

Kit's Coding Conundrum: Scratch Logic

Learning objective: To understand and use sequence, selection, and repetition in Scratch programming to debug a faulty script.

Kit the Fox has been working on a new Scratch project where a sprite navigates a maze to collect a star. However, the code is jumbled! Below is a sequence of blocks. Your task is to re-order the blocks correctly to ensure the sprite reaches the star without hitting the maze walls. Then, explain the logic behind your choices.

Word bank: Sequence · Algorithm · Loop · Debug · Sprite · Condition

1. The intended path is: Move forward 10 steps, turn right 90 degrees, move forward 10 steps, and repeat this sequence 3 times. Write the correct order of the blocks to achieve this. (4 marks)

2. Why is it important to use a 'Repeat' block (a loop) instead of writing the same instructions three separate times? (2 marks)

3. If the sprite hits a wall, which control block would you use to check if the sprite is touching a specific color? Explain your reasoning. (3 marks)

4. Compare and contrast a 'Repeat until' block with a 'Repeat' block. When would you choose one over the other? (4 marks)

5. Justify your answer: What might happen if you forget to include a 'When Green Flag Clicked' hat block at the start of your script? (2 marks)

6. Explain why 'debugging' is a vital skill for a computer programr, even if their original code was written carefully. (2 marks)

Draw: Draw a storyboard showing the sprite's movement path through a simple maze, labelling each turn with the corresponding degree angle (e.g., 90 degrees).



Extension challenge: Design a complex 'if-then-else' statement for Kit. Imagine the sprite reaches a fork in the road: 'If the sprite touches the blue key, then change color and go to the star, else play a sound and reset to the start.' Write this out in pseudocode.