Course Title:

"Creative Coders: Build Mobile Apps with MIT App Inventor"

(Grades 5-7 | 4 Weeks | 12 Sessions)

Course Outcomes

By the end of this course, students will:

1. Master **computational thinking** (decomposition, patterns, algorithms).
2. Build **6 functional apps** with increasing complexity.
3. Understand **event-driven programming** and **UI design**.
4. Apply **problem-solving** skills to real-world scenarios.
5. Showcase a **final project** addressing community needs.

Weekly Breakdown

Week 1: Foundations & Simple Apps

Objective: Introduce MIT App Inventor and basic app logic.

- **Session 1**: "Hello, Me!"
    - *Skills*: Button events, media upload (image/sound).
    - *Project*: Personal intro app with voice recording.
- **Session 2**: "Soundboard Fun"
    - *Skills*: Multiple buttons, procedure abstraction.
    - *Project*: Animal soundboard app.
- **Session 3**: "Mini Quiz Game"
    - *Skills*: Conditional logic, scoring.
    - *Project*: 5-question trivia app.

Assessment: Debugging challenge (fix a pre-built app).

Week 2: Interactive Games & Animation

Objective: Develop games with sprites and sensors.

- **Session 4**: "Ball Maze Challenge"
    - *Skills*: Accelerometer, collision detection.
    - *Project*: Tilt-controlled maze game.
- **Session 5**: "Hungry Dino"
    - *Skills*: Sprite animation, score tracking.
    - *Project*: Dino eats falling food (like "Food Chase").
- **Session 6**: "Design Your Game"
    - *Skills*: Creative iteration.
    - *Project*: Customized game (theme: space/jungle).

Assessment: Peer review of game mechanics.

Week 3: Real-World Apps & Data

Objective: Integrate maps and databases.

- **Session 7**: "School Tour Guide"
    - *Skills*: Maps, lists.
    - *Project*: Interactive map of school landmarks.
- **Session 8**: "Memory Helper"
    - *Skills*: TinyDB (local storage).
    - *Project*: To-do list or vocabulary tracker.
- **Session 9**: "Multiplayer Sketch"
    - *Skills*: CloudDB basics.
    - *Project*: Collaborative drawing app (simplified "Sketch and Guess").

Assessment: Data persistence test (save/retrieve entries).

Week 4: Final Project & Showcase

Objective: Apply skills to solve community problems.

- **Session 10**: Brainstorming
  - *Activity*: "App for Good" ideation (e.g., recycling reminder, homework helper).
- **Session 11**: Prototyping
  - *Skills*: Design thinking, debugging.
- **Session 12**: Demo Day
  - *Delivery*: 3-minute app pitches to parents/teachers.

Assessment: Rubric for creativity, functionality, and presentation.

Key Adaptations from CTCT (Coolthink Computational Thinking Curriculum) Model

1. **Simplified Scope**:
   - Combines "My Piano App" and "Music Maker" into **"Soundboard Fun"**.
   - Replaces complex CloudDB units with **guided multiplayer projects**.
2. **Age-Appropriate Themes**:
   - Uses **animal sounds**, **dinosaurs**, and **school maps** for engagement.
3. **Scaffolded Difficulty**:
   - Week 1: Single-screen apps → Week 4: Multi-component projects.

Materials & Tools

- **Devices**: 1 tablet/laptop per student.
- **Accounts**: Free MIT App Inventor logins.
- **Printables**: Design worksheets, debugging checklists.

Teacher Support

- **Daily "Bug Jar"**: Students submit troubleshooting questions.
- **Extension Packs**: Optional challenges for advanced learners (e.g., add timers to games).

Sample Session Plan (Week 1, Session 2)

Objective: Create a soundboard app with 5+ buttons.

1. **Hook (10 mins)**: Play a celebrity soundboard; discuss event triggers.
2. **Direct Instruction (15 mins)**: Demo button duplication and sound uploads.
3. **Guided Practice (20 mins)**: Build animal soundboard (cat/dog/bird).
4. **Independent Practice (10 mins)**: Add custom sounds (e.g., laughter).
5. **Wrap-up (5 mins)**: Share favorite sound; preview next session.