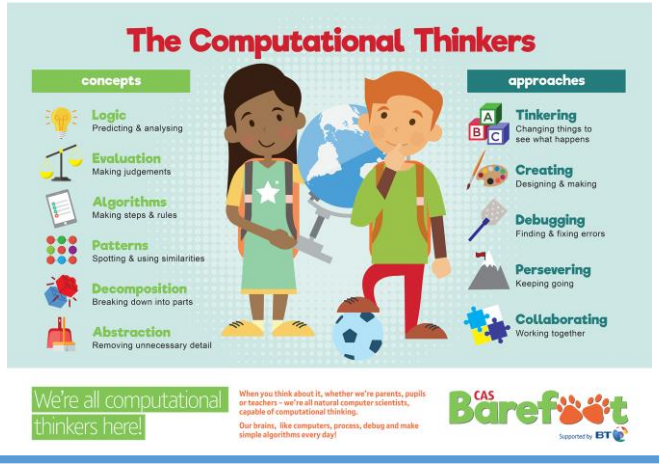
Kemnal Technology College – Computer Science Kemnal Key – Year 9 Term 5

What is Computational Thinking?

Computational thinking is the step that comes before programming.

It's the process of breaking down a problem into simple enough steps that even a computer would understand.



KEMNAL KEY QUESTIONS

1. Define what is meant by Computational thinking?
2. Explain what Algorithms are? Give an example
3. What is meant by the terms decomposition and abstraction?
4. Draw a flowchart or pseudocode for making a cup of tea or a jam sandwich.

Algorithm	Another way of saying rules and instructions in Computer Science. An Algorithm is a step-by-step procedure or set of instructions to achieve an outcome.
Decomposition	Break the problem into smaller chunks. For baking a cake, that might involve thinking about the components of a cake (frosting, decorations, and the cake itself).
Abstraction	Remove any unnecessary details that don't help you solve the problem. For baking cake, that might mean the order in which you prepare the ingredients is not important.
Variables	a box in which data may be stored. The value can be changed as needed whilst the program is running.

In computer science, pseudocode is a plain language description of the steps in an algorithm or another system

Sample Pseudocode

- Task: add two numbers
- Pseudocode:
  - Start
  - Get two numbers
    - Get first number
    - Get second number
  - Add them
  - Print the answer
  - End

A flowchart is a type of diagram that represents a workflow or process

Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectagle represents a process
	Decision	A diamond indicates a decision