Name: _____ **Date:** _____

Your Blueprint for Digital Choreography: 6th Grade Algorithm Quiz

Students construct logical sequences for autonomous vehicles and automated kitchen systems while analyzing how conditional logic prevents real-world system failures.

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1. An engineer is designing a smart thermostat. They decide to tackle the temperature sensor script, the WiFi connection module, and the user interface display separately. Which computational thinking pillar are they practicing?

A. Pattern Recognition
B. Problem Decomposition
C. Abstraction
D. Algorithmic Efficiency

2. A logical error in an algorithm, such as an infinite loop, will always cause the computer hardware to catch on fire physically.

A. True
B. False

3. Imagine an algorithm for an automated plant waterer. If the sensor reads 'dry' AND the clock says '6:00 AM', then water the plant. This 'IF-THEN' structure is known as a _____.

A. Variable
B. Sequence
C. Conditional Statement
D. Iteration

4. A drone's navigation algorithm is failing to avoid tall trees. After investigating, the programmer finds that the drone ignores any object taller than 10 meters. What stage of the problem-solving process is the programmer currently in?

A. Initial Decomposition
B. Iterative Testing
C. Debugging
D. System Requirements

5. In computer science, 'efficiency' refers only to how much electricity the computer uses while running the program.

A. True
B. False

6. When a music app suggests a new song based on what you previously liked, it is using a(n) _____ to analyze your listening habits and provide a result.

A. Algorithm

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B. Operating System
C. Hardware Peripheral
D. Hard Drive

7. You are creating a game where a character must find a key in one of 1,000 locked boxes. Which method of searching would be the LEAST efficient?

A. Opening boxes at random
B. Opening boxes from first to last (Linear Search)
C. Using a Binary Search (halving the groups)
D. Skipping every other box

8. Before writing code for a self-driving car, engineers often write out the steps in 'pseudocode,' which is a plain-language version of the algorithm.

A. True
B. False

9. If an algorithm is designed to repeat a specific set of instructions until a goal is reached (like a robot vacuum cleaning until the battery is at 5%), this repetition is called a _____.

A. Branch
B. Variable
C. Loop
D. Input

10. NASA engineers are optimizing the landing sequence for a Mars rover. They find that 'Algorithm A' takes 10 seconds to calculate, while 'Algorithm B' takes 2 seconds using the same data. Why would they choose 'Algorithm B'?

A. It has better time complexity and efficiency
B. It is written in a prettier font
C. It uses more memory space
D. It ignores more safety data