

Order of delivery	9.1 – Computer Systems	9.2 – Logical thinking and algorithms
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Key Questions</b></p>	<p>What is a computer? What is the difference between an input and output device? Where might certain devices be used? Who might use them? What can you remember about operating systems? What are some examples of operating systems? What are the roles of operating systems? What security software do you find on a computer? What are disk organisation tools? What are automatic updates? What types of application software are you aware of? What the difference between off the shelf and custom written software? What is RAM? What is BIOS? What is the difference between RAM and ROM? Why do we need extra storage other than RAM? What different storage methods are there? What is cloud storage? What do you need to think about when purchasing a storage device? What laws exist in relation to computers? What are the ethical issues of using computers? What areas of our lives have changed because of computers? How does technology affect consumers e.g. smart devices? What waste is produced by computers? What ways can new technology be beneficial rather than damaging to the environment? What devices do do regularly change in our lives?</p>	<p>What do you remember about logic gates from year 7? What are the 3 main logic gates? What is a logic circuit? What are the equivalent operators for mathematical symbols in CS? What different ways are there of converting B&gt;D and D&gt;B? What is hexadecimal? How do we add binary numbers? What is a binary overflow? What are the different units of measurement for storage? What is an algorithm? What is a program? What is pseudocode? What sequence is needed to make shapes? What is selection? What is a variable? How do you print things on screen? How do you concatenate? How do you find a specific letter of a string? How do we find the length of a string? What is a comment? What different data types are there?</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Knowledge</b></p>	<p>To know that a computer has inputs, processing and output. To be able to explain the difference between an input and output device. To know less common of devices and their uses. To know the names of operating systems. To know the functions/role of operating systems. To know security software and why it's needed. To give examples of disk organisation tools. To understand what auto updates are. To provide examples of different types of application software. To know what is meant by O/S/CW software. To know why RAM is required. To know why BIOS is needed. To know examples of different secondary storage devices. To know the different storage methods. To know examples of cloud based storage. To know the way data is stored on different mediums. To know that speed, durability, size, capacity, portability and cost are different for different devices. To know the CDPA, DPA, CMA exist and their purpose. To examples of how computers have changed our lives in several areas (travel, medical, etc). To know that computers generate waste and this waste must be managed. To know that e-waste is often shipped outside the UK to avoid expensive disposal. To know different products that are purchased on a regular basis that produce waste (e.g. washing machines, mobiles, cars, computers).</p>	<p>To know the 3 main logic gates &amp; draw a logic diagram. To understand the process of converting B&gt;D and D&gt;B. How to convert a D&gt;HEX. To explain how to add binary numbers together. To know what causes a binary overflow. To know the order of different units of measurement from bit to TB. To know the different symbols that are used in a flow chart. To know the key words and language used in pseudocode. To know why selection is used. To know what a variable is. To know how to print things on screen. To know how you concatenate strings. To know how you find a specific letter of a string. To know how to find the length of a string. To know how to comment. To know the 3 main data types.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Skills</b></p>	<p>To clearly explain why a device is a computer or not. To identify if a device is an input/output device. To explain what a device does and who might use it. To be able to compare and contrast different OSs. To explain the consequences of not having security software. To be able to explain disk organisation tools and why we use them. To explain why we use auto updates and why you need them on. To know features of specific application software. To explain the +ve/-ve of O/S/CW software. To explain what is in RAM when in use. To explain examples of what the BIOS does. To explain RAM size, clock speed, cache size and no of core affects the performance of a PC. To know which secondary storage device to use for a given scenario. To allocate secondary storage devices to a type of storage. To identify the +ve/-ve of cloud storage. To categorise different storage methods based on speed, capacity, etc. To clearly explain each of the 3 acts, including their separate sections as needed. To produce a suitable poster explaining legislation for a given audience (using DTP software). To clearly explain how computers have changed different areas of our lives. To clearly explain the benefits of reduce, reuse, recycle and WEEE for a given scenario. To explain why buying new products could be more beneficial than keeping old products.</p>	<p>To be able to complete truth tables for most popular logic gates. To complete a logic circuit for a given truth table. To demonstrate using examples how to convert a B&gt;D and D&gt;B. To demonstrate using examples how to convert D&gt;HEX. To demonstrate how to add binary numbers together. To provide an example of how a binary overflow could occur. To be able to identify unit of measurement for a given scenario (e.g. song in MB). To create a flowchart using the correct symbols. To be able to create a flowchart for a given algorithm (from scratch). To explain how an algorithm works in the form of a flowchart. To write pseudocode for a given scenario. To write pseudocode using selection. To be to use variables, print to screen, concatenate strings, find specific parts of a string, find the length of the string, comment code. To demonstrate how to use string, integer and float.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Vocab</b></p>	<p>Input, Output, Process, Operating system, open source, proprietary, platform, kernel, embedded systems, utilities, automatic updates, application software, system software. Primary storage, RAM, ROM, BIOS, Secondary storage, Cache, Clock Speed, Cores, Optical, Magnetic, SSD, DPA, CMA, CDPA. Ethical. E-waste, disposal, environment, recycling, pollution.</p>	<p>Logic gate, NOT, AND, OR, truth table, binary, conversions, hexadecimal, binary addition, binary overflow, unit of measurement, bit, byte, kilobyte, megabyte, gigabyte, terabyte, flowchart, symbols, pseudocode, selection, comments, variables, string, integer, float/real,</p>

<b>Assessment</b>	CS1 and 2 assessments.	CS3 and 4 summative assessments.
<b>Link to Progress Path</b>	<ul style="list-style-type: none"> <li>•understand and apply the fundamental principles and concepts of Computer Science, including problem solving, logic, algorithms, and programming</li> <li>•analyse problems in computational terms, and have exposure to practical experience of writing computer programs in order to solve such problems</li> <li>•learn about, discuss and evaluate both new and unfamiliar technologies</li> <li>•become responsible, confident and creative users of Computer Science and related technologies</li> <li>•understand the components that make up digital systems, and how they communicate with one another and with other systems</li> <li>•understand the impacts of digital technology to the individual and to wider society.</li> </ul>	<ul style="list-style-type: none"> <li>•understand and apply the fundamental principles and concepts of Computer Science, including problem solving, logic, algorithms, and programming</li> <li>•analyse problems in computational terms, and have exposure to practical experience of writing computer programs in order to solve such problems</li> <li>•learn about, discuss and evaluate both new and unfamiliar technologies</li> <li>•become responsible, confident and creative users of Computer Science and related technologies</li> <li>•understand the components that make up digital systems, and how they communicate with one another and with other systems</li> <li>•understand the impacts of digital technology to the individual and to wider society.</li> </ul>
<b>Learning skills</b>	<p style="text-align: center;">Literacy:</p> <p>Listen with understanding and respond sensitively &amp; appropriately, ask as well as answer questions. Read fluently, accurately and with understanding</p> <p>Clarify and express ideas. Speak for a range of purposes. Read fluently, accurately and with understanding.</p> <p>Write for a range of purposes including to interpret, evaluate, explain, analyse and explore.</p> <p>Develop ideas and communicate meaning through a wide ranging vocabulary and an effective style.</p> <p>Develop ideas and communicate meaning through a wide ranging vocabulary and an effective style.</p> <p>Synthesise and adapt what they learn from their reading.</p> <p>Use techniques such as skimming, scanning and annotation effectively.</p> <p style="text-align: center;">Numeracy:</p> <p>Use of mathematical operators (+/*)</p> <p>Use of boolean comparison &gt; &lt; == !=</p> <p style="text-align: center;">Boolean Logic AND, OR, NOT</p> <p>Number systems and bases (Base 2 and Base 10)</p>	<p style="text-align: center;">Literacy:</p> <p>Listen with understanding and respond sensitively &amp; appropriately, ask as well as answer questions. Read fluently, accurately and with understanding</p> <p>Clarify and express ideas. Speak for a range of purposes. Read fluently, accurately and with understanding.</p> <p style="text-align: center;">Write for a range of purposes including to interpret, evaluate, explain, analyse and explore.</p> <p>Develop ideas and communicate meaning through a wide ranging vocabulary and an effective style.</p> <p>Develop ideas and communicate meaning through a wide ranging vocabulary and an effective style.</p> <p>Synthesise and adapt what they learn from their reading.</p> <p>Use techniques such as skimming, scanning and annotation effectively.</p> <p style="text-align: center;">Numeracy:</p> <p>Use of mathematical operators (+/*)</p> <p>Use of boolean comparison &gt; &lt; == !=</p> <p style="text-align: center;">Boolean Logic AND, OR, NOT</p> <p>Number systems and bases (Base 2 and Base 10)</p>