Year 10 Computing Curriculum Rationale

In Year 10 students will focus on a variety of key GCSE Computing skills; Programming, Ethics, Computer Systems, and Software Development. Student will use a wide range of different software and develop their digital literacy over the course of the year. Students will enter Year 11 with a good understanding of how computer systems operate, and how they can be programmed to automate and solve problems.

Unit	Core knowledge/skill development	Sequence	Assessment	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development	Home learning and enrichment
10.1 System Architecture	CPU Architecture CPU performance Memory Secondary storage	Builds on students understanding of computer hardware, specifically the CPU and how it works. GCSE Content which forms the foundation for A_Level content	End of unit assessment (test) and marked work (presentation)	Literacy - practising disciplinary and academic vocabulary and keywords; researching, reading and interpreting information; writing up and presenting findings	Analysing – critical and logical thinking (deduce, hypothesise, reason, and seek evidence). Connection Finding – Using connections from past experiences to seek generalisations.	Topic based research, audio reflection assignment
10.2 Data Representation	Characters Images Sound and compression Binary arithmetic and hexidecimal	Builds on previous knowledge on how sound and image is received and represented digitally. This unit also expands into how binary arithmetic and how	End of unit assessment (test) and marked work (programming project)	Numeracy - correct use of units for computing concepts, greater than, less than, Boolean logic.	Analysing – critical and logical thinking (deduce, hypothesise, reason, and seek evidence).	Topic based research, audio reflection assignment

Unit	Core knowledge/skill development	Sequence	Assessment	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development	Home learning and enrichment
	Units and binary numbers	to calculate the size of files				
10.3 Networks, connections and protocols	LANs Wireless networking Protocols and layers Client-server and Peer-to-peer	Students to expand their knowledge on networks, going in-depth to understand how and why networks work, and what it means if things go wrong.	End of unit assessment (test) and marked class work	STEAM - explore links with science, design and technology, the arts and maths	Creating, Fluent thinking– The ability to generate ideas. / Originality – conceiving something entirely new	Topic based research, audio reflection assignment
10.4 Network security and systems software	Network Threats Operating systems Identifying and preventing vulnerabilities Utility software	Builds on understanding of the network vulnerabilities and introduces the concept of cybersecurity and how to identify and tackle such threats	End of unit assessment (test) and marked work (programming project)	Literacy - practising disciplinary and academic vocabulary and keywords; researching, reading and interpreting information; writing up and presenting findings	Analysing – Precision, the ability to work effectively within the rules of a domain	Topic based research, audio reflection assignment
10.5 Impact of digital technology	Ethical and cultural issues	Students delve deeper into issues surrounding digital	End of unit assessment (test) to be marked	Literacy - practising disciplinary and	Meta-thinking – Meta-cognition, transferring	Topic based research

Unit	Core knowledge/skill development	Sequence	Assessment	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development	Home learning and enrichment
	Environmental issues Legislation and privacy	technology. The Ethics element allows for critical thinking and analysis, in addition to current legislation of the most recent acts		academic vocabulary and keywords; researching, reading and interpreting information; writing up and presenting findings	knowledge from one circumstance to another.	
10.6 Algorithms	Searching and sorting algorithms Algorithms and flowcharts Algorithms and pseudocode Interpret, correct and complete algorithms	Learning about algorithms in depth, including how to read, edit and interpret. Also includes using IDE's to test algorithms in line with GCSE curriculum	End of unit assessment (test) and marked work (Peer assessed project)	STEAM - explore links with science, design and technology, the arts and maths	Linking – Connection finding	Topic based research, audio reflection assignment