## Year 8 Computing Curriculum Rationale

In Year 8 students will focus on a variety of key 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 8 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 |
|---|---|---|---|---|---|---|
| 8.1 E-Safety 3 | • Strong passwords<br>• Social Engineering<br>• Social Media<br>• Presentation skills<br>• Creating for a target audience | Builds on students existing understand of staying safe online. Leads to topics on malware and system security at GCSE | End of unit assessment (test) and marked work (presentation) | PSHE Online Safety<br><br>Ethics and eSafety - impacts of technology on society, digital security | Analysing – critical and logical thinking (deduce, hypothesise, reason, and seek evidence).<br><br>Connection Finding – Using connections from past experiences to seek generalisations. | Topic based research, audio reflection assignment |
| 8.2 AI and Machine Learning | What is AI and Machine Learning?<br><br>Ethics of AI<br><br>Image Recognition<br><br>Turing Tests<br><br>Rate my review | Shows the role of AI and machine learning in today's society, including the advantages and disadvantages. Ethics element focuses on critical thinking and analysis of situational dilemmas | 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 |
| 8.3 Introduction to python 2 | Strings and other data types<br><br>Program flow | Students to expand their skillset to include more tools used in python, which will be used | End of unit assessment (project) 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 |

| Unit | Core knowledge/skill development | Sequence | Assessment | Literacy, numeracy, PSHE, FBV, other links | ACP and VAA development | Home learning and enrichment |
|---|---|---|---|---|---|---|
| | Boolean operators | to problem solve. Content covers GCSE content with reduced depth | | | | |
| 8.4 Networks | The internet<br><br>Connectivity<br><br>Topologies<br><br>Network types<br><br>Encryption | Builds on understanding of the internet and introduces the concepts around networks and encryption. | 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 |
| 8.5 Spreadsheet modelling | Computer models<br><br>Financial models<br><br>What if scenarios<br><br>Conditional formatting and validation | To increase depth of understanding regarding aspects of spreadsheet modelling. Leads into GCSE topic of networks | End of unit assessment (test) to be marked | Numeracy - correct use of units for computing concepts, greater than, less than, Boolean logic. | Meta-thinking – Meta-cognition, transferring knowledge from one circumstance to another. | Topic based research |

| Unit | Core knowledge/skill development | Sequence | Assessment | Literacy, numeracy, PSHE, FBV, other links | ACP and VAA development | Home learning and enrichment |
|---|---|---|---|---|---|---|
| | Macros and charts | | | | | |
| 8.6 Project Work – python, networks and modelling | Summary of learned skills throughout the year | End of year project designed to showcase students' skills, and link back to prior learning throughout the year. | End of unit assessment (project) 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 |