

Now that the revised curriculum has been taught, please consider the Implementation and Impact of the curriculum you taught. What changes might need to be made to the Curriculum Intent (See Curriculum Map and Overviews) in light of this year's experiences?

Year 11 Overview 2024-25 – Computer Science

Date	Wk	Week	Units Studied & Learning Outcomes	Key Concepts & Assessment						
8 weeks (38Days)										
2-Sep	A	1	Unit 6 Outcomes <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Prior</th> <th>Current</th> <th>Next</th> </tr> </thead> <tbody> <tr> <td>Year 9 KS3 NC – 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</td> <td>Year 10 KS4 NC – develop and apply their analytic, problem-solving, design, and computational thinking skills or functions</td> <td>KS5 – Chapters 1 - 4 Learning to program effectively. Chapters 13 - 14 Planning and completing a programming project.</td> </tr> </tbody> </table>	Prior	Current	Next	Year 9 KS3 NC – 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	Year 10 KS4 NC – develop and apply their analytic, problem-solving, design, and computational thinking skills or functions	KS5 – Chapters 1 - 4 Learning to program effectively. Chapters 13 - 14 Planning and completing a programming project.	Topic 6: Problem solving with programming. The main focus of this paper is: <ul style="list-style-type: none"> understanding what algorithms are, what they are used for and how they work in relation to creating programs understanding how to decompose and analyse problems ability to read, write, refine and evaluate programs. Define the term 'program' Identify types of programs used every day Identify Python as a programming language Access an integrated development environment Load and run a Python program Change a Python program Save a Python program Use arithmetic operators and BIDMAS Layout code to be readable and maintainable Correct errors in programs Use variables in algorithms and programs Define the term 'decomposition' Define the term 'algorithm' Decompose a problem Order the pieces of an algorithm (unplugged) Order the pieces of an algorithm (IDE) Define the term 'sequence' and use sequence in algorithms and program code Interpret error messages Correct errors in ordering Links to history, culture, vocabulary: Computer programming history - Ada Lovelace is credited as being the first person to describe or write a computer program. In 1843, she described an algorithm to compute Bernoulli numbers using the Analytical Engine. For more see: https://www.computerhope.com/history/programming.htm Program – noun a series of coded software instructions to control the operation of a computer or other machine. Programming - noun the process or activity of writing computer programs. Careers: Software application developer, Web developer, Computer systems engineer, Database administrator, Computer systems analyst, Software quality assurance (QA) engineer, Business intelligence analyst, Computer programmer, Network system administrator. PAPER 2 Preparation <ul style="list-style-type: none"> Equality Diversity and Inclusion (EDI) links? <i>Parent and Carers month/Black History month</i> <i>3/9 World afro day</i> <i>23/9 International day of sign languages</i> <i>10/10 world mental health day</i> <i>5/10 world teachers day</i> <i>6/10 World cerebral palsy day</i>
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9-Sep	B	2								
16-Sep*	A	3								
23-Sep	B	4								
30-Sep	A	5								
7-Oct	B	ST2								
14-Oct	A	ST2								
21-Oct	B	ST2								
7 weeks (35 Days)										
4-Nov	A	9	Unit 2 Outcomes <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Prior</th> <th>Current</th> <th>Next</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Prior	Current	Next				ALL TOPICS RECOVER AND REVISION Topic 2: Data – understanding of binary, data representation, data storage and compression. Define what is meant by the terms 'binary' and 'bit'
Prior	Current	Next								
11-Nov	B	10								
18-Nov	A	11								

25-Nov	B	12	<p>Year 9 KS3 NC – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]</p>	<p>Year 10 KS4 NC – develop and apply their analytic, problem-solving, design, and computational thinking skills</p>	<p>KS5 – Chapters 5 - 12 Foundations of Computer Science.</p>	<p>Explain why binary is used to represent data and program instructions in a computer Describe the relationship between the number of available bits and the range of unique values that can be represented Determine the number of unique values that can be represented by a binary pattern of a given length (2ⁿ) Define what is meant by the terms 'nibble' and 'byte' Convert between denary and 8-bit binary numbers</p> <p>Topic 1: Computational thinking – understanding of what algorithms are, what they are used for and how they work; ability to follow, amend and write algorithms; ability to construct truth tables.</p> <p>• Equality Diversity and Inclusion (EDI) links? <i>Mens health awareness month/disability confident month</i> <i>1/11 Diwali</i> <i>12/11 Remembrance Sunday</i> <i>13/11-19/11 Transgender awareness week</i> <i>14/11 World Diabetes Day</i> <i>1/12 World AIDS day</i> <i>25/12 Christmas Day</i></p>								
2-Dec	A	13												
9-Dec	B	14												
16-Dec	A	15												
Christmas Holiday			6 weeks (30 Days)											
6-Jan	B	16	<p>Unit 3 Outcomes</p> <table border="1"> <thead> <tr> <th>Prior</th> <th>Current</th> <th>Next</th> </tr> </thead> <tbody> <tr> <td>Year 9 KS3 NC – understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</td> <td>Year 10 KS4 NC – develop and apply their analytic, problem-solving, design, and computational thinking skills</td> <td>KS5 NC – Chapters 5 - 12 Foundations of Computer Science.</td> </tr> </tbody> </table>			Prior	Current	Next	Year 9 KS3 NC – understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits	Year 10 KS4 NC – develop and apply their analytic, problem-solving, design, and computational thinking skills	KS5 NC – Chapters 5 - 12 Foundations of Computer Science.	<p>ALL TOPICS RECOVER AND REVISION</p> <p>Topic 3: Computers – understanding of hardware and software components of computer systems and characteristics of programming languages.</p> <p>Describe the role of the operating system in a computer system Identify tasks carried out by an OS Describe how the OS organises files and allocates space on a hard drive Construct an expression to calculate the number of blocks of space on a hard drive needed to store a file of a given size Describe how file permissions are used to control access to files Select an appropriate level of file access (read, write, delete, none) for a user Describe how an OS uses scheduling to give each active process a share of CPU time Describe the features of the round-robin scheduling algorithm Describe how the OS uses a paging algorithm to swap programs in and out of main memory. Define what is meant by the term 'peripheral' Describe how the OS uses drivers to communicate with and manage peripherals Explain the purpose of a user interface and describe features of a user interface Define what is meant by the term 'access control' Describe commonly used methods of authentication Select suitable access right for specified individuals</p> <p>• Equality Diversity and Inclusion (EDI) links? <i>LGBT+ History month</i> <i>27/1 Holocaust memorial day</i> <i>1/2 World Hijab Day</i> <i>6/2-12/2 Children's mental health week.</i></p>		
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13-Jan	A	17												
20-Jan	B	ST3												
27-Jan	A	ST3												
3-Feb	B	ST3												
10-Feb	A	21												

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Half-Term			6 weeks (29 Days)								
					7/2 Safer internet day 10/2 Chinese New Year						
25-Feb	B	22	INSET 24th Feb								
3-Mar	A	23	ALL TOPICS RECOVER AND REVISION <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Prior</th> <th style="width: 33%;">Current</th> <th style="width: 33%;">Next</th> </tr> </thead> <tbody> <tr> <td>Year 9 KS3 NC – understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</td> <td>Year 10 KS4 NC – understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.</td> <td>KS5 – Chapters 5 - 12 Foundations of Computer Science</td> </tr> </tbody> </table>			Prior	Current	Next	Year 9 KS3 NC – understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.	Year 10 KS4 NC – understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	KS5 – Chapters 5 - 12 Foundations of Computer Science
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10-Mar	B	24									
17-Mar	A	25									
24-Mar	B	26									
31-Mar											
	A	27	ALL TOPICS RECOVER AND REVISION <p>Topic 4: Networks – understanding of computer networks and network security.</p> <p>Define what is meant by the term ‘cyberattack’ Describe the financial, reputational and legal damage that a cyberattack can cause Describe the characteristics of and threat posed by different types of malware Describe how anti-malware works Explain why it is important to keep anti-malware up-to-date</p> <p>Links to history, culture, vocabulary: October 29, 1969, the first ARPAnet (later to be known as the Internet) link was established between UCLA and SRI. March 1989, Tim Berners-Lee circulated a proposal for “Mesh” (later to be known as the World Wide Web) to his management at CERN. This timeline highlights the major (and some minor) developments in the evolution of these twin flowers of the digital age, one (the Internet) a network infrastructure, the other (the Web) a software infrastructure layered on top of it. Together, they have so far connected more than a third of the world’s population and have made millions of people both new consumers and new creators of information. Gil Press Senior Contributor Forbes</p> <p>Network – noun a group or system of interconnected people or things. Internet - noun a global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols. Origin 1970s (denoting a computer network connecting two or more smaller networks): from inter- ‘reciprocal, mutual’ + network. Careers: Network and Computer Systems Administrator, Information Systems Manager, Computer Network Architect, Computer Systems Analyst, Computer Network Support Specialist, IT security Analyst, Network Operations Engineer.</p> <p>• Equality Diversity and Inclusion (EDI) links? <i>Women's history month</i> <i>Ramadhan begins 1/3</i> <i>21/3 World Down Syndrome day</i> <i>31/3 Transgender day of visibility</i></p>								
Easter Holiday			5 weeks (?? lessons) (23 Days)								
22-Apr	B	28	Easter Monday 21st Early May bank hol 6/5								
28-Apr	A	29	Unit 5 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Prior</th> <th style="width: 33%;">Current</th> <th style="width: 33%;">Next</th> </tr> </thead> <tbody> <tr> <td>Year 9 KS3 NC – understand a range of ways to use technology safely, respectfully, responsibly and securely,</td> <td>Year 10 KS4 NC – understand how changes in technology affect safety, including new ways to protect</td> <td>KS5 – Chapters 5 - 12 Foundations of Computer Science</td> </tr> </tbody> </table>			Prior	Current	Next	Year 9 KS3 NC – understand a range of ways to use technology safely, respectfully, responsibly and securely,	Year 10 KS4 NC – understand how changes in technology affect safety, including new ways to protect	KS5 – Chapters 5 - 12 Foundations of Computer Science
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5-May	B	30									
12-May	A	ST2									
19-May											
	B	ST2	<p>Topic 5: Issues and impact – awareness of emerging trends in computing technologies, and the impact of computing on individuals, society and the environment, including ethical, legal and ownership issues.</p> <p>Define what is meant by the term ‘hacker’ Explain why unpatched software is a target for hackers Explain the function of a firewall Explain how ethical hacking and penetration testing help identify vulnerabilities</p> <p>Links to history, culture, vocabulary: Although digital technology has been hugely beneficial to mankind, it can be argued it has also had a negative impact on some sections of society and the environment. Society has reacted to many of these issues by creating legislation that governs the use of digital technology and puts in place penalties if rules or laws are broken. Laws like: The Copyright Designs and Patents Act (1988)</p>								

			including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns	their online privacy and identity, and how to identify and report a range of concerns.	<p>The Federation Against Software Theft (FAST) Data Protection Act (1998) Computer Misuse Act (1990)Waste Electrical and Electronic Equipment recycling (WEEE)</p> <p>• Equality Diversity and Inclusion (EDI) links?</p> <p><i>Good Friday 18/4 Easter Sunday 20/4 Autism and stress awareness month. 25/4 World Malaria Day 26/4 Lesbian visibility day UK national walking month. 1/5-7/5 Deaf awareness week 23/05 Vesak</i></p>
Half-Term			7 weeks (?? lessons) (34 Days)		
2-Jun	A	33	SJB INSET 4/7		<p>• Equality Diversity and Inclusion (EDI) links?</p> <p><i>LGBTQ+ pride month. Gypsy, Roma and Traveller history month. 12/6 world day against child labour 18/6 autistic pride day 20/6 World refugee day</i></p>
9-Jun	B	34			
16-Jun	A	35			
23-Jun	B	36			
30-Jun	A	37			
7-Jul	B	38			
14-Jul	A	39			
(Total: 189 Days)					

Overview of Year 11	
Based on your Flight Path	By the end of Year 11, students will have learned
GW:	understanding what algorithms are, what they are used for and how they work in relation to creating programs; be able to write programs that use pre-existing (built-in, library) and user-devised subprograms (procedures, functions); be able to write programs that make appropriate use of variables and constants; be able to use decomposition and abstraction to analyse, understand and solve problems
BI:	understanding how to decompose and analyse problems ; be able to write functions that may or may not take parameters but must return values, and procedures that may or may not take parameters but do not return values; be able to write programs that make appropriate use of primitive data types (integer, real, Boolean, char) and oneand two-dimensional structured data types (string, array, record); be able to identify, locate and correct program errors (logic, syntax, runtime)
EW:	ability to read, write, refine and evaluate programs; be able to use logical reasoning and test data to evaluate a program's fitness for purpose and efficiency (number of compares, number of passes through a loop, use of memory); understand the difference between and be able to write programs that make appropriate use of global and local variables; be able to write programs that manipulate strings (length, position, substrings, case conversion); be able to use logical reasoning and test data to evaluate a program's fitness for purpose and efficiency (number of compares, number of passes through a loop, use of memory)