Definitions and Concepts for AQA Computer Science GCSE

Topic 1: Fundamentals of Algorithms

Algorithm: A step-by-step set of instructions that can be followed to solve a problem.

Computer Program: An implementation of an algorithm using a specific programming language.

Decomposition: The process of breaking down a problem into smaller, more manageable sub-problems that each accomplish a specific task.

Abstraction: The process of removing unnecessary details to focus on the essential parts of a problem.

Pseudocode: A way of describing algorithms using structured, plain English.

Program Code: Code written in a specific programming language.

Flowchart: A diagram that represents an algorithm using symbols.

Efficiency: A measure of how well an algorithm performs in terms of time or steps.

Searching Algorithm: A method used to find a specific value (target) in a list of data.

Linear Search: A search method that checks each item one by one.

Binary Search: A fast search method that works on sorted data by halving the search range on each iteration.

Sorting Algorithm: A method used to arrange data into a specific order, usually ascending or descending.

Bubble Sort: A simple sorting algorithm that repeatedly swaps adjacent items.

Merge Sort: A fast, efficient sorting algorithm that uses divide-and-conquer.

Divide and Conquer: The process of repeatedly splitting a dataset into smaller datasets and so on.