



Topic Name	Term	Skills Developed	Link to NC Subject Content	Next link in curriculum	Other Notes
Computer Systems 3	Autumn 1	<ul style="list-style-type: none">• The function of the CPU.• The Fetch Decode Execute cycle.• CPU performance (speed) and units of measurement (Hz- GHz)• Basic CPU assembly language instructions/programs to carry out simple tasks.	<ul style="list-style-type: none">• Understand the hardware and software components that make up computer systems and how they communicate with one another and with other systems.• <i>Understand how instructions are stored and executed within a computer system</i>• <i>Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;</i>	<ul style="list-style-type: none">• 1.1 System Architecture (Year 10 – Autumn 1)	Links to Prior Learning: Year 8 – Computer System 2
Data Representation 3	Autumn 2	<ul style="list-style-type: none">• <i>Digital representation of sound.</i>• <i>Basic Compression algorithms.</i>	<ul style="list-style-type: none">• <i>Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.</i>	<ul style="list-style-type: none">• 1.2 Memory / Storage (data representation) – (Year 10 Autumn 2)	Links to Prior Learning: Year 8 Data Representation 2



<p>Computer Networks 2</p>	<p>Spring 1</p>	<ul style="list-style-type: none">• <i>Wide Area Networks</i>• Packet switching• How the Internet works.	<ul style="list-style-type: none">• Understand the hardware and software components that make up computer systems and how they communicate with one another and with other systems.	<ul style="list-style-type: none">• 1.3 Networks, Protocols and Layers (Year 10 – Spring 2)	<p>Links to Prior Learning: Year 8 Computer Networks 1</p>
<p>Programming with Python 3</p>	<p>Spring 2</p>	<ul style="list-style-type: none">• <i>Using subroutines in coding (Procedures and functions)</i>• <i>Graphical User Interfaces</i>	<ul style="list-style-type: none">• <i>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 example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</i>• <i>Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</i>	<ul style="list-style-type: none">• 2.2 Programming Techniques (Year 10 – Autumn 1)	<p>Links to Prior Learning: Year 8 – Programming with Python 2</p>



Sorting Algorithms	Summer 1	<ul style="list-style-type: none">• <i>Understanding and compare the bubble, merge and insert sort algorithms.</i>	<ul style="list-style-type: none">• <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>	<ul style="list-style-type: none">• <i>2.1 Algorithms (Year 11 – Autumn 1)</i>	<p>Links to Prior Learning:</p> <p>Year 8 – Searching Algorithms Year 7 – Computational Thinking</p>
Computing Impacts Project: Social Media Algorithms	Summer 2	<ul style="list-style-type: none">• <i>The use of algorithms in social media to engage their users.</i>• <i>The positive and negative issues / consequences surrounding the use of such algorithms by social media companies.</i>	<ul style="list-style-type: none">• <i>Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</i>• <i>Undertake creative projects that involve selecting, using, and combining multiple applications.</i>	<ul style="list-style-type: none">• <i>1.6 Social, Ethical and Legal Factors (Year 11 – Autumn 1)</i>	<p>Links to Prior Learning:</p> <p>Year 8 – Impacts of Computing Project – AI/Machine Learning</p>