Computer Science

Curriculum intent:

The Computer Science Department intends to equip all pupils to use computational thinking and creativity when understanding the modern world. We understand that Computer Science has deep links to Mathematics, Science and Design and Technology. We aim to build on this and teach the principles of Information and Computation.

We equip pupils to use Information Technology to create programs, systems and a range of content. Computing ensures that pupils become digitally literate at a level suitable for the future workplace and as active participants in a digital world. Throughout Year 10, pupils will be given the opportunity to develop their coding knowledge and skills on a weekly basis through a range of programming challenges.

Year 10

	Content	Concepts and Skills
TERM 1	**Unit 1 - Systems Architecture and Storage** This unit explains the functionality of all components involved in the architecture of a computer system. **Unit 2 – System Software** This unit explains the purpose and functionality of an operating system and utility software **Unit 3 – Data Representation** This is a theoretical unit detailing the methods by which data is represented within programming code.	• The role of the CPU. • Function & characteristics of component parts. • The use of memory & storage. • Operating systems software. • Utility software. • Storage units & binary numbers. • Hexadecimal. ASCII & Unicode. • Images, sound and compression.
TERM 2	**Unit 4 – Computer Networks, Protocols and Layers** This unit explains the internet and IP addressing before moving on to different types of networks and the common protocols used. **Unit 5 - Network and Cyber Security** This unit looks at the threats and vulnerabilities of computer systems and programs, including social engineering and the concept of SQL injection.	• The internet and wide area networks. • Local area and wireless networks. • Star, Bus and Mesh networks • Protocols and layers. • Network threats. • Identifying and preventing vulnerabilities.
TERM 3	**Unit 6 – Ethical, Legal and Environmental Issues** This unit describes the key examples of ethical, cultural, environmental and legal considerations in relation to Computer Science technologies. **Revision for Examination** **Year 10 Examination**	• Ethical and cultural issues. • Environmental issues. • Legislation and privacy. • Retrieval exercises in preparation for Paper 1 mock. • Examination Review