & Moral Development:**

- Promoting awareness of environmental responsibility and the impact of human activities on the planet.

#### **Industry Interest:**

- Climate science, environmental policy, and digital marketing.

#### **Role Performance:**

- **Market Researcher:** Depth of research on climate change.
- **Solution Designer:** Effectiveness of the digital campaign design.
- **Digital Marketer:** Impact of the awareness campaign and its reach.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, ChatGPT, CallAnnie.

## **16. Designing a Smart Waste Management System - Grade 4,5**

- **Industry:** Environmental Engineering
- **Problem:** How can cities optimize waste collection and reduce environmental impact?
- **Proposed Solution:** Develop a model that uses sensors and data analysis to optimize waste collection routes and schedules.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current waste management practices and analyze data on waste production.
- **AI-Based Solution Designer & Developer:** Design a system that uses sensors to track waste levels and optimize collection routes.
- **AI-Based Digital Marketer & Project Manager:** Manage the project timeline and create awareness materials to educate the community on waste management.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Waste management, environmental impact.
  - **Math:** Data analysis and route optimization.
  - **English:** Writing reports and presenting the waste management solution.
  - **Social Studies:** Understanding the societal and environmental impact of waste management.

### Ethical & Moral Development:

- Promoting environmental responsibility and efficient resource management.

### Industry Interest:

- Environmental engineering and waste management.

### Role Performance:

- **Market Researcher:** Quality of research on waste management systems.
- **Solution Designer:** Innovation and practicality in designing the waste management system.
- **Digital Marketer:** Success in promoting the solution.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, ChatGPT, CallAnnie.

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## 17. Creating a Local History and Culture Website - Grade 5,6

- **Industry:** Social Studies and Media

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- **Problem:** How can we preserve and showcase the local history and culture of our community?
- **Proposed Solution:** Create a website that presents key historical events, cultural artifacts, and traditions of the local community.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research local history and culture, analyze historical data.
- **AI-Based Solution Designer & Developer:** Design and build the website using digital tools to present local history.
- **AI-Based Digital Marketer & Project Manager:** Promote the website and manage the project timeline.

#### Assessments:

- **Curriculum Assessment:**
  - **Social Studies:** Local history, traditions, and community.
  - **English:** Writing articles and creating content for the website.
  - **Technology:** Website design and development.
  - **Art:** Designing the visual layout of the website.

#### Ethical & Moral Development:

- Teaching respect for cultural diversity and the importance of preserving local history.

#### Industry Interest:

- Media production, digital storytelling, and local history.

#### Role Performance:

- **Market Researcher:** Depth and accuracy of historical research.
- **Solution Designer:** Creativity in designing the website layout.
- **Digital Marketer:** Effectiveness in promoting the website.

**Tools:** Canva, Figma, Trello, Google Docs, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

## 18. Designing an Eco-Friendly School Playground - Grade 4,5

- **Industry:** Environmental Science and Design
- **Problem:** How can we design a school playground that minimizes environmental impact and promotes sustainability?
- **Proposed Solution:** Design a playground using sustainable materials and renewable energy sources (e.g., solar-powered lights).

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research eco-friendly materials and playground designs.
- **AI-Based Solution Designer & Developer:** Design the playground layout using sustainable materials.
- **AI-Based Digital Marketer & Project Manager:** Create promotional materials to raise awareness about the eco-friendly playground and manage project timelines.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Sustainable materials, renewable energy.
  - **Math:** Measurement and calculation of playground dimensions.
  - **English:** Writing proposals for the playground design.
  - **Art:** Designing the layout of the eco-friendly playground.

### Ethical & Moral Development:

- Promoting sustainability and environmental responsibility.

### Industry Interest:

- Environmental design, landscape architecture, and sustainability.

### Role Performance:

- **Market Researcher:** Accuracy in researching eco-friendly materials.
- **Solution Designer:** Creativity in designing the playground layout.
- **Digital Marketer:** Effectiveness in raising awareness about the playground.

**Tools:** Canva, Figma, Trello, Google Sheets, Scratch Junior, Microsoft Excel, Google Forms, ChatGPT, CallAnnie.

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## 19. Building a Weather Station and Forecasting System - Grade 5,6

- **Industry:** Meteorology and Technology
- **Problem:** How can we create a weather station that helps monitor local weather conditions and forecast future trends?
- **Proposed Solution:** Build a simple weather station to monitor temperature, rainfall, and wind speed, and use data to create weather forecasts.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect and analyze weather data from the station.
- **AI-Based Solution Designer & Developer:** Design and build the weather station and integrate sensors for data collection.
- **AI-Based Digital Marketer & Project Manager:** Promote the weather station project and manage data presentation.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Weather systems, data collection, and analysis.
  - **Math:** Data handling and graphing weather data.
  - **English:** Writing weather reports and presenting findings.
  - **Technology:** Building and programming the weather station.

### Ethical & Moral Development:

- Promoting responsibility for environmental monitoring and preparedness.

### Industry Interest:

- Meteorology, climate science, and data analysis.

### Role Performance:

- **Market Researcher:** Thoroughness in collecting and analyzing weather data.
- **Solution Designer:** Effectiveness of the weather station design.
- **Digital Marketer:** Impact of promotional materials for the project.

Tools: Canva, Figma, Trello, Scratch Junior, Google Sheets, Microsoft Excel, ChatGPT, CallAnnie.

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## 20. Animal Habitat Preservation Project - Grade 5,6

- **Industry:** Wildlife Conservation and Environmental Science
- **Problem:** How can we protect endangered animal habitats and raise awareness about conservation efforts?
- **Proposed Solution:** Design a project that promotes habitat conservation and uses AI to monitor the health of local ecosystems.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research endangered species and analyze habitat loss data.
- **AI-Based Solution Designer & Developer:** Design an app or tool that tracks the health of animal habitats and promotes conservation efforts.
- **AI-Based Digital Marketer & Project Manager:** Promote the conservation project and manage community outreach.

### Assessments:

- **Curriculum Assessment:**
  - **Science:** Animal habitats, ecosystems, and conservation.
  - **Math:** Data analysis of habitat loss and species numbers.
  - **English:** Writing reports on conservation efforts and habitat protection.
  - **Social Studies:** Understanding human impact on the environment and the need for conservation.

### Ethical & Moral Development:

- Promoting respect for wildlife and the importance of conservation.

### Industry Interest:

- Wildlife conservation, environmental science, and technology.

### Role Performance:

- **Market Researcher:** Thoroughness in researching endangered species.

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- **Solution Designer:** Creativity in designing the conservation tool.
- **Digital Marketer:** Success in promoting conservation efforts.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

## 21. Designing an Eco-Friendly Sports Facility - Grade 5,6

- **Industry:** Environmental Science and Physical Education
- **Problem:** How can we design a sports facility that promotes physical activity and minimizes environmental impact?
- **Proposed Solution:** Create a layout for a sports facility that uses renewable energy, recycled materials, and water conservation practices.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Research current sports facility designs and analyze data on energy use and environmental impact.
- **AI-Based Solution Designer & Developer:** Design the facility layout using sustainable materials and renewable energy sources.
- **AI-Based Digital Marketer & Project Manager:** Create awareness campaigns promoting physical activity and environmental responsibility.

### Assessments:

- **Curriculum Assessment:**
  - **Physical Education:** Importance of physical activity and sports.
  - **Science:** Renewable energy, recycling, and environmental sustainability.
  - **Math:** Measurement and calculation of facility dimensions and energy savings.
  - **English:** Writing reports on the design and presenting it to the class or school community.

### Ethical & Moral Development:

- Promoting teamwork, physical activity, and environmental responsibility.

### Industry Interest:

- Physical education, environmental science, and sports management.

**Role Performance:**

- **Market Researcher:** Quality of research on sports facility designs.
- **Solution Designer:** Creativity and practicality in designing the sports facility.
- **Digital Marketer:** Effectiveness in promoting the facility and encouraging physical activity.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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**22. Creating a School Nutrition Program - Grade 5,6**

- **Industry:** Health and Nutrition
- **Problem:** How can we improve student health through better nutrition?
- **Proposed Solution:** Design a healthy meal plan for the school cafeteria that considers balanced nutrition and promotes healthy eating habits.

**AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research healthy meal plans and analyze data on student eating habits.
- **AI-Based Solution Designer & Developer:** Design a nutrition program for the school cafeteria, incorporating local, healthy food options.
- **AI-Based Digital Marketer & Project Manager:** Promote the nutrition program with educational campaigns on healthy eating.

**Assessments:**

- **Curriculum Assessment:**
  - **Health Education:** Importance of balanced nutrition and healthy eating.
  - **Science:** Human body and nutrition.
  - **Math:** Measuring portion sizes, data analysis on food choices.
  - **English:** Writing reports on nutrition and presenting it to students and staff.

**Ethical & Moral Development:**

- Promoting responsibility for personal health and well-being.

### Industry Interest:

- Nutrition, health sciences, and food management.

### Role Performance:

- **Market Researcher:** Quality of research on healthy food options.
- **Solution Designer:** Creativity and practicality in designing the meal plan.
- **Digital Marketer:** Success in promoting the program.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 23. Financial Literacy Market Simulation - Grade 4,5

- **Industry:** Business and Economics
- **Problem:** How can we teach students the basics of budgeting, saving, and spending?
- **Proposed Solution:** Create a virtual market where students simulate running a small business, including managing a budget and making financial decisions.

### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Analyze market trends and customer preferences.
- **AI-Based Solution Designer & Developer:** Design a virtual market simulation where students run a small business.
- **AI-Based Digital Marketer & Project Manager:** Promote the virtual market and manage business decisions.

### Assessments:

- **Curriculum Assessment:**
  - **Math:** Budgeting, financial planning, and data handling.
  - **English:** Writing reports and presenting business proposals.
  - **Social Studies:** Understanding economic principles and entrepreneurship.

### Ethical & Moral Development:

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- Teaching responsibility in financial decision-making and honesty in business practices.

#### **Industry Interest:**

- Business, economics, and entrepreneurship.

#### **Role Performance:**

- **Market Researcher:** Effectiveness in researching market trends.
- **Solution Designer:** Innovation and creativity in designing the business simulation.
- **Digital Marketer:** Success in promoting the market.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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#### **24. Building Instruments from Recycled Materials - Grade 3,4**

- **Industry:** Music and Performing Arts
- **Problem:** How can we create musical instruments using recycled materials to promote sustainability and creativity?
- **Proposed Solution:** Design and build musical instruments from recycled materials, then organize a school performance using these instruments.

#### **AI-Based Roles:**

- **AI-Based Market Researcher & Data Analyst:** Research musical instruments made from recycled materials and analyze sound quality.
- **AI-Based Solution Designer & Developer:** Design and build simple instruments using recycled materials.
- **AI-Based Digital Marketer & Project Manager:** Organize and promote a school performance using the recycled instruments.

#### **Assessments:**

- **Curriculum Assessment:**
  - **Music:** Sound and music theory, performance skills.
  - **Science:** Properties of materials, sound waves.

- **Art:** Designing and building creative instruments.
- **English:** Writing descriptions of instruments and promoting the performance.

#### Ethical & Moral Development:

- Promoting creativity, resourcefulness, and environmental sustainability.

#### Industry Interest:

- Music, environmental science, and performing arts.

#### Role Performance:

- **Market Researcher:** Accuracy in researching recycled materials for instruments.
- **Solution Designer:** Creativity in instrument design.
- **Digital Marketer:** Effectiveness in promoting the performance.

Tools: Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie.

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### 25. Peer Mentoring and Emotional Intelligence Program - Grade 3,4

- **Industry:** Social and Emotional Learning (SEL)
- **Problem:** How can we promote teamwork, leadership, and emotional intelligence in schools?
- **Proposed Solution:** Organize a peer mentoring program where older students help younger students solve academic or social challenges, fostering leadership and empathy.

#### AI-Based Roles:

- **AI-Based Market Researcher & Data Analyst:** Collect data on peer mentoring programs and analyze their effectiveness.
- **AI-Based Solution Designer & Developer:** Design a mentoring program that pairs students and includes emotional intelligence activities.
- **AI-Based Digital Marketer & Project Manager:** Promote the program within the school and manage the timeline.

#### Assessments:

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- **Curriculum Assessment:**

- **Social Studies:** Understanding leadership, teamwork, and community involvement.
- **English:** Writing reports and reflections on mentoring experiences.
- **Science:** Brain development and emotional intelligence.

### **Ethical & Moral Development:**

- Promoting empathy, leadership, and social responsibility.

### **Industry Interest:**

- Leadership development, education, and social services.

### **Role Performance:**

- **Market Researcher:** Quality of research on mentoring programs.
- **Solution Designer:** Creativity in designing emotional intelligence activities.
- **Digital Marketer:** Success in promoting the mentoring program.

**Tools:** Canva, Figma, Trello, Scratch Junior, Google Docs, Microsoft Excel, ChatGPT, CallAnnie