CodeX Units Overview

Unit 0: Coding Unplugged (5-10 hours*)

If your students come with no Computer Science background, it is important to start by building a foundation of computational thinking. Dedicate some time for students to learn basic terms, such as algorithm, program, and debug. See the Firia Labs collection of Unplugged Activities here.

Unit 1: Getting Started (8 hours)

Students will learn the basics of coding in Python.

- Mission 1: Welcome
- Mission 2: Introducing CodeX
- Mission 3: Lightshow
- Mission 4: Display Games
- Mission 5: Micro Musician
- Mission 6: Heartbeat

Unit 2: Putting it All Together (12 hours)

Students will synthesize skills to create more complex programs.

- Mission 7: Personal Billboard
- Mission 8: Answer Bot
- Mission 9: Game Spinner

Unit 3: Using Inputs and Outputs (12 hours)

Students will use the CodeX sensors to create programs with real-world applications.

- Mission 10: Reaction Tester
- Mission 11: Spirit Level
- Mission 12: Night Light

Note* In the pacing guidelines, the suggested days are based on a 90 minute block. Adjust accordingly to your school day. Because of the time it takes to set up and tear down, it may take **more than twice as many days in a 45-50 minute period. This is pacing for just the missions without remixes. Remixes would add time to this curriculum. We suggest giving at least two hours to create a well planned remix. From Mission 4 on Remixes would be a great addition.*

CodeX Elective Pacing Guide

Week 1	**Unit 0: First Days** Set-up, Unplugged Activities *Dedicate time to getting to know your students, assess their knowledge, and build a foundation of computer science basics.*			
Week 2	**Unit 1: Mission 1 & 2** Welcome & Introducing CodeX *A visual and hands-on tour of the components of Codespace and the CodeX.*	**Unit 1: Mission 3 & 4** Light Show & Display Games *Explore the CodeX's LCD display and push-buttons. We're jumping in head-first with some real python coding.*	**Unit 1: Mission 5** Micro Musicians *Bring together coding, electronics, and music. Expand students' view of the possible ways they can use coding.*	**Unit 1: Mission 6** Heartbeat *Reinforce understanding of coding concepts learned so far, and usher in the crucial concept of loops.*
Week 3	**Unit 2: Mission 7** Personal Billboard *Build a device that displays images or text; use the CodeX's six push-buttons to select what is displayed to suit a particular occasion or mood.*	**Unit 2: Mission 8** Answer Bot *Build on the concept of selecting from a list of items and add random number generation to the mix.*		**Unit 2: Mission 9** Game Spinner *Build a game spinner that will show a spinning arrow on the LCD display when you press Button A or B, and then slow down and stop in one of 8 random directions.*
Week 4	**Unit 2: Mission 9, cont.** Game Spinner *Build a game spinner that will show a spinning arrow on the LCD display when you press Button A or B, and then slow down and stop in one of 8 random directions.*	**Unit 3: Mission 10** Reaction Tester *Create a tool that measures and displays the time between the display lighting up and a button being pressed.*	**Unit 3: Mission 11** Spirit Level *Create a digital level using the CodeX's built-in accelerometer and LCD display.*	
Week 5	**Unit 3: Mission 12** Night Light *Use an external light sensor to detect ambient light, and program the CodeX's LCD display to act as a "nightlight."*	**Unit 3: Mission 13** Get Graphical *Dip your toes into the code that makes computer graphics possible. Learn how to display custom images, program animations, and even create your own video games!*		
Week 6	**Unit 3: Mission 13, cont.** Get Graphical *Dip your toes into the code that makes computer graphics possible. Learn how to display custom images, program animations, and even create your own video games!*	**Unit 4: Mission 14** Radio Messenger *Each CodeX has its very own radio antenna, which we'll use in this project to send and receive messages.*		
Week 7	**Unit 4: Mission 15** CyberBit *Explore the process of encryption and gain the technical insight to approach critical questions in the field of cyber security.*	**Unit 4: Mission 16** Temperature Sensor *Write code that enables the CodeX to sense, interpret, and respond to temperature data using a thermistor.*		
Week 8	**Unit 4: Mission 17** Alarm System *Expand on the concepts learned in Radio Messenger; connect multiple CodeX, each running unique code. Sound an alarm whenever it receives the right message from another CodeX!*		**Unit 4: Mission 18** Sounds Fun *Take a closer look at the code that makes the CodeX sing. Program custom songs, and even build cool electronic instruments!*	
Week 9	**Final Mission**			