

(<http://csmatters.org/pd-new>) P - 00

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Preparation for the online programming sessions



Unit Programming

Revision Date: Sep 08, 2019

Duration: 40 50-minute sessions

Lesson Summary

Summary: This lesson for teachers during the spring introductory workshop will provide an overview of Python programming lessons to be completed independently online between the spring in-person workshop and the summer in-person workshop.

Outcomes:

Teachers will:

- recognize code and pseudocode structures used in the course.
- do practice problems using pseudocode
- translate Python code to pseudocode for conditional statements

Overview:

Estimated Time: 40 minutes

Learning Objectives

CSP Objective

Big Idea - Professional development includes learning experiences and resources to ensure that teachers understand how the subject(s) they teach addresses the Maryland content standards and the relationships between the subjects they teach and other subjects in the curriculum.

- ○ LO 1a - Professional development includes learning experiences and resources to ensure that teachers understand how the subject(s) they teach addresses the Maryland content standards and the relationships between the subjects they teach and other subjects in the curriculum.

Key Concepts

Teachers should understand:

- The basic syntax of Python.
- How to translate from Python code to pseudocode
- How to step through pseudocode problems

Teachers should be prepared to do the online lessons and consider how they will present these to students using the curriculum as well as finding opportunities to connect code to pseudocode throughout.

Teacher Resources

Student computer usage for this lesson is: **required**

Presentation: Preparing for the coding part of the online work
(https://docs.google.com/presentation/d/1NF7-I0KI8GZKzRpGaN4C1aNnEpKNkWM8Qon_fx0Ois8/edit?usp=sharing)

AP CS-Principles review materials (<https://www.khanacademy.org/computing/ap-computer-science-principles/ap-csp-exam-preparation/prepare-for-the-2019-ap-cs-p-exam/a/ap-csp-exam-pseudocode-reference>) on Khan Academy

Lesson Plan

Prepare to do the online coding sessions (40 minutes)

Materials: The PowerPoint "CS Matters Introduction to PD online part"

Teachers will look at, and interact with, examples of:

- Coding and pseudocode
- Loops
- Conditional Statements and Functions
- Strings and Lists

Possible discussion points:

- Do you need additional practice in Python programming to feel comfortable using this language with your students next year?
 - CodeHS.com python

- Carnegie Mellon python
- Do you find code or pseudocode easier to read?

Journal: At the end of the lesson, teachers should answer in their journals: What do you think might be an advantage to learning more than one way to express algorithms?

Evidence of Learning

Formative Assessment

demonstrate the ability to translate from code to pseudocode

demonstrate the ability to work through pseudocode problems

Summative Assessment

Use Khan academy to test pseudocode problem solving skills



(<http://www.umbc.edu/>)



(<http://www.umd.edu/>)



(<http://www.nsf.gov/>)

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