



Course entry requirements: **5 A* - C or 9 - 5** grades. At least a **6** in Maths and English Language

During the summer break you are required to complete all of the work in this pack. This will give you the chance to demonstrate your commitment and enthusiasm for this subject. **You will still need to achieve the entry requirements to study this course.**

Student Name	
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Keywords

Computational thinking is about looking at a problem in a way that a computer can help us to solve it. Below is a list of words associated with computational concepts.

Complete the table below to and give the definition for each keyword.

Keyword	Definition
Logic	
Algorithms	
Decomposition	
Patterns	
Abstraction	
Evaluation	

Data Manipulation – Searching, sorting and insertion Methods

Before data can be used it has to be placed in order, below is a list words associated with different data manipulation algorithms. Complete the table below to give the definition for each word.

Keyword	Definition
Binary Search	
Linear search	
Insertion Sort	

Exam Question

1. A flight simulator allows a user to take control of a simulated aeroplane. The user can fly the plane in an environment that can simulate different weather conditions and additional planes in the sky.

Abstraction has been used in the design and creation of the flight simulator.

Explain, using an example, the need for abstraction in the creation of the flight simulator.

2. A 1-dimensional array stores a set of numbered cards from 0 to 7. An example of this is shown in Fig 1. below.

2	0	1	7	4	3	5	6
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Fig 1.

- a) The programmer wants to search for a specific card in the array. State whether a binary search or a linear search would be the most appropriate method to search for a specific card, and justify your answer.

Search method:

Justification:

- b) A programmer is writing a computer program to sort the cards into the correct order (0 to 7)

Show how an insertion sort would sort the array in Fig 1. into the correct order. Draw the array after each move.