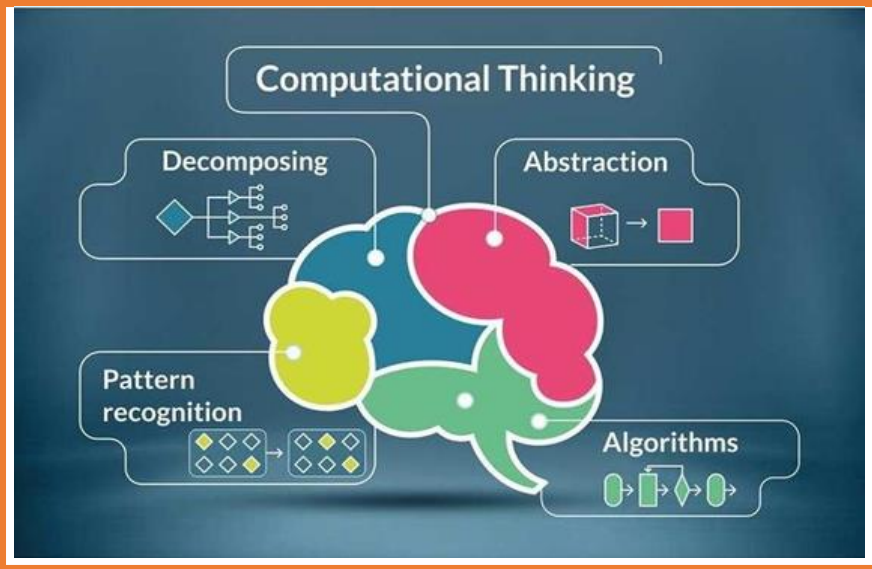


Kemnal Technology College –Computer Science Kemnal Key – Yr10 Term 1

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

Problem Solving



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.

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.

Flow charts

Flow charts like pseudocode are informal but the most common flow chart shapes are:

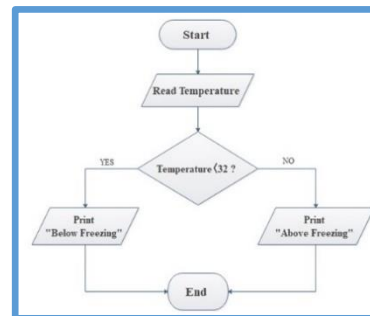
	Line	An arrow represents control passing between the connected shapes.
	Process	This shape represents something being performed or done.
	Sub Routine	This shape represents a subroutine call that will relate to a separate, non-linked flow chart
	Input/Output	This shape represents the input or output of 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



Remember:

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



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)