

Computing Assessment: Mastering the Art of Debugging

Learning objective: To identify, explain, and correct errors (bugs) within algorithms and sequences of instructions.

Read each question carefully. Use your knowledge of logic and sequences to solve the problems. Write your answers clearly in the spaces provided.

Kit the fox is helping a group of forest friends learn how to use a computer program to navigate a maze. Kit has written a sequence of instructions for a robot, but the robot keeps hitting a wall. Kit needs to find the mistake and fix it so the robot reaches the finish line safely.

Word bank: Algorithm · Bug · Debug · Sequence · Logic · Error · Predict

1. What is the correct term for a mistake or error in a computer program? (1 mark)

2. Explain what it means to 'debug' a program. Why is this an important skill for a computer programmer? (3 marks)

3. Kit's robot needs to move forward 3 squares, turn right, and move forward 2 squares. The current code is: [Move Forward, Move Forward, Turn Right, Move Forward]. Identify the bug in this sequence. (2 marks)

4. How would you fix the bug you identified in the previous question? Write the corrected sequence of instructions. (3 marks)

5. Max the monkey says that if you get an error message, you should give up and start again from the beginning. Is Max correct? Explain your reasoning using your knowledge of logical problem solving. (4 marks)

6. Imagine you have written a program to bake a cake, but the cake comes out burnt every time. Describe the steps you would take to test your program and find the 'bug' in your baking sequence. (7 marks)

7. Why is it helpful to work with a partner when you are trying to debug a complex piece of code? (5 marks)

Draw: Draw a simple maze grid with a start point and an end point. Use arrows to show the path a robot should take, and mark one place where a 'bug' in the instructions might cause the robot to go off-track.



Extension challenge: Total: /25