KidNCode Afterschool Program Overview

Ages: 6-16
No of Levels: 6
Total Milestones: 24

Each level is structured to last about **4 months**, with each milestone intended to take **1 month** for students attending two sessions per week. For students who attend only one session per week, it will take double the time to complete each milestone.

Theme: Play, Build, Create, Innovate & Master Advanced Tech

Level 1: Code Explorers -- Foundations of Digital Literacy

- **Goal:** Introduce students to basic computer operations, coding concepts, and digital literacy.
- **Outcome:** Students will demonstrate foundational skills in block-based coding, web development, and game design through simple projects like animations, interactive stories, webpages, and Minecraft levels.

1. **Pixel Animator (Red)**
    - **Goal:** Understand basic computer operations and logical thinking.
    - **Project:** Create a 10-second animation with at least 2 characters using block-based coding.
    - **Outcome:** Students will demonstrate the ability to create a simple animation using block-based coding.
    - **Technology & Tools:** Scratch Jr.
2. **Story Creator (Blue)**
    - **Goal:** Learn basic coding concepts like loops, conditions, and events.
    - **Project:** Create an interactive story with at least 3 interactions and 2 characters using Scratch.
    - **Outcome:** Students will create an interactive story, demonstrating understanding of loops and event handling.
    - **Technology & Tools:** Scratch.
3. **Web Designer (Yellow)**
    - **Goal:** Understand web development basics and create a simple webpage.
    - **Project:** Create a webpage with text, images, and at least 2 links using HTML and CSS.

    - **Outcome:** Students will create a functional webpage, demonstrating understanding of HTML and CSS.
    - **Technology & Tools:** Code.org's Web Lab.
4. **Game Builder (Green)**
    - **Goal:** Learn game design fundamentals and create a playable level.
    - **Project:** Create a Minecraft game level with 3 objectives and 5 obstacles.
    - **Outcome:** Students will design and test a playable Minecraft level, demonstrating understanding of game design.
    - **Technology & Tools:** Minecraft Education Edition.

Level 2: Code Adventurers -- Introduction to Programming & AI

- **Goal:** Teach students basic programming concepts, AI fundamentals, and how to modify games.
- **Outcome:** Students will create functional projects like a virtual pet game in Python, modified Minecraft worlds, AI-generated art, and simple apps, demonstrating their understanding of programming and AI basics.

5. **Python Coder (Orange)**
    - **Goal:** Understand basic programming concepts like variables, loops, and user input.
    - **Project:** Write a Python program where a virtual pet responds to at least 3 user commands.
    - **Outcome:** Students will create a functional virtual pet game, demonstrating understanding of Python basics.
    - **Technology & Tools:** Tynker's Python editor.
6. **Game Modder (Purple)**
    - **Goal:** Learn JavaScript basics and apply them to modify games.
    - **Project:** Modify a Minecraft template game by changing an object or behavior using JavaScript.
    - **Outcome:** Students will modify a Minecraft world, demonstrating understanding of JavaScript.
    - **Technology & Tools:** Minecraft Code Builder.
7. **AI Artist (Pink)**
    - **Goal:** Understand AI basics and create AI-generated content.
    - **Project:** Generate and customize an AI-created image, then incorporate it into a short story.
    - **Outcome:** Students will create an AI-generated image and story, demonstrating understanding of AI tools.
    - **Technology & Tools:** Tynker's AI Module.

8. **App Creator (Teal)**
    - **Goal:** Learn no-code tools to create simple apps or games.
    - **Project:** Create an interactive app with at least 3 features (e.g., buttons, images, text).
    - **Outcome:** Students will create a functional mobile app, demonstrating understanding of no-code tools.
    - **Technology & Tools:** Tynker's App Development Module.

Level 3: Code Innovators -- Robotics & Advanced Programming

- **Goal:** Introduce students to robotics, advanced programming, and AI tools for creative projects.
- **Outcome:** Students will program robots, create AI-generated videos, build functional apps, and develop text-based games, showcasing their ability to apply advanced programming and robotics concepts.

9. **Robot Engineer (Brown)**
    - **Goal:** Understand robotics basics and program a robot to complete tasks.
    - **Project:** Build a LEGO robot and program it to complete an obstacle course.
    - **Outcome:** Students will program a robot to complete a task, demonstrating understanding of robotics.
    - **Technology & Tools:** LEGO Spike Prime.

Robot Engineer (Brown) – Online Learning Version

- **Goal**: Understand the fundamentals of robotics and learn to program a virtual robot using VEXcode VR to complete tasks.
- **Project**: Program a virtual robot in VEXcode VR to navigate a maze and collect objects using sensors and loops.
- **Outcome**: Students will successfully program a virtual robot to complete the Wall Maze challenge, demonstrating their understanding of robotics, programming logic, and problem-solving.
- **Technology & Tools**: VEXcode VR (browser-based, no hardware required).

10. **Video Producer (Beige)**
    - **Goal:** Learn AI tools for creative projects and create a short video.
    - **Project:** Generate a video with AI-assisted content, including background music and visuals.
    - **Outcome:** Students will create a 30-second AI-generated video, demonstrating understanding of AI tools for creative projects.

    - **Technology & Tools:** Tynker's AI Module.
11. **App Innovator (Olive)**
    - **Goal:** Master no-code tools to build functional apps.
    - **Project:** Build an app with at least 3 working functions (e.g., user input, data storage, interactivity).
    - **Outcome:** Students will create a functional app with multiple features, demonstrating mastery of no-code tools.
    - **Technology & Tools:** Tynker's App Development Module.
12. **Game Developer (Terracotta)**
    - **Goal:** Learn Python basics and create a text-based game.
    - **Project:** Create a text-based game where the player makes decisions that affect the outcome.
    - **Outcome:** Students will create a text-based game, demonstrating understanding of Python programming.
    - **Technology & Tools:** Tynker's Python editor.

Level 4: Code Creators -- Web Development & Game Design

- **Goal:** Teach students web development, game design, and 3D game creation using tools like Unity and Roblox Studio.
- **Outcome:** Students will create personal blogs, custom Roblox games, 3D Unity games, and professional business websites, demonstrating their skills in web development and game design.

13. **Blog Designer (Sapphire)**
    - **Goal:** Learn web development basics and create a personal blog.
    - **Project:** Create a website with at least 3 pages, including text, images, and links.
    - **Outcome:** Students will create a personal blog, demonstrating understanding of web development.
    - **Technology & Tools:** Tynker's Web Development Module.
14. **Game Creator (Amber)**
    - **Goal:** Learn Lua scripting and create a custom interactive game.
    - **Project:** Create a game in Roblox with animations and user interactions.
    - **Outcome:** Students will create a custom Roblox game, demonstrating understanding of Lua scripting.
    - **Technology & Tools:** Roblox Studio.
15. **3D Designer (Ruby)**
    - **Goal:** Learn Unity basics and create a 3D game.

    - **Project:** Create a 3D game where the player can move and interact with objects.
    - **Outcome:** Students will create a 3D game, demonstrating understanding of Unity.
    - **Technology & Tools:** Unity.
16. **Website Designer (Emerald)**
    - **Goal:** Learn web development tools and create a business website.
    - **Project:** Create a business website that is mobile-responsive and visually appealing.
    - **Outcome:** Students will create a professional business website, demonstrating understanding of web development.
    - **Technology & Tools:** Tynker's Web Development Module.

Level 5: AI & Data Wizards -- Artificial Intelligence & Machine Learning Basics

- **Goal:** Introduce students to machine learning, data analysis, and automation using Python and AI tools.
- **Outcome:** Students will train AI models, automate social media tasks, create data visualizations, and develop functional chatbots, showcasing their understanding of AI, data analysis, and automation.

17. **AI Trainer (Bronze)**
    - **Goal:** Understand machine learning basics and train an AI model.
    - **Project:** Train an AI model to classify at least 3 different image types.
    - **Outcome:** Students will train an AI model, demonstrating understanding of machine learning.
    - **Technology & Tools:** Tynker's AI Module.
18. **Automation Expert (Copper)**
    - **Goal:** Learn Python scripting for automation and automate social media tasks.
    - **Project:** Write a Python script to automate social media post scheduling.
    - **Outcome:** Students will create a bot that schedules posts, demonstrating understanding of automation.
    - **Technology & Tools:** Tynker's Python editor.
19. **Data Analyst (Steel)**
    - **Goal:** Learn data analysis basics and create visualizations.
    - **Project:** Analyze a dataset and create visualizations to present insights.

    - **Outcome:** Students will create a data visualization report, demonstrating understanding of data analysis.
    - **Technology & Tools:** Tynker's Data Science Module.
20. **Chatbot Developer (Titanium)**
    - **Goal:** Learn AI chatbot development and create a functional chatbot.
    - **Project:** Create a chatbot that can answer at least 3 basic questions.
    - **Outcome:** Students will create a functional chatbot, demonstrating understanding of AI chatbot development.
    - **Technology & Tools:** Tynker's AI Module.

Level 6: Tech Masters -- Capstone Projects & Advanced Tech

- **Goal:** Allow students to showcase their mastery of all learned skills through advanced projects in cybersecurity, 3D game development, full-stack web development, and a final capstone project.
- **Outcome:** Students will present advanced projects like cybersecurity simulations, 3D games with multiplayer features, full-stack web apps, and a master project, demonstrating their comprehensive understanding of advanced tech concepts.

21. **Cybersecurity Guardian (Silver)**
    - **Goal:** Learn the basics of cybersecurity and ethical hacking.
    - **Project:** Create a cybersecurity simulation where they identify and fix vulnerabilities in a mock system.
    - **Outcome:** Students will demonstrate the ability to identify vulnerabilities and implement basic security measures, showcasing their understanding of cybersecurity principles.
    - **Technology & Tools:** Tynker's Python editor, cybersecurity simulation tools.
22. **3D Master (Gold)**
    - **Goal:** Learn advanced Unity features and enhance a 3D game.
    - **Project:** Create a 3D game with at least 2 advanced features (e.g., multiplayer, AI enemies).
    - **Outcome:** Students will create an advanced 3D game, demonstrating mastery of Unity.
    - **Technology & Tools:** Unity.
23. **Full-Stack Developer (Diamond)**
    - **Goal:** Learn full-stack development and create a functional web app.
    - **Project:** Create a web app with user authentication and a database.

- **Outcome:** Students will create a full-stack web app, demonstrating understanding of full-stack development.
- **Technology & Tools:** Tynker's Web Development Module.

24. **Tech Champion (Platinum)**
    - **Goal:** Showcase all learned skills in a final project.
    - **Project:** Create a master project (e.g., game, app, website) and present it to peers and instructors.
    - **Outcome:** Students will present a complete tech project, demonstrating mastery of all learned skills.
    - **Technology & Tools:** Any learned language (e.g., Python, JavaScript, Lua, C#), any learned tools (e.g., Unity, Tynker, Roblox Studio).

Summary of this Program

The **KidNCode Afterschool Program** is designed to prepare kids for the future by equipping them with **cutting-edge tech skills**, fostering **creativity and problem-solving**, and providing a **fun, engaging learning experience**. Here's why parents and kids love our program:

1. **Future-Ready Skills:** Prepares kids for careers in coding, AI, robotics, game development, web development, and more.
2. **Clear Outcomes:** Each milestone has measurable goals and outcomes, allowing parents to track progress easily.
3. **Project-Based Learning:** Kids learn by creating real-world projects like games, apps, websites, and robots, making learning fun and practical.
4. **Flexible & Independent Milestones:** Students can join at any level and progress at their own pace, ensuring every child thrives.
5. **Engaging Tools:** Uses platforms like **Scratch, Minecraft, Roblox, Unity, Python, Teachable Machine, VexCode VR and Tynker** to keep kids motivated and excited.
6. **Focus on Creativity & Problem-Solving:** Encourages kids to think critically, design solutions, and bring their ideas to life.
7. **Parental Involvement:** Regular updates on what kids are learning and creating, with clear outcomes for each milestone.
8. **Marketable & Easy to Showcase:** Projects like games, apps, and websites can be showcased to parents and the community, making it easy to market the program.
9. **Scalable & Easy to Manage:** Each level and milestone is designed to be taught independently, making it easy to manage and scale.