Kit’s Code-Cracking Challenge

1. Instruction 3: 'Hop like a frog.' (2 marks)

Working: The robot is designed to walk to the bench; hopping is not a logical movement for a robot in this sequence.

1 mark for identifying the bug, 1 mark for explaining it is not a logical movement for a robot.

2. Instruction 3: 'Move backward 10 steps.' (2 marks)

Working: Moving backward 10 steps takes the robot further away from the ball than it started.

1 mark for identifying the bug, 1 mark for explaining it moves the robot away from the target.

3. A turn of 90 degrees is missing between step 3 and step 4. (2 marks)

Working: A square requires four sides and four turns. Sophie only has two turns in her code.

1 mark for identifying the missing turn, 1 mark for explaining why (a square needs 4 turns).

4. Step 3 ('Eat the sandwich') and Step 4 ('Close the sandwich'). (2 marks)

Working: You must close the sandwich before you can eat it.

1 mark for identifying the two steps, 1 mark for explaining the correct sequence.

5. Instruction 6: 'Spin around.' (2 marks)

Working: Spinning does not help the robot reach the gate; it is an extra action that is not needed.

1 mark for identifying the instruction, 1 mark for explaining it is unnecessary for the goal.

What a secure answer looks like

A secure answer demonstrates that the child understands that an algorithm must be logical, sequential, and free of unnecessary or incorrect actions.

If your child is stuck

Ask your child to act out the instructions physically. If they find themselves doing something silly or getting lost, they have found the bug!

Common mistakes to watch for

Children often struggle to see that 'extra' steps (like spinning) are bugs, or they forget that the order of instructions is just as important as the instructions themselves.