

Lesson Plan 1.03: Script Mode and Variables ## Learning Objectives Students will be able to... * Define and identify: **script**, **print**, **run**, **output**, **variable** * Write a simple script and run it in the IDE * Print values out to the console (both composed values and from variables) * Compare script mode vs interactive mode * Know how to store a value into a variable ## Materials/Preparation * [Do Now] * [Lab - Printing & Variables] ([printable lab document]) ([editable lab document]) * [Associated Reading - section 1.2] (<https://tealsk12.gitbook.io/intro-cs-2/readings#1-2>) * Read through the Do Now, Lab, and Lesson so that you are familiar with the requirements and can assist students. ## Pacing Guide | **Duration** | **Description** | | -
----- | ----- | | 5 Minutes | Do Now | | 20 Minutes | Printing Lesson/Lab Part 1 | | 20 Minutes | Variables Lesson/Lab Part 2 | | 10 Minutes | Debrief | ## Instructor's Notes #### 1. Do Now * Project the Do Now on the board, circulate around the class to check that students are working and understand the instructions. #### 2. Printing Lesson/Lab Part 1 * Explain that the file is the center section of the screen. Sometimes this is called a **script**. * Reminder questions: 1. how do you save/run a file? 2. What happened when you ran the file from the do now? * Explain the purpose of the `print` statement, which will print whatever is in between the parentheses to the console. * Explain to students that what appears on the console is called **output** * Talk to students about reading a program and the order in which the computer executes statements. * Ask students how they would print the following: `python Hello World Hello World Hello World Hello World Hello World` * Have students work on Part 1 of the lab for 10 Minutes ##### SNAP Flashback – Hello World ![Hello World] (HelloWorld-Code.png) #### 3. Variables Lesson/Lab Part 2 * **Variable**: a name that refers to a value * An assignment statement creates new variables and gives them values: `python >>> message = 'And now for something completely different' >>> n = 17 >>> pi = 3.1415926535897932` * Ask the students what they think the assignment operator is. * Using the example above, ask which are the variables, and which are the values. * Tell students how assignments work from right to left, so the item on the right is assigned to the item on the left. * Have students work on Part 2 of the lab for 10 Minutes #### 4. Four Fours * Four Fours is a mathematical puzzle where the goal is to find a mathematical expression for every whole number from 0 to some maximum, using only common mathematical symbols and the digit 4 (no other digit is allowed). * In this version, students can use 44 which counts as two fours even though equations for 0 to 4 can be solved without using 44. * For example, zero can be solved with either: $44 - 44$ or $4 + 4 - 4 - 4$ * Students can easily be challenged by extending the limit from the 0-4 to 5 and above. #### 5. Debrief * Talk about the difference between interactive and script mode. Discuss why you might want to use the interpreted mode: sometimes it can be faster to debug a single line and make sure it works! * Talk about differences between SNAP! and Python for declaring variables. ## Accommodation/Differentiation If students are moving quickly, ask students to come up with a way to print two lines with only one print statement. Allow for students to search the `\n` character. [Lab - Printing & Variables]:lab.md.html [Do Now]:do_now.md.html ## Forum discussion [Lesson 1.03: Script Mode and Variables (TEALS Discourse Account Required)](<https://forums.tealsk12.org/c/2nd-semester-unit-1/1-03-script-mode-and-variables>) [printable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1_unit/03_lesson/lab.pdf [editable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1_unit/03_lesson/lab.docx