Mastering the Logic of Coding: A Digital Guide

Success criteria (tick when done)

[ ] I have used technical vocabulary like algorithm and loop correctly.
[ ] I have written my steps in a clear, logical sequence.
[ ] I have explained why 'if-then' logic is important.
[ ] I have checked my spelling and used full sentences.
[ ] I have included a clear introduction and conclusion.

What to expect at this age

Children at this age should be able to break down a complex task into logical steps and use formal, instructional language. They should demonstrate an understanding that computers require precise, unambiguous commands to function correctly.

Good, better, best: model responses

Good: My program helps a student find their lost library book. First, you search the shelf. Then, you check the list. If the book is there, you take it. If not, you ask a teacher. This helps keep the library tidy.

Uses basic steps and identifies the purpose of the program clearly.

Better: My program helps a student find a lost library book. First, you search the shelf. Subsequently, you check the database. Crucially, I used a conditional statement: if the book is found, you take it; otherwise, you ask a teacher. This ensures the student knows what to do.

Introduces technical vocabulary like 'subsequently' and 'conditional' to explain the logic.

Best: My program is an automated library assistant designed to help pupils locate misplaced books. The algorithm follows a strict sequence: scan the shelf, then check the digital inventory. Furthermore, I included a conditional statement: if the book is present, the system updates the status. If not, it triggers a search loop. Debugging is essential to ensure the logic flows correctly.

Uses a professional tone, precise technical terminology, and clearly explains the relationship between the algorithm and the debugging process.

What a secure answer looks like

Encourage pupils to think about 'edge cases'—what happens if the input is unexpected? This helps them understand the necessity of robust conditional logic.

If your child is stuck

Ask your child to explain how they would teach a robot to make a cup of tea. If the robot didn't know what a kettle was, what specific steps would it need?

Common mistakes to watch for

Children often forget that computers cannot 'guess' intent. Remind them that if a step is missing, the algorithm will fail, which is why debugging is a key part of the process.