

Kit's Computing Challenge: Mastering Programming

Learning objective: To understand core programming concepts including algorithms, sequences, variables, and debugging within the Year 4 computing curriculum.

Read each card carefully. These flashcards help you understand how Kit the Fox builds clever solutions using code. Use these to test your knowledge or play a matching game with a partner.

Algorithm

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

Sequence

The specific order in which instructions are carried out in a computer program.

Debug

The process of identifying, analysing, and removing errors or 'bugs' from a computer program to make it run correctly.

Variable

A placeholder or container used in programming to store information that can change while the program is running, such as a player's score.

Loop

A programming instruction that repeats a specific sequence of code multiple times until a condition is met.

Input

Data or signals received by a computer, such as a mouse click, a key press, or a sensor reading.

Output

Information or actions produced by a computer after processing data, such as text on a screen or a sound.

Decomposition

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

Selection

A decision point in a program where the computer chooses which path to take based on whether a condition is true or false (e.g., if-then statements).

Syntax

The specific rules and grammar of a programming language that must be followed for the code to be understood by the computer.

Explain why 'Decomposition' is a vital skill for a programmer when tackling a large, complex project.

Decomposition helps programmers manage complexity by allowing them to focus on small, solvable sections one at a time, making the overall project less overwhelming and easier to debug.

Compare and contrast a 'Loop' and a 'Sequence'.

A sequence is a linear set of instructions performed once in order. A loop allows the computer to repeat a sequence multiple times, which is more efficient for repetitive tasks.