



Topic Name	Term	Skills Developed	Link to NC Subject Content	Next link in curriculum	Other Notes
<b>Boolean Logic</b>	<b>Autumn</b>	<ul style="list-style-type: none"> <li>Understanding of logic gates and circuit diagrams.</li> <li>Truth table and Boolean algebra representation of circuits.</li> <li>Understand and create 2 and 3 input logic circuits.</li> </ul>	<ul style="list-style-type: none"> <li>Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming.</li> </ul>	<ul style="list-style-type: none"> <li>Computational Logic (Autumn Year 9)</li> </ul>	Preparation for GCSE section 2.4
<b>Data Representation</b>	<b>Autumn</b>	<ul style="list-style-type: none"> <li>Binary representation of text using ASCII/Extended ASCII/Unicode table.</li> <li>Bitmap image representation.</li> <li>Digital representation of sound.</li> <li>Compression algorithms.</li> </ul>	<ul style="list-style-type: none"> <li>Understand how instructions are stored and executed within a computer system.</li> <li>Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.</li> </ul>	<ul style="list-style-type: none"> <li>Data Representation (Spring Year 9)</li> </ul>	Preparation for GCSE section 2.6
<b>Programming with Python – 2</b>	<b>Spring</b>	<ul style="list-style-type: none"> <li>Iteration – For and While loops. Counter controlled and condition controlled.</li> <li>Use of python list data structures.</li> </ul>	<ul style="list-style-type: none"> <li>Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for</li> </ul>	<ul style="list-style-type: none"> <li>Programming Techniques (Spring Year 9)</li> <li>Practice Programming</li> </ul>	Preparation for GCSE section 2.2



		<ul style="list-style-type: none"> <li>• <i>Reading from and writing to external text files using Python.</i></li> </ul>	<p><i>example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</i></p>	<p><i>Project (Summer Year 9)</i></p>	
<p><b>Searching and sorting algorithms</b></p>	<p><b>Spring</b></p>	<ul style="list-style-type: none"> <li>• Understand how the bubble sort and insertion sort work.</li> <li>• Be able to compare the two methods with number sets.</li> <li>• Understand and compare the linear and binary search algorithms for searching through data sets.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Understand several key algorithms that reflect computational thinking [for example ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Algorithms and Problem Solving (Autumn Year 9)</li> </ul>	<p>Preparation for GCSE section 2.1</p>
<p><b>Networks, the Internet and cyber security.</b></p>	<p><b>Summer</b></p>	<ul style="list-style-type: none"> <li>• Basics of computer networks – Advantages and limitations.</li> <li>• Computer networks – Equipment used.</li> <li>• How the Internet works.</li> <li>• Security threats</li> <li>• Encryption – Caesar Cipher</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the hardware and software components that make up computer systems and how they communicate with one another and with other systems.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Wired and Wireless Networks (Summer Year 10)</i></li> <li>• <i>System Security (Spring Year 11)</i></li> </ul>	<p>Preparation for GCSE sections 1.4 and 1.6</p>



<b>Issues in Computing Project – Legal and Ethical</b>	<b>Summer</b>	<ul style="list-style-type: none"><li>• Legal factors surrounding the use of computing technology. Data privacy, computer misuse.</li><li>• Ethical issues – AI / surveillance etc.</li></ul>	<ul style="list-style-type: none"><li>• <i>Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</i></li></ul>	<ul style="list-style-type: none"><li>• <i>Social, Moral, Legal and Cultural Aspects of Computing (Autumn Year 11)</i></li></ul>	Online research and requiring essay style responses.  Preparing for GCSE Section 1.7
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