

Year 5 Computing: Mastering Scratch Programming

Learning objective: To assess pupils' understanding of sequence, selection, repetition, and variables within the Scratch environment.

Read each question carefully. Ensure your answers use correct technical terminology. You are encouraged to provide clear, logical explanations for your coding choices.

Kit the fox is creating a digital game to help his friends learn about the rainforest. He has designed a sprite that moves across the stage to collect fallen fruit. He needs to ensure his code is efficient and that his game keeps an accurate score for the player.

Word bank: Algorithm · Variable · Loop · Selection · Sprite · Condition · Bug · Debugging · Sequence

1. Define the term 'algorithm' in the context of computer programming. (2 marks)

2. Explain the difference between a 'definite loop' (repeat) and an 'indefinite loop' (forever) in Scratch. (3 marks)

3. Kit wants his sprite to change colour only when it touches a green leaf. Name the programming concept he should use to achieve this and describe how it works. (3 marks)

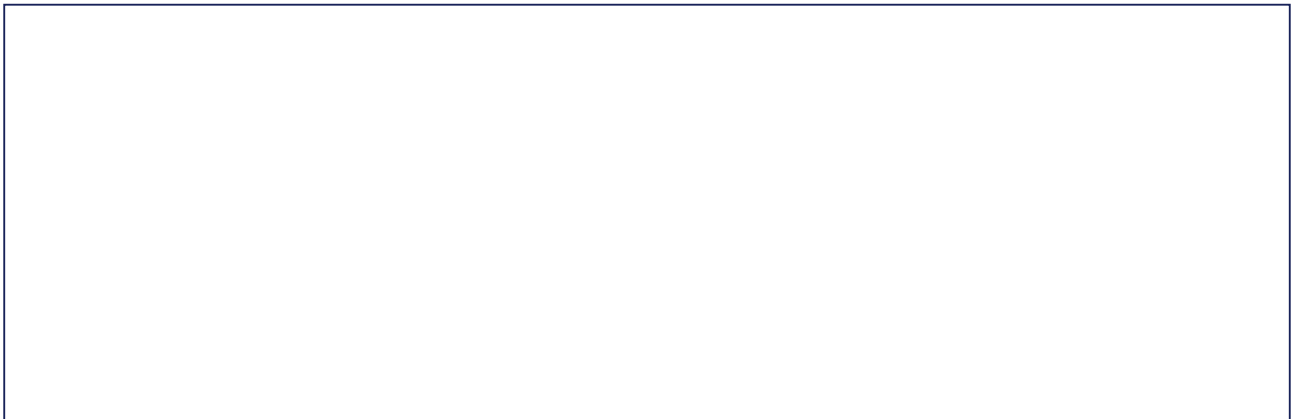
4. Why is it important to initialise a 'variable' (e.g., setting 'Score' to 0) at the start of a game? (2 marks)

5. If a sprite is meant to move 10 steps but stays still, describe two potential 'bugs' in the code that might be causing this issue. (3 marks)

6. Compare and contrast the use of 'broadcast' blocks with standard sequence blocks. Why might a programmer choose to use a broadcast? (4 marks)

7. Extended Writing Task: Kit is designing a game where a character must solve a maths puzzle to open a door. Write a detailed plan (using pseudocode or a numbered list) explaining how you would use variables and selection (if/then/else) to create this interaction. Justify why your chosen approach is the most efficient method for this task. (8 marks)

Draw: Draw a flowchart showing the logic for a simple game: 'If the user clicks the sprite, say Hello; otherwise, hide the sprite.'



Extension challenge: Imagine the game is now being sold for £4.99. If Kit creates 10 levels and sells the game to 150 people, calculate the total revenue. Then, write a paragraph explaining what might happen to the game's complexity if you added a 'timer' variable that decreased by 1 every second. How would this change the user's experience? Total: /25