Computing - Computational thinking

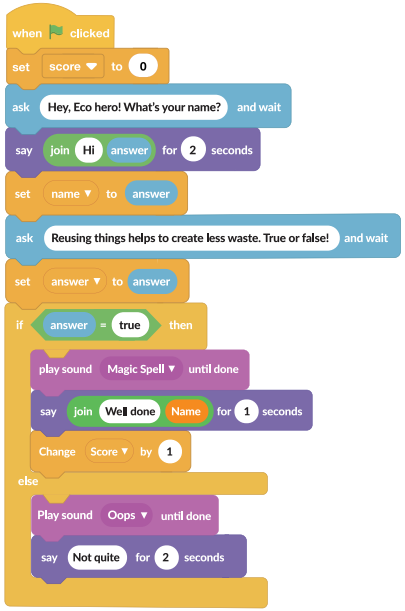
abstraction	Identifying the important detail and ignoring irrelevant information.
algorithm design	Creating clear step-by-step instructions to make something work.
computational thinking	Using logic to solve problems step by step.
decomposition	Breaking a problem down into smaller, easier steps.
logical	Makes sense and follows a clear order or pattern.
pattern recognition	Finding similarities or repeated parts in a problem to help solve it more easily.
sequence	Steps arranged in the correct order to make something work.

Remixing code

Remixing code saves time by using ideas from existing projects.

Pattern recognition helps to understand how the code works and algorithm design helps to change it.

Programmers edit code to fix problems, add new features or make it work better.



Real-life examples of computational thinking

Planning a journey

When planning a journey, the route, stops and transport are decomposed into smaller steps.

Cooking a recipe

Cooking requires a sequence of steps to be followed.

Solving a jigsaw puzzle

Looking for patterns and grouping pieces together helps solve a jigsaw.

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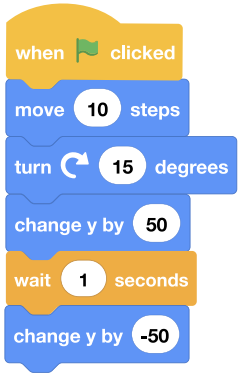
Abstraction

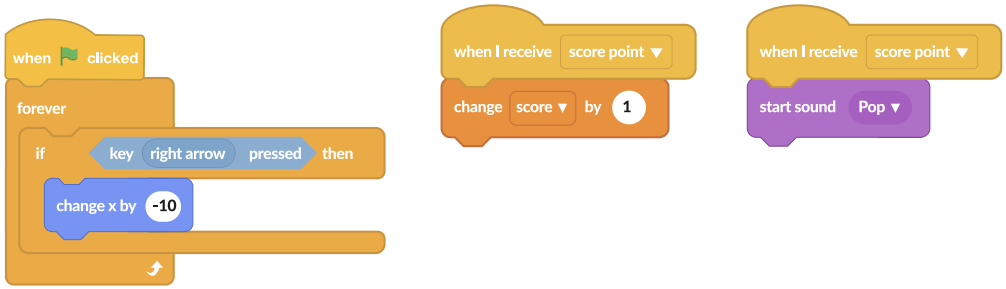
Abstraction in coding means using simple commands to do complex tasks. A 'move 10 steps' block in Scratch makes a sprite move forward without needing to code each step separately.

Algorithm design



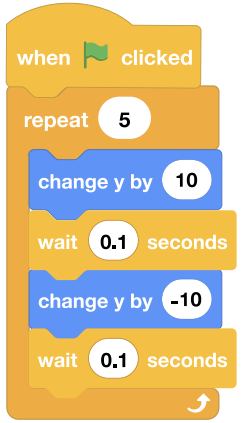
Algorithm design means creating clear step-by-step instructions in coding. In a game, code is written to make a character move forward, turn and jump in the right order for smooth actions.

Decomposition



When coding a game, the project can be broken into smaller parts, such as writing code for player movement, scoring and sound effects. Working on each part separately makes the code easier to manage and debug.

Pattern recognition



Pattern recognition helps to spot repeating actions so more efficient code can be written. For example, if a character in a game jumps the same way every time, a loop can be used instead of writing the same jump code multiple times.