**A Level Computer Science**

**Overview**

Ideally you will have completed the GCSE Computer Science course which gives you a flavour for the topics that this A-Level covers. The course is designed for students who have a genuine interest in how computers are used within society. It will look at how technology has developed and focus on the morals and ethics as well as some of the legislation that protects individuals. A large part of the course involves Algorithms and Programming and will suit logically minded students who are able to decompose problems and use abstraction to refine and create efficient working solutions. There is an element of mathematics within the course and topics such as Boolean Logic/Algebra and Data representation will help students express computational laws and processes. The programming project forms 20% of the final grade and students will be required to research, analyse, evaluate and implement a coded solution to a problem which requires a high level of complexity (a non-linear solution).

This course has a mix of practical and theoretical elements. It will be invaluable to you if you are looking to use any aspect of Computer Science in your future career. This includes a raft of IT specific careers such as Project management, Network engineering, Software engineering, Cyber security, Systems /Data analysis and Programming. This course is recognised by further education institutions and businesses alike. The content overview is:

***Computer Systems*** *- (characteristics of processors, Moral/Legal/Ethical issues, Data types, Software development)*

***Algorithms and Programming*** *- (computational programming, problem solving and use of algorithms)*

***Programming Project***

**Whilst there will be some specific ‘bridging work’ set on the school website before the end of term, developing an understanding of the following prior to this would be useful:**

* Exploring how each component of a CPU works:
	+ List each of the components such as the various buses and registers used
	+ Explain the purpose and function of each of these components
	+ Understand the factors that influence processor performance such as number of cores, Cache and Clock speed and why/how they influence the performance
* Understand the various legislation currently in place to protect society
	+ What are the DPA, CMA, RIPA and Copyright Laws designed to protect in each case. What is the purpose of each piece of legislation?
	+ What recent examples have there been of companies breaking any of these laws. What have the outcomes of this been? Research and look at articles (BBC website or other resources)

 **Save your work in a portfolio that can be incorporated into your subject folder if/once you decide to commence this course.**