Structure and Error Handling
Lesson 11 – Expert Coding in Minecraft with Python

1. What is the significance of events in programming?

2. What is event-driven programming, and how does it differ from sequential control flow?

3. What is the purpose of program documentation?

4. What are the key elements and purposes of program documentation?

5. What are comments?

6. What does a comment in Python begin with?

7. Describe the following types of errors in code:

   a. Logic error –

   b. Syntax error –

   c. Run-time error –

   d. overflow error –

8. What can happen if a program with a logic error is run?

9. Describe the following logic errors:

    a. Incorrect Conditions or Expressions –

    b. Off-by-One Errors –

    c. Misunderstanding Operator Precedence –

10. What will happen there is a syntax error in the code?

11. What will happen if there is a runtime error in the code?

12. List and describe examples of runtime errors.
    •   Reference Error:

    •   Range Error:

- Infinite Loop:

13. Describe the following methods for finding and correcting errors:

    a. Test cases –

    b. Hand tracing –

    c. Visualizations –

    d. Debuggers –

    e. Adding extra output statement –

In 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:

Write code that has the agent till a 4 x 5 area of the ground and then plant sunflowers. Use functions and a chat command and write comments describing what each piece of code does. For your functions, have one named till and one named plant. For the chat command, call it farm. You should have a comment at the beginning that describes what the entire code should do and then at least 3 different comments. 2 that describe the functions and 1 that describes the chat command.

Activity Assessment 2:

Import the starter code and fix the errors. There are four errors.

Final Assessment: Mini Game

This game is intended to do the following: The player will control the agent in the chat with the words forward, right, left, back, and up. When the agent moves, it will destroy forward and collect the diamond blocks. Each time the agent collects a diamond, the variable diamond increases by 1 and the player will say how many diamonds were collected. There is a timer that counts to 60 seconds. At the end of 60 seconds, the game will let you know how many diamonds the agent collected and assign the player either a slow miner, pretty quick miner, or fast miner.