Name: _____ **Date:** _____

Answer Key: A Robot's Rainy Day: 2nd Grade Algorithm Adventure Quiz

Young coders gain confidence in debugging and sequencing by helping a digital friend navigate complex, multi-step obstacles to stay dry.

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1. Our robot, Rusty, wants to make a peanut butter sandwich. Which step is an example of 'Decomposition' (breaking the big job into smaller parts)?

Answer: C) Listing the steps: Get bread, spread jam, then put bread together.

Decomposition means taking one big, complex task and breaking it down into smaller, easier steps that a robot can follow.

2. If a robot is stuck in a loop and keeps walking into a wall, the process of finding and fixing that mistake is called _____.

Answer: B) Debugging

Debugging is the specific term used in computer science for identifying a problem (a bug) and repairing it so the algorithm works.

3. True or False: An algorithm must have steps that are in the correct order to solve a problem effectively.

Answer: A) True

Sequence is vital; if you put your shoes on before your socks, the algorithm for getting dressed won't work correctly.

4. You are designing a path for a bee to get to a flower. If there is a spider in the way, what 'Condition' should you add to your algorithm?

Answer: A) IF there is an obstacle, THEN fly over it.

Advanced problem solving uses 'If-Then' logic to help an algorithm make decisions when it faces a challenge.

5. When we want a robot to draw a square, we use a _____ to tell it to 'Repeat' the same move 4 times.

Answer: C) Loop

A loop is a programming tool that repeats a set of instructions, making the algorithm more efficient by avoiding repeated typing.

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6. True or False: There is only ever one single way to write an algorithm to solve a problem.

Answer: B) False

There are often many different ways to solve a problem! Some might be faster or use fewer steps, but different algorithms can reach the same goal.

7. Which of these is the most 'Efficient' algorithm for a robot to pick up 10 toys scattered on the floor?

Answer: B) Pick up all toys into a basket, then walk to the box once.

Efficiency is about saving time or energy. Carrying everything in one trip is faster than making ten separate trips.

8. Before giving your instructions to a robot, you should _____ them yourself to make sure they work.

Answer: B) Test

Testing is a critical part of problem solving where you run the steps to see if the outcome is what you expected.

9. You are writing an algorithm to help a squirrel find a buried nut. If the squirrel finds a rock instead of a nut, what should the next step be?

Answer: C) Go back 2 steps and try digging in a new spot.

Problem solving involves 'backtracking' or changing the plan when the current step doesn't lead to the goal.

10. True or False: Computers are smart enough to guess what you mean even if your instructions are missing a step.

Answer: B) False

Computers and robots follow instructions exactly. If a step is missing, the algorithm will fail because the computer cannot 'guess' your thoughts.