Name: _____   Date: _____

Answer Key: Could You Direct a Robot Chef? 4th Grade Programming Logic Quiz

Apply algorithmic thinking and debugging skills to sequences, nested conditions, and efficient loops in a virtual kitchen setting.

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1. A robot is programmed to make toast. If the sensor detects the bread is 'Burnt', what programming concept should determine if the robot pops the toaster or keeps heating?

Answer: B) A conditional

> Conditionals (if-then statements) allow a program to make decisions based on specific data, such as the toast's color.

2. In a video game, you want to store the number of magic crystals a player collects. Which programming tool acts like a 'labeled box' to hold this changing number?

Answer: C) A variable

> Variables are used to store and update data values, like a score or an inventory count, while a program runs.

3. True or False: A loop is the most efficient way to make a character walk 100 steps rather than writing the 'move' command 100 times.

Answer: A) True

> Loops handle repetitive tasks efficiently, reducing the amount of code needed and making it easier to read.

4. You have a block of code that draws a perfect star. You want to use this same star in five different levels of your game. You should wrap the code in a:

Answer: C) Function

> Functions are reusable blocks of code designed to perform a specific task, helping programmers avoid repeating themselves.

5. If a programmer writes a 'While Loop' but forgets to include a way for the condition to change, the program might get stuck in an _____ loop.

Answer: B) Infinite

An infinite loop occurs when the exit condition is never met, causing the program to repeat the same code forever.

6. True or False: In programming, the variable name 'playerScore' is exactly the same as 'playerscore'.

Answer: B) False

Most programming languages are case-sensitive, meaning capital and lowercase letters are seen as different characters.

7. Which of these is the best example of a conditional in real life?

Answer: C) If it is raining, then take an umbrella

Conditionals follow 'if-then' logic. The action (taking an umbrella) depends on a specific condition (it is raining).

8. When a programmer finds a mistake in their code that prevents it from running correctly, the process of finding and fixing that mistake is called _____.

Answer: C) Debugging

Debugging is the systematic process of identifying and resolving errors (bugs) in computer hardware or software.

9. Imagine a loop that says: 'Repeat 4 times: [Move Forward, Turn Left 90 degrees]'. What shape will this code create?

Answer: C) A square

A square has four equal sides and four 90-degree angles, which matches the loop instructions.

10. True or False: Computers need a very specific 'Sequence' (the exact order of steps) to perform a task correctly.

Answer: A) True

Computers follow instructions exactly as written. If the sequence is out of order, the program will not work as intended.