

# COMPUTER SCIENCE



## YEAR 11

<b>Autumn 1</b>	<b>Issues and Impact</b>
	<p>Students will examine environmental issues associated with the use of digital devices. They will also consider the ethical and legal issues associated with the collection and use of personal data and the ethical and legal issues associated with the use of AI, machine learning and robotics. They will learn about the different methods of intellectual property protection used for computer systems and software.</p> <p>This unit will also cover cybersecurity – students will learn about the various threats to digital systems and data posed by malware and hackers and methods of protection that can be put in place to minimise these threats..</p>
<b>Autumn 2</b>	<b>Programming and Algorithms 4</b>
	<p>Students will begin to write code for more complex and efficient subprograms using local and global variables. They will consider how the use of these variables can benefit programmers and their programs.</p> <p>Students will practice using the built-in subprograms for time and maths in their programs.</p> <p>They will also explore two more key algorithms – binary search and bubble sort.</p>
<b>Spring 1</b>	<b>Computer Software</b>
	<p>Students will examine the purposes of operating systems and utility software. They will consider how to develop robust software and how to minimise software vulnerabilities.</p> <p>Students will learn about the differences between low-level and high-level programming languages and how interpreters and compilers translate high-level code to machine code.</p>



**Spring 2**

## **Programming and Algorithms 5**

In their final programming and algorithms unit students will use the skills that they have built over the two years to write more sophisticated programs to solve complex problems. They will revisit key concepts including datatypes, data structures and subprograms.

**Summer  
1**

## **Consolidation and GCSE Exams**

At this point students are making final preparations for their exams. Students will review the key concepts covered in the previous terms and engage in practice exercises to reinforce their knowledge and skills. Teachers will provide targeted feedback to help students address any areas of weakness and ensure they are well-prepared for their final examinations.