

Name: _____ **Date:** _____

Wrangle Robot Logic: Advanced 3rd Grade Algorithm Quiz

Students build computational fluency by architecting complex instructions for space missions and botanical growth cycles.

1. You are designing an algorithm for a robot to plant a community garden. If you want the robot to plant a seed only when it finds an empty hole, which logic component are you using?

- A. Linear sequencing
- B. Conditional branching (If-Then)
- C. Infinite looping
- D. Data encryption

2. In computational thinking, 'Decomposition' means breaking a large goal, like 'Building a Mars Rover,' into smaller tasks like 'Designing the Wheels.'

- A. True
- B. False

3. When an architect draws a floor plan before building a house, they are creating a structural _____, which is similar to an algorithm's design phase.

- A. Random guess
- B. Error message
- C. Blueprint
- D. Hardware

4. An algorithm for a self-driving car in a snowy city must prioritize 'Safety' over 'Speed.' This is an example of what advanced algorithm concept?

- A. Algorithm efficiency and constraints
- B. Visual formatting
- C. Spelling and grammar
- D. Alphabetical sorting

5. If a baker's recipe for 'Supernova Cake' results in a salty cake, the baker must find the mistake in the steps. In computer science, this is called _____.

- A. Decomposition
- B. Caching
- C. Debugging
- D. Downloading

6. An efficient algorithm is one that takes the longest possible number of steps to reach a correct answer.

- A. True

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B. False

7. You are organizing a library with 1,000 books. Instead of checking every book one by one, you split the library into 'Fiction' and 'Non-Fiction' first. What are you doing?

- A. Looping through errors
- B. Optimizing a search algorithm
- C. Deleting data
- D. Creating a hardware glitch

8. In a video game, the computer follows a _____ to decide how an enemy character moves when it sees the player.

- A. Random number
- B. Static image
- C. Keyboard
- D. Logical sequence

9. If an algorithm for an umbrella-bot says 'Open if it is raining', and it is sunny out, the umbrella-bot will stay closed.

- A. True
- B. False

10. Which of these is the MOST complex sub-problem when decomposing the task: 'Host a Virtual Talent Show'?

- A. Buying a snack for yourself
- B. Picking a color for your shirt
- C. Coding a voting system for the audience
- D. Turning on your own computer