

# Lesson 1.02: Interactive Mode ## Learning Objectives Students will be able to... \* Define and identify: **\*\*interpreter, string, integer, float, value, errors, console, expression\*\*** \* Use the Python interpreter to evaluate simple math expressions \* Distinguish between an integer, float, and string ## Materials/Preparation \* [Lab - Using the Interpreter] ([printable lab document]) ([editable lab document]) \* [Associated Reading - section 1.1] (<https://tealsk12.gitbook.io/intro-cs-2/readings#1-1>) \* Ensure all students are able to log into the system \* Go through the lab so that you are familiar with the requirements/results and can assist students ## Pacing Guide | **\*\*Duration\*\*** | **\*\*Description\*\*** | | ----- | ----- | | 5 Minutes | Do Now | | 10 Minutes | Lesson | | 15 Minutes | Lab Part 1/Discussion | | 20 Minutes | Lab Part 2/Discussion | | 5 Minutes | Debrief | ## Instructor's Notes ### 1. Do Now \* Display the online IDE and asks students to identify the key parts (menu bar items [run, console, +], code panel, console panel) of the IDE. \* After going over the three parts of the IDE have students check that they can still log into their IDE account. ### 2. Lesson ##### Guided Activity \* Have students all bring up their console on their computer \* The part on right half of the screen is called a **\*\*console\*\***: \* The **\*\*console\*\*** is a place where you can interact with a program. \* The **\*\*interpreter\*\*** runs Python code. \* To run the Python interpreter, type code into the console and hit "Enter" or click "Run", the code executes immediately. \* Make sure all the students are able to do this and then give out the lab worksheet. ### 3. Lab Part 1 Give students time to work on section 1, ##### Discussion Section 1 \* What does the // do? How is that different from /? And how are those different from %? \* What's the difference between 3.0 and 3? \* Go over the following two terms 1. **\*\*Floats\*\***: a data type, number with a decimal point. 2. **\*\*Integers\*\***: a data type, number without a decimal point. \* Now, give students time to work on section 2 ##### Discussion Section 2 \* What happened when you typed in a? \* What do you think that error message mean? \* Go over **\*\*String\*\***: a data type, characters surrounded in single or double quotes. \* Now, give students time to work on section 3 ##### Discussion Section 3 \* What was the difference between the two inputs? \* Strings can be combined using '+' . \* What do you think the error message means? \* You can't combine different types! \* Now, give students time to work on section 4 ##### Discussion Section 4 \* What error did you get? What do you think that means? \* What happens when you multiply strings? ### 4. Lab Part 2 \* Define **\*\*expression\*\***: a combination of values and operators (and variables) \* Ask students to give an example of an expression \* Make sure students write down their predictions before going to the interpreter/IDE to check the actual output. ### 5. Debrief \* Discuss any surprising/unexpected results. \* Remind students of adding strings together using '+' . \* Talk about how single and double quotes are interchangeable \* Multiplying strings \* Order of Operations is the same as what students have learned in math class. \* Discuss why it might be helpful to have an interactive console. How is it different than snap? ### Accommodation/Differentiation If students are moving quickly, have students practice higher order-of-operations problems. You can also have them practice assigning values to variables. [Lab - Using the Interpreter]:lab.md.html [Cloud 9 Cheat Sheet]: ../cloud\_9\_cheat\_sheet.md.html ## Forum discussion [Lesson 1.02: Interactive Mode (TEALS Forums Account Required)](<https://forums.tealsk12.org/c/2nd-semester-unit-1/1-02-interactive-mode>) [printable lab document]: [https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1\\_unit/02\\_lesson/lab.pdf](https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1_unit/02_lesson/lab.pdf) [editable lab document]: [https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1\\_unit/02\\_lesson/lab.docx](https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1_unit/02_lesson/lab.docx)