**AP CSP CodeX**

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| **MISSION 1 & 2 Welcome & Introducing CodeX** | | **Time: 45 minutes** |
| **Project Goal:** Students will learn about the CodeSpace learning environment and the basics of the CodeX.  **Learning Targets**   * I can navigate CodeSpace. * Identify major parts of the Codespace interface. * I can safely connect and disconnect the CodeX to my computer. * I can create a new file and name it according to its purpose. * I can write code using conventions of capitalization and punctuation specific to Python. | **Key Concepts**   * Follow instructions in the Lesson Panel carefully. There is a lot of important reading! * Look for “tool icons” to collect tools in your Toolbox as you go. * The text editor is where you type in the code! * Your code is saved to the file name you create. * The CodeX is a powerful general-purpose computing device you can use to build an infinite number of cool projects. | |
| **Assessment Opportunities**   * Mission 1 & 2 Assignment * Quiz after Mission 1 Objective 4 * Quiz after Mission 2 Objective 2 * Quiz after Mission 2 Objective 7 | **Success Criteria**   * Identify major features of the CodeSpace interface * Successfully connect and disconnect the CodeX using a USB cable * Write a program for the CodeX and run it | |
| **AP CSP Framework**  **Computational Thinking Practice 5.A** Explain how computing systems work.  **Computational Thinking Practice 5.C** Describe the impact of a computing innovation. | **Materials**   * Mission 1 & 2 Assignment / Answers * AP CSP CodeX Vocabulary List * AP CSP CodeX Python Code List * Unit 1 Review Links and Test Questions | |
| **Teacher Notes**   * In advance, create a class on your dashboard and have the join code prepared to give your students. * Mission 1 is the first lesson in all the mission packs. If your students have completed other mission packs with other physical devices, they will already know the information. You can choose to have them complete the mission as a review and refresher, or you can unlock the next mission and continue to Mission 2. * The assignment is best completed digitally. Prepare the assignment for distributing through your LMS. * The Assignment has a picture of CodeSpace for students to label. This is optional, depending on your pacing. * Another suggestion for assessment is for students to keep a daily journal, or use a reflection form for students to process information they learned and reflect on questions they may still have. * Refer to the Python with CodeX Curriculum Guide (found in the l[earning portal](https://learn.firialabs.com/curricula/python-with-codex/teachers-resources/codex-teacher-materials)) for more information. * The teaching guide (below) gives the narration for one way to present the lesson. | | |

**Teaching Guide**

**Warm-up (5 minutes)**

🧑‍🤝‍🧑 **Discuss** – Use a discussion strategy, like journaling, working at boards, selecting random students, or a form of think-pair-share.

All electronic devices have similar circuit boards inside. The tools and techniques you are learning apply to all the electronic devices you use every day! Can you name a few devices you use everyday that might contain computer chips or “microcontrollers,” such as the one on the CodeX.

Possible answers:

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| * Microwave oven * Cell phone * Automobile * Watch or fitness tracker | * Video game controller * Refrigerator * Home thermostat * Coffee maker | * Bread machine * Alarm system * Fuel pumps * Automatic garage doors * Electronic locks |

**Discuss:**

How are our lives impacted by electronic devices? How were related tasks done before computer technology was invented?

**Activity – Mission #1 (10 minutes)**

💻 Students can work individually or with a partner for this lesson.

Students log in to their computer. Follow the instructions for students to join the class and have the CodeX curriculum available in CodeSpace.

Open the assignment. Follow the instructions in Mission 1 and the Assignment document

**Activity – Mission #2 (15 minutes)**

💻 Students continue to Mission 2 and the Assignment document (#5-#12).

💡 **Teaching tip:**

Remind students to be careful when plugging the USB-C cable into the CodeX; they should focus on pushing it and pulling it straight and not rocking it back and forth! With a “bare circuit board” like the CodeX, students should have clean hands before handling, as food particles and liquids can cause the circuits to malfunction. Static electricity can also damage the CodeX, so you’ll need to show students a way to “ground” themselves prior to handling it. An example reliable grounding point is a light-switch screw or metal wall plate.

💡 **Teaching tip:**

We recommend waiting to hand out the CodeX until they are first shown on the screen in Codespace. The on-screen instructions will inform students about proper care and handling of the CodeX. Each student will need a CodeX and a USB-C cable to complete this first project.

✅ Assignment is complete and ready to turn in.

**Wrap-Up (10 minutes)**

If this lesson is completed in one class period, the following can be used as a wrap-up. If you are on a block schedule and continuing to the next lesson, a wrap-up isn’t necessary.

Formative Assessment:

* Daily reflection journal
* Exit ticket on vocabulary (bug, CPU, peripheral)
* Group review on vocabulary (bug, CPU, peripheral)

**SUCCESS CRITERIA:**

* Identify major parts of the CodeSpace interface: Mission Bar, Objective Panel, text editor, CodeTrek, Toolbox, and Lesson Navigation Controls
* Successfully connect and disconnect the CodeX using the USB-C cable.
* Identify major parts of the CodeX: USB connector, LCD Grid, CPU
* Write a program, run it, and save it to the CodeX