

Computer Science Year 8

Key Knowledge

Computational Thinking



Key Vocabulary

• We create Algorithms to solve different tasks and problems by using a step by step methodology. We can use abstraction and decomposition to break down large tasks into smaller more manageable tasks.



OR

NOT



Input A	Input B	Output Q
0	0	0
0	1	1
1	0	1
1	1	1

Output Q Input A



Computational Thinking	A problem-solving approach that uses techniques from computer science. These techniques include abstraction, decomposition and the development of algorithms. Computational thinking skills are not exclusively used to develop computer systems.
Abstraction	The removal of unnecessary information from a problem in order to make it more solvable.
Decomposition	Breaking a large problem down into smaller solvable problems. The smaller parts can sometimes be solved in a recursive fashion and run repeatedly.
Pattern Recognition	Finding the similarities or patterns among small, decomposed problems that can hele us solve more complex problems more efficiently.
Algorithm	A set of instructions which can be followed in order to solve a problem.
Program	Sequences of instructions for a computer.
Programming	The process of writing computer software.
Flow chart	A diagram that shows an algorithm or process, made up of boxes representing steps, decision, inputs and outputs.
Pseudocode	A method of writing up a set of instructions for a computer program using plain English. This is a good way of planning a program before coding.
Logic Gate	A logic gate is an building block of a digital circuit. Most logic gates have two inputs and one output. At any given moment, every terminal is in one of the two binary conditions 0 or 1.
And	A logic gate which returns a 1 when both inputs are 1's. Else a 0 is returned.
Not	A logic gate which returns 1 when either or both of the inputs are 1.
Or	A logic gate which inverts its input.
Truth Table	A table which shows outputs from a logic gate or circuit given certain inputs.