Advanced Logic

Lesson 4 – Expert Coding in Minecraft with JavaScript

1. What is sequential computing and how does it work?

2. How long does sequential computing take?

3. What is parallel computing and how does it work?

4. Why would you use parallel computing over sequential computing?

5. How long does parallel computing take?

6. _____tells us how much faster a parallel solution is compared to doing the same task sequentially.

7. To calculate speedup, we divide the time it took to complete the task _____ by the time it took to complete the task in _____.

8. What is distributed computing and how does it work?

9. Distributed computing is often used for tasks that require a high level of _____and _____.

10. Draw the shape that you would use in a flow chart for the following explanations.

The start of the algorithm _____

An input or output step _____

A conditional or decision step _____

The result of the algorithm _____

11. Draw your Flow Chart for Activity 2 below.

12. What is in the else if section of the if / else if / else 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 a code that has increases the variable blocksPlaced whenever you place a grass block. And, in a chat command called blockCount, build an If/ Else If / Else statement that does the following.

If the blocksPlaced is less than or equal to 5, the player will say "You need to keep going. You have placed the variable blocksPlaced."

If the blocksPlaced is greater than or equal to 10, the player will say "You can stop. You have placed the variable blocksPlaced."

If the blocksPlaced is anything else, the player will say "You are almost there. You have placed the variable blocksPlaced."

Activity Assessment 2:

Write a code that has a variable called grassBlock. It increases by 1 when the player places a grass block but decreases by 1 when you break a grass block. Have a chat command named check that will check first if the grassBlock is greater than 0. If it is, have it check if grassBlock is less than or equal to 5. If it is, have the player say, "Keep going you only have the variable grassBlock." If the grassBlock is NOT less than or equal to 5, have it check to see if grass block is grass block is less than or equal to 10. If it is, the player will say "Almost there. You have the variable grass block." And if the grass block is greater than 10, the player will say, "You can stop. You have the variable grass block."

Final Assessment – Game

For the final assessment, you will be given a code to import into MakeCode. This code is for a mini-game. You will be given this information about the game:

You will need to debug the code so they can play the game. Then save the code and upload it to the portal for grading.

This game is intended to have the player get through the maze using the chat commands forward, left, right, and back. Each type of block the player ends on will have an action that may help or hurt the player's ability to get to the gold block. Here are the tasks that the blocks will do:

Pink Wool: Makes the agent move right by 1.

Light Blue Wool: Makes the agent move forward by 2.

Yellow Wool: Makes the agent move back by 2.

Lime Wool: Makes the agent move left by 1.

Gold Block: Player says "You win!"