Grades 9-12
Distance Learning Module 7: Week of: May 18 - May 22
Working With Strings - Practice (continued)

Introduction to Computer Science L2 - *Modified from Unit 5 (Iteration and Computer Simulation)*

Targeted Goals from Stage 1: Desired Results

Content Knowledge: what types of problems can be solved with iteration, the difference between pre- and post-test loops, how to calculate experimental probabilities using computer simulation, how to create a list, how to index into a list

Vocabulary: loop, iteration, loop counter, For Next, Do While, infinite loop, experimental probability, nested loops, "off by one" (OBO) errors, lists, permuation

Skills: writing loops using for and while, modeling events with random numbers and experimental probability

Expectation:

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
Monday: Introduction to computer simulation	Live instruction Code templates for finding the probability of: ● rolling a # on a number cube ● rolling a total on 2 number cubes ● rolling Yahtzee ● rolling a straight in Yahtzee	Dice Simulation Practice
Tuesday: Simulating more complicated events	Live instruction Code templates for finding the probability of: ● exactly 3 'heads' out of 10 flips of a coin ● at least 2 people in a room of 'n' people sharing a birthday	Complete Dice Simulation Practice Optional: Use Python to estimate the probability of getting a 90% or better by guessing on a 10 question true/false test.

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
	● choosing 2 letters from a word and they are both vowels (with/without substitution)	
Wednesday: Lab: simulating the probability of exactly *m* girls in a family with *n* children.	Live help sessions	Lab - Computer Simulation.pdf
Thursday: Students will continue working on the family simulation.	Live help sessions	Lab - Computer Simulation.pdf
Friday: Students will complete the family simulation	Live instruction	Lab - Computer Simulation.pdf

Week criteria for success (attach student checklists or rubrics):

By the end of this module, students should be able to:

- use Python's random module to generate random numbers
- calculate the experimental probability of an event occurring
- write for and while loops to simulate multiple events
- write nested loops

Supportive resources and tutorials for the week (plans for re-teaching):

Think Python, 3rd Edition (free online Python book)

Coding Bat

Office hours

Python Programming Third Education by John Zelle. This textbook provides additional examples and content, and is available for purchase from Amazon and other retailers.

Computer Science Trimester 1 Review Part 9 (Iteration Part A)

Computer Science Trimester 1 Review Part 10 (Iteration Part B)