



## Computer Science

### Year 7

Autumn Term	Spring Term	Summer Term
<p><b>Half Term 1</b> Online Safety</p> <ul style="list-style-type: none"><li>• How do you write a respectful email?</li><li>• How do you spot the signs of cyberbullying?</li><li>• How do you stay safe on social media/gaming?</li><li>• How do you use office software effectively?</li></ul>	<p><b>Half Term 1</b> Binary and Computational Thinking</p> <ul style="list-style-type: none"><li>• What is binary? How do you convert from binary to denary?</li><li>• What is computational thinking?</li><li>• What are flowcharts?</li><li>• How can use flowcharts to represent algorithms?</li></ul>	<p><b>Half Term 1</b> Programming</p> <ul style="list-style-type: none"><li>• Python introduction</li><li>• Python inputs, variables and data types.</li><li>• Python string handling.</li></ul>
<p><b>Half Term 2</b> Computer Systems</p> <ul style="list-style-type: none"><li>• What is a computer system?</li><li>• What is hardware and software?</li><li>• What is the difference between an input and output? What are sensors?</li><li>• How do you build a PC?</li><li>• What is the CPU cycle?</li><li>• Units of data</li></ul>	<p><b>Half Term 2</b> Programming</p> <ul style="list-style-type: none"><li>• What is programming?</li><li>• What is sequencing, iteration and selection?</li><li>• What are variables?</li><li>• An introduction to programming using Scratch and Micro-Bits</li></ul>	<p><b>Half Term 2</b> Creative Project</p> <ul style="list-style-type: none"><li>• What is a digital graphic?</li><li>• Serif Photo Plus/Photoshop skills</li></ul>

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<p><b>Half Term 1</b> Online Safety</p> <ul style="list-style-type: none"> <li>• What is an online identity?</li> <li>• What is social media validation?</li> <li>• What is inappropriate content and contact?</li> <li>• What are addictive and humane design features?</li> <li>• What is misinformation, malinformation, disinformation?</li> </ul>	<p><b>Half Term 1</b> Programming</p> <ul style="list-style-type: none"> <li>• Binary addition</li> <li>• What are the different binary logic gates?</li> <li>• How do you solve computational problems?</li> <li>• What are the differences between binary and linear searches?</li> </ul>	<p><b>Half Term 1</b> Computer Systems</p> <ul style="list-style-type: none"> <li>• What is selection?</li> <li>• Python skills: Input, Variables, Data types and selection.</li> </ul>
<p><b>Half Term 2</b> Data &amp; Computational Thinking</p> <ul style="list-style-type: none"> <li>• How do we measure the performance of a CPU?</li> <li>• What is a network?</li> <li>• Which is better wired or wireless networks?</li> <li>• How do we improve the performance of a network</li> </ul>	<p><b>Half Term 2</b> Programming</p> <ul style="list-style-type: none"> <li>• What is programming?</li> <li>• How do you use Python for printing to screen, calculations, user input?</li> <li>• What are the different data types?</li> <li>• What are variables?</li> </ul>	<p><b>Half Term 2</b> Creative Project</p> <ul style="list-style-type: none"> <li>• What is the purpose of a spread sheet?</li> <li>• What is meant by 'Big Data'?</li> <li>• How can a business improve its performance using 'Big Data'?</li> <li>• Microsoft Excel skills.</li> </ul>

## Year 9

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<p style="text-align: center;"><b>Half Term 1</b> Cyber Security</p> <ul style="list-style-type: none"> <li>• How do businesses/the government use your data?</li> <li>• What is social engineering?</li> <li>• What is hacking?</li> <li>• What is malware?</li> <li>• How do you prevent attacks?</li> </ul>	<p style="text-align: center;"><b>Half Term 1</b> Programming</p> <ul style="list-style-type: none"> <li>• What is hexadecimal?</li> <li>• What are complex logic gates?</li> <li>• How is binary used to represent images?</li> <li>• What is a searching algorithm?</li> <li>• What is the difference between bubble and merge searches?</li> </ul>	<p style="text-align: center;"><b>Half Term 1</b> Computer Systems</p> <ul style="list-style-type: none"> <li>• What are loops?</li> <li>• What are functions and procedures?</li> </ul>
<p style="text-align: center;"><b>Half Term 2</b> Computational Thinking</p> <ul style="list-style-type: none"> <li>• What are the components of a CPU?</li> <li>• What is the difference between RAM and ROM?</li> <li>• What are the differences between client server and peer to peer networks?</li> <li>• What hardware is required to build a network?</li> <li>• How is data sent through networks?</li> </ul>	<p style="text-align: center;"><b>Half Term 2</b> Programming</p> <ul style="list-style-type: none"> <li>• What is programming?</li> <li>• How do you use Python for printing to screen, calculations, user input?</li> <li>• What are data types?</li> <li>• What are variables?</li> <li>• How to independently write Python code.</li> </ul>	<p style="text-align: center;"><b>Half Term 2</b> Creative Project</p> <ul style="list-style-type: none"> <li>• What are databases.</li> <li>• Using Microsoft Access.</li> <li>• Introduction into SQL.</li> </ul>

## Year 10

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<p><b>Half Term 1</b> Computer Systems</p> <ul style="list-style-type: none"> <li>• Systems architecture.</li> <li>• Practical programming.</li> </ul>	<p><b>Half Term 1</b> Software and Ethics</p> <ul style="list-style-type: none"> <li>• Representing Data</li> <li>• Practical programming.</li> </ul>	<p><b>Half Term 1</b> Defensive Design and Testing</p> <ul style="list-style-type: none"> <li>• Network topologies.</li> <li>• Layers.</li> <li>• Network Threats.</li> <li>• Network Security</li> <li>• Practical programming.</li> </ul>
<p><b>Half Term 2</b> Networks</p> <ul style="list-style-type: none"> <li>• Memory.</li> <li>• Storage.</li> <li>• Practical programming.</li> </ul>	<p><b>Half Term 2</b> Algorithms</p> <ul style="list-style-type: none"> <li>• Types of networks</li> <li>• The different roles of computers.</li> <li>• Network hardware.</li> <li>• Factors that affect the performance of networks.</li> <li>• Practical programming.</li> </ul>	<p><b>Half Term 2</b> Languages / IDEs</p> <ul style="list-style-type: none"> <li>• Operating systems</li> <li>• Utilities.</li> <li>• Legal Issues.</li> <li>• Environmental issues.</li> <li>• Legislation.</li> <li>• Practical programming.</li> </ul>

## Year 11

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<p><b>Half Term 1</b> Revision</p> <ul style="list-style-type: none"> <li>• Designing algorithms.</li> <li>• Pseudocode.</li> <li>• Flowcharts.</li> <li>• Searching algorithms.</li> <li>• Sorting algorithms.</li> <li>• Practical Python programming.</li> </ul>	<p><b>Half Term 1</b> Revision</p> <ul style="list-style-type: none"> <li>• Algorithms and programming techniques.</li> <li>• Boolean Logic</li> </ul>	<p><b>Half Term 1</b></p> <p>Revision</p>
<p><b>Half Term 2</b></p> <ul style="list-style-type: none"> <li>• Considerations.</li> <li>• Validation.</li> <li>• Maintainability.</li> <li>• Algorithms and programming techniques.</li> </ul>	<p><b>Half Term 2</b> Revision</p> <ul style="list-style-type: none"> <li>• Translators and facilities of languages.</li> <li>• Data representation.</li> <li>• Algorithms and programming techniques.</li> </ul>	<p><b>Half Term 2</b></p> <p>Exam</p>