

PROGRAMMING ESSENTIALS (1)

1

A computer inputs (this might be automatic or via human input), processes that input and then produces an output. For example when you use a keyboard and mouse, the mouse is used to input data into the computer to be processed and the output is visible on the computer monitor.

2

Variables are used to store data for use in a program. They can store lots of different types of data such as names and scores.

So set variable score to equal 0

If I score a goal then increase variable by 1

Operators

Comparison operators allow us to compare using <>+</p>
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Logical operators use AND, OR, NOT

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A **selection** statement in programming allows a computer to **evaluate** an **expression** to **'true'** or **'false'** and then perform an action depending on the outcome.

If 'character has a sword' is true:

Remove from game

Else:

Keep in the game

Debugging is the process of finding an error in your code and taking steps to fix the problem.

Count controlled iteration will execute the commands a set number of times
Example: "perform 200 star jumps"

Condition-controlled iteration will execute the commands until the condition you set is no longer being met
Example: "perform star jumps until 3pm"

Scratch is a block based programming language. We can use predefined code in blocks to create algorithms

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Key Words

abstraction	Identify the important aspects to start with
algorithm	Precise sequence of instructions
Computational thinking	Solving problems with or without a computer
debugging	Looking at where a program might have errors or can be improved
blocks	Scratch bricks that we can use to code algorithms
decomposition	Breaking down a problem into smaller parts
execute	A computer precisely runs through the instructions
iteration	Doing the same thing more than once
selection	Making choices
sequence	Running instructions in order
variable	Data being stored by the computer

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We use algorithms in every day life . Example an algorithm to get to school, to make a cup of tea, to make a pizza, to order a takeaway. These are just precise sequences of instructions.

Sequence, selection and iteration are all processes. In order for computers to perform tasks there is more that is needed. For example a computer will take an **input** (this might be automatic or via human input) which the computer will then **process** and the **output** will be visible on the computer monitor.