Functions

Lesson 8 – Expert Coding in Minecraft with Python

1. What is the primary purpose of computing innovations?

2. Provide some examples of computing innovations.

3. What do developers need to make informed decisions about design, features, and functionality of a computing innovation?

4. What is modularity?

5. What is the primary purpose of creating functions in programming?

6. How does reusability play a role in using functions?

7. Explain how functions contribute to modularity in code.

8. What does it mean to abstract away implementation details using functions?

9. How do functions enhance code organization and readability?

10. What is the proper method to define a function in Python?

11. List the rules programmers must follow to properly name functions.

12. What happens during a program when a function is called or invoked?

13. What is the purpose of parameters in a function?

14. Define arguments in the context of function usage.

15. Explain the concept of a return value in a function.

16. In Python, where do parameter names go to in the function definition?

17. Name some common data types that can be used as function parameters.

18. What is procedural abstraction, and how does it help programmers?

19. What are the reasons programmers use procedural abstraction?

20. What are Python libraries and how do they save time for developers?

21. How do programmers share their libraries with others?

22. How do libraries contribute to different parts of a program working together smoothly?

23. What are APIs and what information do they specify?

24. How does API documentation guide developers in using functions correctly?

Game Assessment References:

**For Activity Assessments, students will build the code completely on their own. They need to press C at the activity area and create a new project. When complete, they will save their MakeCode file and upload it to the portal for grading.

Activity Assessment 1:
Create two functions. One named *buildPen* that builds a 6 x 6 fence square and another named *animals* that spawns three pigs. Create an on chat command that calls both functions and puts the pigs inside the fenced area.

Hint: Spawn pigs at world position (-52, 70, 212)

Activity Assessment 2:

Create a code that has variables for sunflowers, red tulips, and daisies. Create a variable for *flowerCount*. Have the count for each flower type increase by one each time the player plants it. Create a function called *flowers* that totals all the flowers into the flowerCount variable. In an on chat command named *flowers,* call the flowers function and have the player say the variable flowerCount.

Final Assessment – Mini Game

This game is intended to create a step up each time the player breaks the correct block. The player will start with 2 blocks, yellow stained glass and red stained glass. When the player breaks yellow, they get the next step, if they break red, the game starts over.

At the next step up, the player gets a diamond block to step on and pink and purple stain glass appear. Pink gets the next step, purple starts over. At the third step up orange and brown appear. Orange gets the final gold block and the player will say "You win!" Brown starts over.

You should also have a function timer that counts to 20 seconds. The clock should reset each time a wrong block is broken and the clock goes to 0 when the player wins. If the 20 seconds is reached before the player wins, the player will say "Times up." Everytime the player breaks the correct block, it will call the correct function which has the player say "Keep Going." Every time the wrong block is chosen, it will call a fail function that resets the game.