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## Subject: GCSE Computer Science

## Year 10 Curriculum Map 2024 - 25

Week Commencing	Topic (including links to additional resources)	Assessment Window
Staff INSET 02/09 Students Return 03/09	Introduction to computer systems – input /output devices, the processor and binary storage	
09/09/2024	Introduction to Python programming – input, output and sequence Download of IDE : <a href="https://www.python.org/">https://www.python.org/</a>	
16/09/2024	Further Python programming – IF statements	
23/09/2024	Further Python programming – FOR and WHILE loops	
30/09/2024	Python programming individual tasks.	Knowledge check – Python programming
07/10/2024	<b>1.1 Systems architecture</b> the purpose of the CPU	
14/10/2024	<ul style="list-style-type: none"> <li>• Von Neumann architecture (MAR, MDR, PC, Accumulator):</li> <li>• common CPU components and their function (ALU, CU, Cache)</li> <li>• the function of the CPU to fetch and execute instructions stored in memory</li> <li>• how common characteristics of CPUs affect their performance (clock speed, cache size, number of cores)</li> <li>• embedded systems (purpose and examples)</li> </ul>	
21/10/2024	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	Achievement Round 1
October Half Term		
04/11/2024	<b>1.2.3 Units</b> <ul style="list-style-type: none"> <li>• bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte, petabyte</li> <li>• how data needs to be converted into a binary format to be processed by a computer</li> </ul>	Achievement Round 1
11/11/2024	<b>1.2.4 Binary and hexadecimal</b> <ul style="list-style-type: none"> <li>• how to add two 8 bit binary integers and explain overflow errors which may occur</li> <li>• binary shifts</li> </ul>	
18/11/2024	<ul style="list-style-type: none"> <li>• how to convert positive denary whole numbers (0–255) into 2 digit hexadecimal numbers and vice versa</li> <li>• how to convert from binary to hexadecimal equivalents and vice versa</li> <li>• check digits.</li> </ul>	Knowledge check

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25/11/2024	Python programming	
02/12/2024	<ul style="list-style-type: none"> <li>the use of basic string manipulation</li> <li>applying computing-related mathematics: (MOD, DIV, ^, *, /, +, -)</li> <li>the use of <b>arrays</b> (or equivalent) when solving problems, including both one and two dimensional arrays</li> <li>how to use <b>sub programs</b> (functions and procedures) to produce structured code</li> </ul>	
09/12/2024		
16/12/2024		Knowledge check
Christmas Break		
06/01/2025	<b>1.2 Memory and storage</b> <ul style="list-style-type: none"> <li>Primary storage (RAM / ROM)</li> <li>Secondary storage</li> <li>Virtual memory</li> </ul>	
13/01/2025	<b>2.1 Algorithms</b> <ul style="list-style-type: none"> <li>computational thinking: <ul style="list-style-type: none"> <li>abstraction</li> <li>decomposition</li> <li>algorithmic thinking</li> </ul> </li> <li>standard searching algorithms: <ul style="list-style-type: none"> <li>binary search</li> <li>linear search</li> </ul> </li> <li>standard sorting algorithms: <ul style="list-style-type: none"> <li>bubble sort</li> <li>merge sort</li> <li>insertion sort</li> </ul> </li> <li>how to produce algorithms using pseudocode and flow diagrams</li> </ul> interpret, correct or complete algorithms.	
20/01/2025		
27/01/2025		Knowledge check
03/02/2025		
10/02/2025	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	Achievement Round 2
February Half Term		
24/02/2025	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	Achievement Round 2
03/03/2025	<ul style="list-style-type: none"> <li>Implementation / tracing of sorting and searching algorithms.</li> <li>Students to independently begin to apply their knowledge to decompose and solve problems (such as the programming challenge booklets)</li> </ul> <a href="https://www.ocr.org.uk/images/260930-coding-challenges-booklet.pdf">https://www.ocr.org.uk/images/260930-coding-challenges-booklet.pdf</a>	
10/03/2025	<b>1.2.4 representation of Characters</b> <ul style="list-style-type: none"> <li>the use of binary codes to represent characters</li> <li>the term 'character-set'</li> <li>the relationship between the number of bits per character in a character set and the number of characters which can be represented (for example ASCII, extended ASCII and Unicode).</li> </ul>	
17/03/2025	<b>1.2.4 representation of Images</b> <ul style="list-style-type: none"> <li>how an image is represented as a series of pixels represented in binary</li> <li>metadata included in the file</li> <li>the effect of colour depth and resolution on the size of an image file.</li> </ul>	

24/03/2023	<b>1.2.4 representation of sound</b> Sound <ul style="list-style-type: none"> <li>• how sound can be sampled and stored in digital form</li> <li>• how sampling intervals and other factors affect the size of a sound file and the quality of its playback: (sample size, bit rate, sampling frequency).</li> </ul> Compression <ul style="list-style-type: none"> <li>• need for compression, types of compression: (lossy, lossless).</li> </ul>	Knowledge check
31/03/2025	<b>Python programming.</b> File access (write / append / read / close) and programming challenges.	
07/04/2025		
Easter Break		
28/04/2025	<b>1.5 Systems software</b> <ul style="list-style-type: none"> <li>• The purpose and functionality of operating systems: <ul style="list-style-type: none"> <li>○ User interface</li> <li>○ Memory management and multitasking</li> <li>○ Peripheral management and driver</li> <li>○ User management</li> <li>○ File management</li> </ul> </li> <li>• Utility software</li> </ul>	Knowledge check
05/05/25		
12/05/2025	<b>Python programming.</b> Summary of content covered so far and independent programming practice	
19/05/2025		Knowledge check
May Half Term		
02/06/2025	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	
09/06/2025	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	Year 10 Mock Exams
16/06/2025	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	Year 10 Mock Exams
23/06/2025	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	Year 10 Mock Exams
30/06/2025	Exam Preparation and revision, exam technique practice including application / past paper questions / programming questions	Year 10 Mock Exams
07/07/2025	<b>1.6 Ethics and legislation</b> <ul style="list-style-type: none"> <li>• how to investigate and discuss Computer Science technologies while considering: ethical issues, legal issues, cultural issues environmental issues, privacy issues.</li> <li>• how key stakeholders are affected by technologies</li> <li>• environmental impact of Computer Science</li> <li>• cultural implications of Computer Science</li> <li>• open source vs proprietary software</li> <li>• legislation relevant to Computer Science: The Data Protection Act 1998, Computer Misuse Act 1990, Copyright Designs and Patents Act 1988,</li> </ul>	
14/07/2025		
21/07/2025	<b>Python programming.</b> Summary of content covered so far and independent programming practice	

