Mastering the Logic of Code

Learning objective: I can understand algorithms, variables, and how to debug computer programmes.

About 45 minutes. Grown-up tip: Ask your child to explain how they might 'debug' a real-life situation, like following a recipe that went wrong.

Read each question carefully. For coding questions, use clear, logical steps. Example: To 'debug' means to find and fix an error in a line of code.

Kit the fox is helping the local village library in Manchester organise their digital records. He is writing a simple script to help students check out books. A script is a set of instructions that the computer follows in a specific order.

Word bank: algorithm · variable · debug · loop · sequence · input

1. 1. What is an 'algorithm'? Explain it in your own words. (2 marks) (2 marks)

2. 2. Kit writes a sequence: 1. Scan book, 2. Check library card, 3. Update return date. Why is the order of these steps important? (3 marks) (3 marks)

3. 3. A variable is like a storage box for data. If a programme asks for a user's 'Name', why is this considered a variable? (4 marks) (4 marks)

4. 4. Look at this loop: 'Repeat 5 times: add 1 to book_count'. If the starting book_count is 0, what will the final number be? (3 marks) (3 marks)

5. 5. You have written a program to calculate the total cost of books (£3 each). Your code says: 'Price = 3 * Quantity'. You test it with 4 books, and it says £7. Explain how you would 'debug' this programme. (8 marks) (8 marks)

6. 6. Design a simple algorithm (using a list of steps) for a robot to make a cup of tea in a village kitchen. (5 marks) (5 marks)

Draw: Kit the fox sitting at a desk in a cosy, book-filled library, looking at a tablet screen showing glowing code blocks.

Extension challenge: Total: /25. Challenge: Write a line of 'pseudocode' that uses an 'IF' statement to check if a student has returned their book on time.



I did it! Name: _____ Date: _____

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