**Course Overview: "Adventures in Coding: Build Your First AI App!"**

**Duration**: 10 Sessions (2 Weeks)  
**Target Audience**: Grade 3-4 Beginners (Ages 8-10)  
**Tools**: MIT App Inventor  
**Course Philosophy**: *"Learn by Creating"*

**Course Outcomes**

By the end of this course, students will:

1. Understand basic coding concepts (sequences, events, loops).
2. Build 5+ interactive apps using MIT App Inventor.
3. Explain AI in simple terms and create basic AI-powered apps.
4. Develop problem-solving and logical thinking skills.
5. Collaborate on projects and present their work confidently.

**Daily Curriculum Breakdown**

**Week 1: Coding Fundamentals**

| **Day** | **Topic** | **Objectives** | **Project** | **Assessment** |
| --- | --- | --- | --- | --- |
| 1 | What is an App? | - Understand app components (UI, logic) - Navigate MIT App Inventor | "Talk to Me" (Text-to-Speech) | Participation + Completed App |
| 2 | Game Design Basics | - Learn event-driven programming - Use collision detection | "Ball Bounce" game | Debugging challenges |
| 3 | Creative Storytelling | - Sequence animations - Integrate multimedia (images/sound) | "Digital Comic Maker" | Storyboard worksheet |
| 4 | Intro to AI | - Define AI in kid-friendly terms - Explore image recognition | "Emoji Mood Detector" | Quiz: "How AI Sees the World" |
| 5 | Mini Hackathon | - Apply Week 1 skills - Collaborate in teams | Customized app showcase | Peer feedback + Teacher rubric |

**Week 2: AI & Real-World Apps**

| **Day** | **Topic** | **Objectives** | **Project** | **Assessment** |
| --- | --- | --- | --- | --- |
| 6 | Chatbots | - Understand Q&A logic - Create simple decision trees | "My First Chatbot" | Accuracy of bot responses |
| 7 | Voice Technology | - Explore voice assistants - Use speech recognition | "Voice Drawing Board" | Creativity in commands |
| 8 | Puzzle Games | - Develop logical reasoning - Use GPS/location concepts | "Treasure Hunt" | Problem-solving checklist |
| 9 | AI for Good | - Discuss ethical AI use - Design apps for social impact | "Save the Tigers Quiz" | Idea pitch to class |
| 10 | Demo Day | - Present projects - Reflect on learning | Final app showcase | Parent/teacher evaluation rubric |

**Pedagogical Approach**

1. **Scaffolded Learning**:
   * Session 1-3: Concrete projects (visual output)
   * Session 4-6: Abstract thinking (AI logic)
   * Session 7-10: Creative application
2. **Inclusive Activities**:
   * Unplugged option: Use printed "block coding" cards for students without devices.
   * Pair programming: Team up advanced learners with beginners.
3. **Differentiated Instruction**:
   * **Extension**: Add complexity (e.g., score counters in games).
   * **Support**: Pre-built templates for struggling students.

**Assessment Tools**

1. **Formative**:
   * Thumbs-up/down check-ins
   * Screenshot journals (Students save daily progress)
2. **Summative**:
   * **Demo Day Rubric** (Rate creativity, functionality, presentation)
   * **Parent Feedback Form** (Post-course survey)

**Materials Checklist**

* **For Students**:
  + Worksheets (e.g., "Design Your Dream App")
  + Certificate templates
* **For Trainers**:
  + Troubleshooting guide (Common MIT App Inventor errors)
  + Sample apps for demonstration

**Sample Lesson Plan (Day 4: Intro to AI)**

**Objective**: Students will train a simple image classifier to detect emotions.

1. **Hook (10 mins)**:
   * Play Google Quick Draw; discuss how AI "learns" from examples.
2. **Direct Instruction (15 mins)**:
   * Demo "Emoji Mood Detector" app.
   * Teach: "AI is like teaching a baby – show it many pictures!"
3. **Guided Practice (20 mins)**:
   * Students add 3 emoji images (happy/sad/angry) to their app.
4. **Independent Practice (10 mins)**:
   * Customize: Change emoji colors or add sound effects.
5. **Wrap-up (5 mins)**:
   * Share: "How could this app help someone in real life?"

**Post-Course Outcomes**

* **Skills Gained**: Computational thinking, design mindset, AI literacy.
* **Tangible Takeways**:
  + Portfolio of 5+ apps
  + Certificate of Completion
  + Parent guide to continue learning at home