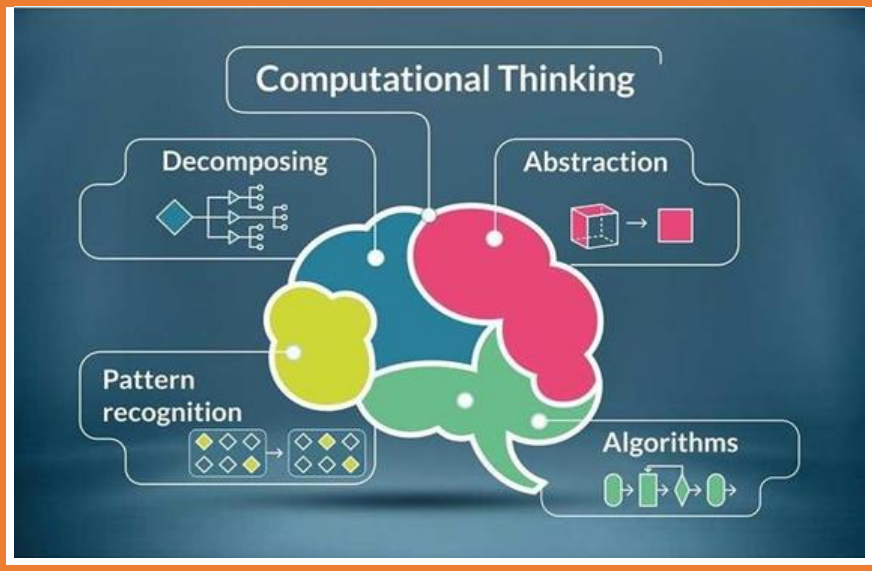# Kemnal Technology College –Computer Science Kemnal Key – Yr11 Term 6

You must be able to understand and explain the following terms; algorithm, decomposition and abstraction.

Problem Solving

Computational Thinking
- Decomposing
- Abstraction
- Pattern recognition
- Algorithms

Flow charts

Flow charts like pseudocode are informal but the most common flow chart shapes are:
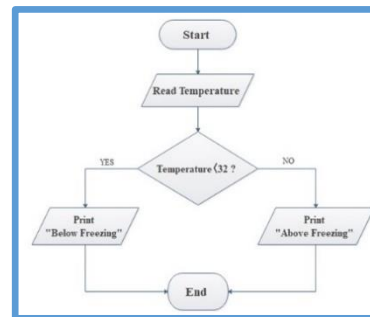
→	Line	An arrow represents control passing between the connected shapes.
▭	Process	This shape represents something being performed or done.
▯	Sub Routine	This shape represents a subroutine call that will relate to a separate, non-linked flow chart
▱	Input/Output	This shape represents the input or output of something into or out of the flow chart.
◇	Decision	This shape represents a decision (Yes/No or True/False) that results in two lines representing the different possible outcomes.
⬭	Terminal	This shape represents the "Start" and "End" of the process.

KEY - understand the benefit of using decomposition and abstraction to model aspects of the real world and analyse, understand and solve problems

KEMNAL KEY QUESTIONS

1. Define the term algorithm

2. Explain why an algorithm must be accurate and consistent?

3. Define the term decomposition

4. Describe **three** advantages of decomposition.

5. Define the term abstraction.

Remember:
You will learn to write algorithms (flowcharts, pseudocode*, program code) that use sequence, selection, repetition.

KEY VOCABULARY

Algorithm	An abstracted program which completes a given task, whatever the data provided
Abstraction	Abstraction is moving a problem out of the specific in order to create a general solution that would work in similar scenarios. Ignoring the gritty details to focus on the problem
Decomposition	Breaking a problem down into smaller, computational solvable chunks
Pseudo Code	A structured way of planning code, which is ' computational' in style (uses Boolean logic, variables, comparisons and arithmetic for example) but is not tied to a strict high-level language's syntax
Flow Diagram	A diagram, made using specific shaped boxes, that mocks up the flow of a program through various stages, processes and decisions.

Computational thinking

(a) Programmers use abstraction to model the real world. Define the term 'abstraction'. (2)

(b) Programmers use different types of operators in their programs. Name the type of operator for each example. (3)