Name: _____ **Date:** _____

Answer Key: Operation Robot Picnic: Can You Program the Perfect Path? Grade 3 Algorithms Quiz

Third graders gain precision in computational thinking by debugging robot routines, decomposing snack-sorting tasks, and sequencing steps for a successful outdoor adventure.

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1. A robot needs to pack a lunch. Which of these is the best first step in 'Problem Decomposition' for this task?

Answer: B) Listing the different items needed for a lunch

Decomposition means breaking a big job into smaller parts. Listing the items is a way to see all the small jobs you need to do first.

2. If an algorithm for making a paper airplane has a mistake in Step 2, the airplane will always fly perfectly anyway.

Answer: B) False

Algorithms must be followed exactly. A mistake (or bug) in the early steps usually causes the final result to fail.

3. When you find a mistake in your set of instructions and fix it, you are _____.

Answer: C) Debugging

Debugging is the specific term used in computer science for finding and fixing errors in a sequence of steps.

4. You are creating an algorithm to plant a seed. Which sequence is in the correct logical order?

Answer: B) Poke a hole, Drop seed, Put dirt on top, Water it

Algorithms must follow a logical flow where each step builds on the previous one to reach the goal.

5. Why would a programmer want to make an algorithm more 'efficient'?

Answer: C) To solve the problem in fewer steps or less time

Efficiency is about finding the fastest or simplest way to solve a problem without wasting resources.

6. A set of step-by-step instructions used to complete a task or solve a problem is called an _____.

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Answer: A) Algorithm

An algorithm is the formal name for any sequence of steps designed to achieve a specific outcome.

7. Computers are smart enough to guess what you mean even if your algorithm steps are out of order.

Answer: B) False

Computers are very literal; they follow instructions exactly as written, even if the order doesn't make sense.

8. If you are sorting a box of mixed crayons by color, which sub-problem is part of that task?

Answer: B) Deciding which color a single crayon belongs to

Identifying the color of one crayon is a smaller, manageable piece of the larger task of sorting the whole box.

9. When we test an algorithm with different inputs to see if it breaks, we are doing _____.

Answer: B) Testing

Testing is the process of running an algorithm to ensure it works correctly under different conditions.

10. Using a map to find the shortest way to a friend's house is an example of practice with algorithms.

Answer: A) True

Finding a path using specific rules or steps is a form of algorithmic thinking and problem solving.