



Python with CodeX AP CSP Curriculum

Unit 3 Overview

Time Required: 1 ½ to 2 weeks

This unit covers Mission 9. It includes six supplementary lessons, which extend learning and prepare for the Create Performance Task and AP Exam.

Unit Outline

Lesson: Types of Division

This lesson gives a quick overview of integer (or floor) and modulo division. It is not a requirement for the Create PT, but there are questions on the AP Exam that cover this material. Students learn a programming application for modulo division. Most of the lesson is unplugged, but one activity is to use modulo division in a previous program.

Mission 9: Game Spinner

During this mission students animate a game spinner with custom functions. Students traverse a list and learn techniques to avoid an index out of range error. They also use random functions. At the end of the mission an extension is given for students to use the modulo division from the previous lesson.

Lesson: Functions with Parameters

Functions have been used in almost all programs beginning with Mission 3. However, the functions do not require a parameter until Mission 9. This lesson has two parts. They build on the foundation of parameters and revisit programs to add parameters to functions and arguments to function calls. This lesson requires programming on the computer. Part 1 modifies two programs, and Part 2 modifies three more programs. The lesson also goes over local variables. The activity guides are used for guided notes and check for understanding.

Lesson: Traversing a List

Lists are used in several programs up to this point, but a list is traversed in a loop only in Mission 9. These three lessons give programming practice in using a for loop to traverse a list, and many different reasons for traversing a list. These lessons require programming on the computer. Several programs are modified, and in Part 3 three new programs are developed. The activity guide is used for guided notes and review.

Assessment

A remix is not planned for this unit. An exam is not prepared in Microsoft Forms, but a question bank is available for creating an assessment. Student mastery can be assessed formatively and/or summatively in many ways during Unit 3.

- Mission 9 comes with an assignment and program for students to complete.
- Each supplemental lesson comes with an activity guide for students to complete.
- Mission 9 and Types of Division have Kahoot! Reviews available.
- The Unit 3 Question Bank contains questions that cover topics from the supplemental lessons as well as Mission 9.

Materials / Preparation

- The assignments and most activity guides are best distributed and completed digitally. Prepare the assignments in the digital format that works best for your classroom.
- The slides for the lessons are downloadable as PowerPoint slides. Reformat into the digital format that works best for your classroom.
- The “Types of Division” lesson has problem sets for printing that collaborative groups can use. Plan in advance to have them printed if students are working collaboratively without their computers.
- Make sure you have CodeX, AAA batteries and cables for the students. Two students can share a CodeX and work in pairs, or you can have 1 to 1 CodeX devices.