Name: _____ **Date:** _____

Answer Key: Algorithm Design and Problem Solving Quiz

Master step-by-step logic with this Algorithm Design and Problem Solving Quiz. Students will practice sequencing and decomposing tasks into procedures.

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1. Which of the following best describes the definition of an algorithm in computer science?

Answer: B) A specific set of step-by-step instructions to complete a task or solve a problem.

An algorithm is a logical, ordered sequence of instructions. In computational thinking, it serves as the blueprint for solving a specific task efficiently.

2. You are designing an algorithm for a robot to brush its teeth. Which step must come BEFORE applying toothpaste to the brush?

Answer: D) Remove the cap from the toothpaste tube.

In algorithmic sequencing, prerequisites are essential. You cannot apply toothpaste unless the cap has been removed first; otherwise, the step will fail.

3. When an algorithm repeats a set of instructions until a certain condition is met, what is that concept called?

Answer: B) A loop

A loop is a fundamental construct in algorithm design used for efficiency when a procedure needs to be repeated multiple times.

4. An engineer is 'debugging' their algorithm. What specifically are they doing?

Answer: C) Finding and fixing errors in the step-by-step procedure.

Debugging is the process of identifying, analyzing, and removing errors (bugs) from an algorithm to ensure it produces the correct output.

5. Why is 'decomposition' important when creating an algorithm for a complex problem?

Answer: A) It breaks a big problem into smaller, more manageable parts.

Decomposition allows designers to tackle complex computational problems by simplifying them into smaller sub-problems, making the final algorithm easier to write and test.