

Curriculum Map: COMPUTING

Nothing Short of Remarkable
We are Ambitious • We are Committed • We are Proud



	Year 7	Year 8	Year 9	Year 10	Year 11
Term 1	<p><i>TOPIC/KNOWLEDGE</i> E-Safety Flowol Programming</p> <p><i>SKILLS</i> E-Safety: Using computers safely and effectively - Students will learn how to stay safe online, keep their data private, send emails and properly search the web. Flowol: Programming with flowcharts. In their first programming unit, students will learn how to control hardware as well as important programming constructs such as sequence, selection and iteration.</p>	<p><i>TOPIC/KNOWLEDGE</i> HTML Computational Thinking</p> <p><i>SKILLS</i> HTML, Web Development - Students will learn how websites work, are stored, designed and created. They will develop their understanding of programming to this new language. Computational Thinking - Students will develop key skills in algorithmic thinking, Boolean conditions and logic.</p>	<p><i>TOPIC/KNOWLEDGE</i> Advanced Python Programming Artificial Intelligence</p> <p><i>SKILLS</i> Advanced Python Programming - Students will develop their abilities programming in the python language. This unit re-treads previous ground but builds upon it by adding in the use of lists, procedures and functions. Artificial Intelligence - Students learn how the modern world is affected both positively and negatively by the implementation of AI and where these developments may end up with the implementation of further AI technology.</p>	<p><i>TOPIC/KNOWLEDGE</i> Python Programming Algorithms</p> <p><i>SKILLS</i> Component 02: Computational thinking, algorithms and programming Students apply knowledge and understanding gained in component 01. They develop skills and understanding in computational thinking: algorithms, programming techniques, producing robust programs, computational logic and translators. Practical programming Students are to given the opportunity to undertake a programming task(s) during their course of study which allows them to develop their skills to design, write, test and refine programs using a high-level programming language. Students will be assessed on these skills during the written examinations, in particular component 02.</p>	<p><i>TOPIC/KNOWLEDGE</i> Algorithms Networks Security and Systems Software</p> <p><i>SKILLS</i> Algorithmic Thinking Understanding and applying searching algorithms Understanding and applying sorting algorithms Developing algorithms using flowcharts Developing algorithms using pseudocode Interpreting and completing algorithms Wide area network management Local area network management Topologies Wireless Networking</p>

					<p>Encryption</p> <p>Understanding Network Threats</p> <p>Identifying Vulnerabilities</p> <p>Understanding the role of operating systems</p>
Term 2	<p><i>TOPIC/KNOWLEDGE</i> Flowol Programming Scratch Programming</p> <p><i>SKILLS</i> Flowol: Programming with flowcharts. In their first programming unit, students will learn how to control hardware as well as important programming constructs such as sequence, selection and iteration. Scratch programming: Scratch will continue on many elements of the previous unit but with more focus on free form coding and variables.</p>	<p><i>TOPIC/KNOWLEDGE</i> Computational Thinking Python</p> <p><i>SKILLS</i> Computational Thinking - Students will develop key skills in algorithmic thinking, Boolean conditions and logic. Python – Students will begin their first unit of python programming at KS3. It will teach them the basics of procedural programming giving them a strong foundation for future units.</p>	<p><i>TOPIC/KNOWLEDGE</i> Artificial Intelligence Computational Thinking</p> <p><i>SKILLS</i> Artificial Intelligence - Students learn how the modern world is affected both positively and negatively by the implementation of AI and where these developments may end up with the implementation of further AI technology. Computational Thinking - Students will develop key skills in algorithmic thinking, Boolean conditions and logic.</p>	<p><i>TOPIC/KNOWLEDGE</i> Data representation + Python Programming</p> <p><i>SKILLS</i> Unit 02: Data representation</p> <ul style="list-style-type: none"> • Binary, Denary and Hex conversions • Binary Arithmetic • Storing Images • Storing Text • Storing Audio • Compression <p>Practical programming Students are continuing to develop their python programming skills in preparation for their component 2 exam.</p>	<p><i>TOPIC/KNOWLEDGE</i> Ethics, Culture and Environment + Python Programming</p> <p><i>SKILLS</i> Unit 05: The Impact of Technology Students will focus on ethical, cultural and environmental issues surrounding computer science. They will use this topic to practice writing their extended answers to GCSE essay questions.</p> <p>Practical programming Students are continuing with their python programming practice in preparation for their component 2 exam.</p>
Term 3	<p><i>TOPIC/KNOWLEDGE</i> Understanding Computers Networks</p> <p><i>SKILLS</i> Understanding Computers: Students will begin to understand the fundamentals behind how a</p>	<p><i>TOPIC/KNOWLEDGE</i> Databases Spreadsheet Modelling</p> <p><i>SKILLS</i> Databases: Students will learn how databases are used in the modern world and how to design, create</p>	<p><i>TOPIC/KNOWLEDGE</i> Cyber Crime and Law Image Manipulation with Photoshop</p> <p><i>SKILLS</i> Cyber Crime and Law: Students will learn about current scams</p>	<p><i>TOPIC/KNOWLEDGE</i> Logic and Languages + Python Programming</p> <p><i>SKILLS</i> Unit 08 Logic and Languages</p> <ul style="list-style-type: none"> • Logic Diagrams • Truth Tables 	<p><i>TOPIC/KNOWLEDGE</i> Focus: Revision</p> <p><i>SKILLS</i> QLA of end of unit tests has revealed the topics that students need to recap. These individual lessons will</p>

	<p>computer system works. They will cover inputs/outputs, processing, memory and storage.</p> <p>Networks: Students will learn about networking and the internet, how computers linked together can be used in different situations</p>	<p>and maintain an access database. They will also learn basic SQL commands.</p> <p>Spreadsheet Modelling: Students will learn how to use a spreadsheet to model a business and how to make predictions and informed decisions based off of this.</p>	<p>and threats facing them in a digital world. They will learn about UK law and how it can effect people and businesses in this country.</p> <p>Photoshop: Students will learn about the positive and negative impact image manipulation can have on the world. They will learn how to use image manipulation effectively to change pictures to suit their needs.</p>	<ul style="list-style-type: none"> • Defensive Design • Errors and Testing • IDE's • Translators • High level languages • Low level languages <p>Practical programming Students are continuing to develop their python programming skills in preparation for their component 2 exam.</p>	<p>be re-covered unique to each class.</p> <p>Practical programming Students are continuing with their python programming practice in preparation for their component 2 exam.</p>
Career Pathways					