



Python with CodeX AP CSP Curriculum

More Lessons Overview

Time Required: 1 ½ weeks (does not need to be consecutive days)

Additional supplementary lessons are available to prepare students for the Create Performance Task. These lessons can be given any time, either before or after students complete the Create Performance Task.

Unit Outline

Algorithms (3 lessons)

The lessons use robot code to help students determine the results of an algorithm. The first lesson uses basic sequential algorithms. The second lesson uses selection with if statements and conditions. The third lesson has code segments with iteration, selection and sequencing. The lessons are curated problems from Unit 5 2018 Code.org and “Warehouse Challenge” from Amazon Future Engineers + edhesive.

The lessons are an opportunity for collaborative learning in small groups or with a partner. They are unplugged; no computer is required.

Binary Numbers (2 lessons)

The first lesson is an introduction to binary numbers and uses two manipulatives to help students understand and practice converting binary and decimal numbers. The second lesson reviews binary numbers and then gives word problems with binary numbers, which are curated questions from AP Classroom.

The lessons are an opportunity for collaborative learning in small groups or with a partner. They are unplugged; no computer is required. A link to an online binary game is given for extra practice (optional).

From Flowcharts to Code

This lesson could follow the “Design Process and Flowcharts” and “From Code to Flowcharts” lessons. It requires students to write working programs from flowcharts. Code solutions are given, but they are not the only solutions. Students are encouraged to solve problems creatively.

The lessons are an opportunity for collaborative learning in small groups or with a partner. A computer is required.

Assessment

A formal assessment is not planned for this unit. A question bank of test questions is available if you want to create a review or test. Other assessments opportunities for this unit include:

- Activity Guide for each lesson
- Flowchart Kahoot review
- Programs for the “From Flowcharts to Code” assignment

Materials / Preparation

- The assignments each have an activity guide that should be distributed and completed digitally. Prepare the assignments in the digital format that works best for your classroom.
- The binary numbers lessons have two manipulatives. For the first manipulative, students will need small coins or markers to place in boxes printed on the document. The second manipulative requires some cutting to create moveable flaps.
- The slides for the lessons are downloadable as PowerPoint slides. Reformat into the digital format that works best for your classroom.
- Go through the lessons in advance so you are prepared to guide and help your students as needed.
- If you want the students to turn in the programs for the lesson “From Flowcharts to Code”, decide how you want them to do so.