

Teacher: Jessica Novillo Argudo, Jing Xue, Rich Parker

Unit Plan: Introduction to Python

Topic of the Lesson: Conditionals (part 1)

Grade and Content: 10th - 12th / CSP

Date: Fall 2022

Learning Objectives:

- Students will learn to evaluate boolean expressions
- Students will learn the logical operator in Python
- Students will learn to write simple conditional statements in Python

NYS standards:

- **9-12.CT.5:** Modify a function or procedure in a program to perform its computation in a different way over the same inputs, while preserving the result of the overall program.

Content-specific vocabulary:

- Boolean expression
- Logical operator
- Conditional statement
- Comparison operator

Materials/Resources:

- Computers
- Smartboard
- Slides
- Python
- Replit
- Google Classroom
- Simon says game
<https://minecraft.makecode.com/courses/csintro/conditionals/unplugged>

Assessments:

- Programming log

Warm-up (5 minutes):

- Everyone will play a variation on the “Simon says” game to practice conditionals.
- Everyone stands up.

- The teacher will say a series of conditional statements – some may just be If..., but some may be If... Else...

Examples:

- IF your name starts with a 'J', give me a thumbs up
- IF the month of your birthday ends with a 'Y' or an 'R', raise both your arms
- IF you play soccer, kick your feet (be careful not to kick anyone)
- IF your favorite ice cream flavor is chocolate, stick out your tongue, ELSE make rabbit ears behind your head
- IF you play a musical instrument, snap your fingers, ELSE whistle

Activity / Sequence of Lesson (30 minutes):

- The teacher will explain that boolean expressions are either true or false.
- The teacher will show boolean expressions examples using different comparison operators (live coding).
Examples:
`x == y, x != y, x > y, x < y, x >= y, x <= y, x is y, x is not y`
- The teacher will explain the logical operator in Python: and, or, not.
- The teacher will model the use of logical operators:
`x > 0 and x < 10`
`n%2 == 0 or n%3 == 0`
`x != y`
- The teacher will model how to write a simple if statement in Python.
`if x > 0 :`
`print('x is positive')`
- The teacher will model how to write two possibilities and the condition determines which one gets executed in Python.
`if x%2 == 0 :`
`print('x is even')`
`else :`
`print('x is odd')`
- The teacher will ask students to work with a partner (pair programming) on the “02_LAB_Conditionals_1” that can be found on Google Classroom.
- The teacher will walk around the classroom to observe students’ performance and assist with questions or problems about the lab.

Summary / Next Steps / Exit Slip (10 minutes):

- The teacher will ask students to complete their lab as homework if they still need to finish it.
- The teacher will ask students to complete their “Daily Log Programming,” which can be found on Google Classroom.