Year 9 Computing Curriculum Rationale

In Year 9, students will focus on a cross-section of key GCSE Computing skills and usable real-world skills; Programming, Ethics, Computer Systems, and Software Development. Student will use a wide range of software and develop their digital literacy over the course of the year. Students will enter Year 10 with a good understanding of how computer systems operate, and how they can be programmed to automate and solve problems, and how to implement planning and development of a project.

Unit:	Core knowledge/skill development:	Sequence:	Assessment:	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development:	Home learning and enrichment
9.1 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	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
9.2 Data Representation	Characters Images Sound and compression Binary arithmetic and hexidecimal	Builds on previous knowledge on how computers represent data and what information and format is needed to do so.	End of unit assessment (test) and marked work (programming project)	STEAM - explore links with science, design and technology, the arts and maths	Analysing – critical and logical thinking (deduce, hypothesise, reason, and seek evidence).	Topic based research, audio reflection assignment

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9.3 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 |
| 9.4 Network security and systems software | Network Threats

Operating systems

Identifying and preventing vulnerabilities

Utility software | Builds on understanding of the networks and introduces the concept around security and system attacks | 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 |
| 9.5 Impact of digital technology | Ethical and cultural issues

Environmental issues | To increase depth of understanding regarding aspects of of issues | End of unit assessment (test) to be marked | Literacy - practising disciplinary and academic vocabulary and | Meta-thinking – Meta-cognition, transferring knowledge from one circumstance to another. | Topic based research |

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	Legislation and privacy	surrounding digital technology. Ethics element allows for critical thinking and analysis to be used by students		keywords; researching, reading and interpreting information; writing up and presenting findings		
9.6 Algorithms	Searching and sorting algorithms

Algorithms and flowcharts

Algorithms and pseudocode | Learning about algorithms in depth. Leads into GCSE content | 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 |