



KS5 Course Overview

Computer Science

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
		The characteristics of contemporary processors, input, output and storage devices. Programming techniques	Software and Software development, Object oriented programming.	Data Types, data structures and algorithms. Computational thinking	Exchanging Data NEA - Analysis	Exchanging data NEA – Design of the solution	Problem solving and programming NEA – Developing the solution
Year 12	Details	Students will understand, in detail, the workings of a computer system, what input and output devices can be used along with suitable storage solutions. Students will also learn how registers are used inside a CPU and how information is transferred between them and memory. Students are introduced to a compiled language and taken through procedural software development focusing on the main programming constructs and sub programs.	Students study the purposes of the operating system and how it interacts with the hardware on a computer. Students will also look at how software can be developed, investigating different project management strategies and tools and languages for the use of creating software. Students are introduced to the OOP paradigm and are given the opportunity to redesign the program used for the procedural paradigm into the OOP paradigm.	Students learn how different data can be stored in a computer, including fractional and negative numbers. Basic floating-point arithmetic is also introduced, along with Boolean operations. Students are introduced to computational thinking and what is meant by thinking computationally. The main sorting and searching algorithms are examined in detail so that students can recognise and fix code using them.	Students will look at how data is used, transmitted and stored. Techniques for reducing the size of data will be explored, and how data can be stored optimally in a database. For the NEA the students will undergo the analysis phase of the project.	The transmission of data will also be examined in relation to networks and how networks work. The final piece examines the way data can be presented on the web, and the technologies used. For the NEA the students will undergo the design phase of the project.	Students learn how to apply computational methods to the solution of a problem. For the NEA students will start to develop their solutions.

Methods of Assessment	During this unit, student progress and attainment is assessed by: <ul style="list-style-type: none">• Regular teacher questioning.• Take 5 at the start of every lesson (5 questions from all the topics learnt so far).• Topic Test performed at the end of each major topic.
Use of ICT	Computers are used throughout the course, with students using OneNote to keep their notes and create their revision material. They also have access to Smart Revise an online revision and testing tool and an electronic version of a text book suitable for the course.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
	Data Types, data structures and algorithms. NEA – Developing the solution	Algorithms NEA - Evaluation	Legal, moral, cultural and ethical issues	Revision and deeper knowledge		Exam Season	
Year 13	Details	Students will be introduced to the data structures involved in manipulation data in software. For the NEA students will continue to develop their solutions.	Students learn the measures used to determine the efficiency of different programs. For the NEA students will start their evaluation and complete over Christmas.	Students learn the impact that computing can have a dramatic effect on many things. In this module students are introduced to the affects computing can have on many parts of society.	With the bulk of the course now covered students are taken through some of the deeper concepts that are more easily understood with the level of knowledge they have.		Two 2-hour 30-minute papers Paper 1: Computer Systems 140 Marks. Paper 2: Algorithms and programming 140 Marks.
	Methods of Assessment	During this unit, student progress and attainment is assessed by: <ul style="list-style-type: none"> Regular teacher questioning. Take 5 at the start of every lesson (5 questions from all the topics learnt so far). Topic Test performed at the end of each major topic. 					
	Use of ICT	Computers are used throughout the course, with students using OneNote to keep their notes and create their revision material. They also have access to Smart Revise an online revision and testing tool and an electronic version of a text book suitable for the course.					

Useful Resources

Student notes in class One Note
Physical and electronic textbook
Sample exam papers
Smart Revise
PC with visual studio installed

Exam Board Specification: [OCR H446 Computer Science](#)