PROGRAMMING ESSENTIALS (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.

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 <>+

Logical operators usa AND, OR, NOT

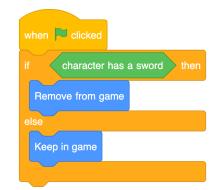
A **selection** statement in programming allows a computer to **evaluate** an **expression** to **'true'** or **'false'** and then perform an action depending on the outcome.

If 'character has a sword": is true:

Remove from game

Else:

Keep in the game

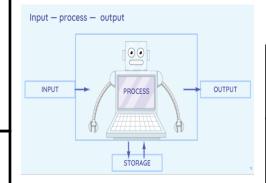


Debugging is the process of finding an error in your code and taking steps to fix the problem.

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

4 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 im-
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.