

Kit's Clever Coding Challenge

Learning objective: To understand how algorithms, sequences, and variables work in programming.

Read each question carefully and use your knowledge of programming logic to solve the problems. Remember to use the word bank to help you with your answers.

Kit the fox is building a robotic toy to help organise his den. He needs to make sure the instructions are in the correct order so the robot doesn't get confused!

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

1. Kit wants his robot to move forward three steps, turn right, and pick up a book. What is the specific name for this set of step-by-step instructions? (2 marks)

2. If the robot tries to turn right but walks into a wall instead, what do we call this mistake in the code, and what is the process of fixing it? (2 marks)

3. Kit needs the robot to jump five times. Instead of writing 'jump' five times, what programming feature could he use to repeat the action? (2 marks)

4. Kit is using a 'score' to keep track of how many books the robot tidies away. In programming, what do we call a container that holds a value (like the score) that can change? (2 marks)

5. Explain why the order of instructions (the sequence) is so important when programming a computer. (3 marks)

Draw: Draw a flowchart showing the steps a robot would take to make a cup of tea, starting with 'Pick up kettle' and ending with 'Pour tea'.



Extension challenge: Imagine you are programming a robot to help you get ready for school. Write a sequence of five instructions (an algorithm) for the robot to follow to ensure you have your school bag packed and ready by the door.