Computer Science

Key Words

BINARY | PROCESS | FLOWCHART | AND | ALGORITHM | NOT | OR | OUTPUT | ASCII | DECISION | INPUT | BOOLEAN | FALSE | TRUE | LINEAR | UNAMBIGUOUS

1. Algorithms and flowcharts

Algorithm: step-by-step way of completing a task

- They must have enough detail
- Following an algorithm should be relatively easy
- Algorithms must be **unambiguous**

Algorithms are key to Computer Programming and Computer Science

Algorithms can be visually represented using **flowcharts**. Each part of the process has a set shape

Terminator **Decision** **Process** **Input/output**

2. Binary and linear searching

Linear Search:

List does not have to be in ascending order.

Best case search will be first time match. Worst case search will be last time match.

Binary Search:

List must be sorted in ascending order

Best case search is first time match. Worst case would be less than a linear search, making them quicker and more efficient.

Searching algorithms are very important for computer science. Website searches are based on searching algorithms.

3. Data representation (binary and ASCII)

Binary numbers can be sent along cables as pulses of electricity (where a pulse would be 1, and a gap is 0)

A 'bit' (binary digit) of data to understand

Makes processing quicker. Computer circuits are on or off

1= true /on

0 = false/ off

Keyboard characters have a denary representation in the **ASCII table**. These numbers are changed to binary in computers.

4. Boolean logic

NOT gate

Input	Output
1	0
0	1

AND gate

Input		Output
1	1	1
1	0	0
0	1	0
0	0	0

OR gate

Input		Output
1	1	1
1	0	1
0	1	1
0	0	0