

Kit's Coding Logic Challenge

Learning objective: To understand algorithms and debugging by sequencing instructions for a robot's path.

Kit the fox is programming a robot to navigate a grid to collect items. Look at the grid instructions below and reorder them correctly to ensure the robot reaches the target without hitting an obstacle. Then, identify the error in the 'buggy' code provided.

Word bank: Algorithm · Debug · Sequence · Input · Loop · Variable

1. The robot needs to move from (0,0) to (0,3). It must go: Move Forward, Move Forward, Move Forward. Write the correct sequence of steps to achieve this. (2 marks)

2. Kit wrote this code for the robot: 1. Turn Right, 2. Move Forward, 3. Turn Left. If the robot hits a wall on the right, which step is the 'bug' and why? (2 marks)

3. Define an 'algorithm' in your own words as if you were explaining it to a friend. (2 marks)

4. If the robot costs £12.50 to build and you have £50.00, how many robots could you buy for a coding club? Show your calculation. (2 marks)

5. Why is it important to 'debug' code before running it in a real-world scenario? (2 marks)

Draw: Draw a 4x4 grid. Place a robot at the bottom left corner and a golden star at the top left corner. Draw a red 'X' in one square to represent an obstacle, and draw the path the robot must take to avoid it.



Extension challenge: Create your own set of 'coding cards' using arrows (Up, Down, Left, Right). Swap with a partner and see if they can follow your sequence to reach the target square on your drawn grid.