Kit’s Coding Challenge: Scratch Masterclass

Learning objective: To test understanding of block-based programming concepts including algorithms, variables, loops, and conditional statements in Scratch.

Help Kit the Fox debug his latest digital project! Read each question carefully and circle the best answer. Remember to think like a computer programr.

Answer Key: 1: C*, 2: True, 3: Sequence, 4: B*, 5: False, 6: Loop, 7: A*, 8: Debugging, 9: True, 10: D*. Explanation: A variable acts like a digital container to store changing information, such as a score or timer. Debugging is the essential process of finding and fixing errors in your code.

Word bank: Algorithm · Sprite · Variable · Loop · Debugging · Sequence · Conditional

1. 1. What do we call the character or object that you program in Scratch? A) A pixel B) A block C) A sprite* D) A sequence (1 mark)

2. 2. True or False: An algorithm is a precise set of instructions used to complete a task. (1 mark)

3. 3. What is the word for the order in which blocks of code are executed? (1 mark)

4. 4. Which block type is used to make a set of instructions repeat over and over? A) Motion B) Control* C) Sound D) Sensing (1 mark)

5. 5. True or False: You can only use one sprite at a time in a Scratch project. (1 mark)

6. 6. If you want a character to move forward 10 steps five times, what programming concept would you use? (1 mark)

7. 7. Which of these is a 'conditional' statement? A) If... then...* B) Repeat 10 times C) Move 10 steps D) Say Hello (1 mark)

8. 8. What is the process of finding and fixing a mistake in your code called? (1 mark)

9. 9. True or False: A variable is used to store data, like a player's score. (1 mark)

10. 10. Which of these will change the way a sprite looks? A) Change x by 10 B) Play sound C) Wait 1 second D) Next costume* (1 mark)

Draw: Draw a storyboard showing a sprite moving through a maze. Use arrows to show the direction of the movement and label your code blocks like 'Move 10 steps' or 'Turn 90 degrees'.

Extension challenge: Greater Depth Challenges: 1. Explain why the order of blocks (sequence) is critical for a program to function correctly. 2. Compare and contrast a 'Repeat' loop with a 'Forever' loop. When would you use one over the other? 3. Justify your answer: Why is it better to test your code frequently while building it, rather than waiting until the end? 4. What might happen if a variable in a game was never updated? 5. Create a pseudocode plan for a game where a sprite must collect coins to increase a score. 6. If your sprite is stuck in an infinite loop, how would you diagnose and resolve the issue?