Kit’s Computing Concepts: Mastering Programming

Learning objective: To understand, design, and evaluate core programming concepts including algorithms, variables, and debugging.

Use these flashcards to test your knowledge of programming terminology. Read the term on the front, then flip to reveal the definition. For the 'Greater Depth' questions, provide detailed justifications.

Algorithm

A precise, step-by-step set of instructions designed to perform a specific task or solve a problem.

Variable

A labelled 'container' in a computer program used to store data or values that can change while the program is running.

Loop

A programming structure that repeats a specific sequence of instructions until a certain condition is met or for a set number of times.

Selection

A decision-making process in a program where the computer chooses which path to take based on a condition, often using 'if' statements.

Debugging

The systematic process of identifying, analysing, and removing errors or 'bugs' from a computer program.

Sequence

The specific order in which instructions are executed in a program; changing the sequence often changes the outcome.

Input

Data or signals sent to a computer program, such as a mouse click, a key press, or a sensor reading.

Output

The information or action produced by a program for the user, such as text on a screen, a sound, or a physical movement.

Boolean

A data type that has only two possible values, usually represented as True or False, used to test conditions.

Decomposition

The process of breaking down a complex problem into smaller, more manageable parts that are easier to program.

Explain why 'Decomposition' is considered an essential first step when designing a complex game.

It allows a programmer to simplify a large, overwhelming task into smaller, logical modules, making it easier to identify potential logic errors early on.

Justify why a programmer would choose to use a 'Loop' instead of writing the same lines of code repeatedly.

Using a loop makes the code more efficient, easier to read, and simpler to update; changing one value in a loop is faster than editing multiple lines of repetitive code.