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<tr><td>GCSE Computing

Year 10 & 11</td><td colspan="8">Curriculum intent: The GCSE curriculum will consolidate and build on the key themes studied at KS3 whilst shifting the emphasis away from digital living and on to a more focused Computer Science specific learning. Students will study aspects of physical systems, computational thinking, programming and the wider context of digital technologies. Opportunities to revisit key concepts are intrinsic and learning is sequenced to allow for knowledge and skills to be built and developed upon throughout. Whenever possible knowledge and skills are acquired through the use of carefully planned practical activities with an emphasis on an investigative approach. Key skills are developed with repeated practice.
Learners will develop understanding of the key concepts covered below and will be given the opportunity to demonstrate this in a range of different contexts.</td></tr>
<tr><td>Topic</td><td colspan="4">YEAR 10</td><td colspan="4">YEAR 11</td></tr>
<tr><td>Interleaving</td><td colspan="4">Key knowledge from previously studied topics. End of unit tests to incorporate questions from earlier units.</td><td colspan="4">Key knowledge from previously studied topics along with applying knowledge and understanding gained in Year 10.</td></tr>
<tr><td>Knowledge</td><td colspan="4">• Systems Architecture
• Boolean Logic
• Memory and Storage devices
• Creating and Refining Algorithms
• Data Types
• Representing data
• First Programming Project</td><td colspan="4">• Common Algorithms
• Systems Software
• Wider Context (ethical, legal, environmental, and cultural impacts)
• Software Development Tools and Methodologies
• Networking
• Threats and vulnerabilities
• Second Programming Project</td></tr>
<tr><td>Understanding</td><td colspan="4">• Which components make up digital systems, and how they communicate with one another
• How to apply the fundamental Boolean logic that is used by digital systems
• The characteristics of different storage devices and media
• How to begin to apply the fundamental principles and concepts of abstraction, decomposition, logic, and algorithms
• What data types are used in computer systems and how these are used in programming
• How to represent data so that it can be stored and maintained on a computer system
• How to apply the theory learnt within a code environment and ultimately build this into the first programming project</td><td colspan="4">• How to apply algorithms such as those used for searching and sorting
• What the different types of systems software are and what jobs such software performs
• How digital technology has an impact on individuals and wider society
• How software is produced commercially and the range of methods and tools that are used to do so
• How computer systems communicate with each other, how this is achieved and the benefits of doing so
• About the risks to computer systems and how these can be reduced or eliminated
• How to develop learning from the first programming project alongside further theory covered to build into the second, more involved programming project</td></tr>
<tr><td>Skills</td><td>Computational Thinking including decomposition and abstraction</td><td>Analysis, Evaluation and Implementation of offline and online solutions to given problems</td><td>Subject related mathematics and how to apply these when discussing technology</td><td>Development of Technical Vocabulary and Literacy including key words and terms</td><td>Computational Thinking including decomposition and abstraction</td><td>Analysis, Evaluation and Implementation of offline and online solutions to given problems</td><td>Subject related mathematics and how to apply these when discussing technology</td><td>Development of Technical Vocabulary and Literacy including key words and terms</td></tr>
<tr><td>Assessment</td><td colspan="4">Ongoing assessment through a range of methods including exam questioning, programming project and mind-point/end of topic tests
Mixed exam paper covering:
OCR J277/01 - Computer Systems
OCR J277/02 Computational thinking, algorithms and programming</td><td colspan="4">Ongoing assessment through a range of methods including exam questioning, programming project and mind-point/end of topic tests
Two exam papers – one each for:
OCR J277/01 - Computer Systems
OCR J277/02 Computational thinking, algorithms and programming</td></tr>
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