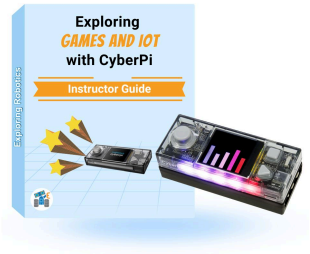
# CyberPi: From Game Creator to IoT Innovator

The **CyberPi: From Game Creator to IoT Innovator** Curriculum is divided into an Introduction, 6 Units, a total of 18 Missions, and a Smart Home IoT Challenge. Each of the Units use the 5Es (Engage, Explore, Explain, Elaborate, Evaluate) model for teaching. Activities are based on "Hands-On Minds-On" and discovery-problem based learning. This program's core goal is to immerse students in STEM education, leading to both technical knowledge and the development of essential 21st-Century skills: critical thinking, collaboration, communication, and creativity.




## Overview

**Grades:** 3-8
**Ages:** 8-14
**Level:** Beginner
**Course Length:** Adjustable 30 to 40 hours
**# of Lessons:** 18

| Unit | Description | Lesson | Key Concepts |
|---|---|---|---|
| **Phase 1: Code Crusaders — Game Development** | | | |
| **1** | *What can we create with CyberPi?* | Mission 1 - Getting Started with CyberPi<br>Mission 2 - Coding Rock Paper Scissors | CyberPi Hardware<br>mBlock Software<br>Events<br>Sequences |
| **2** | *How can I use sensors to code my game?* | Mission 3 - Character Movement<br>Mission 4 - Using the Joystick<br>Mission 5 - Scene Design | Joystick Controls<br>Sprites<br>Game Mechanics<br>Coordinates |
| **3** | *How do I create a complete gaming experience?* | Mission 6 - Creating Obstacles<br>Mission 7 - Sound Effects<br>Mission 8 - Keeping Score<br>Mission 9 - Playtesting | Variables<br>Conditionals<br>Point Systems<br>User Feedback |
| **Phase 2: IoT Innovators — Smart Home Challenge** | | | |
| **4** | *What is CyberPi, and how is IoT used in my life?* | Mission 10 - What is IoT?<br>Mission 11 - Smart Devices Around Us<br>Mission 12 - Sensors & Actuators | Internet of Things<br>Smart Technology<br>Sensors<br>Data Collection |
| **5** | *How can CyberPi become a Smart Assistant like Alexa?* | Mission 13 - Connecting to WiFi<br>Mission 14 - Voice Recognition<br>Mission 15 - Voice-Controlled Lights | WiFi Networks<br>AI Voice Recognition<br>Speech Synthesis<br>NLP |
| **6** | *How can I use CyberPi to solve real-world problems?* | Mission 16 - IoT Invention Design<br>Mission 17 - Prototype & Test<br>Mission 18 - Showcase Event! | Engineering Design<br>Prototyping<br>Iteration<br>Presentation |