



Curriculum Map

Subject: Computer Science

Year group: 8

	Autumn 1	Autumn 2	Autumn2/ Spring 1	Spring 2	Spring 2/Summer 1	Summer 2
<p>Content</p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p><i>Python Programming</i></p> <p><i>Algorithms</i> <i>Programming</i> <i>Computer Systems</i></p>	<p><i>Python Programming continued</i></p> <p><i>Cyber security</i></p>	<p>Spreadsheet modelling</p> <p><i>Data and Information</i> <i>Effective use of digital tools</i> <i>Programming</i></p>	<p>Web Development</p> <p><i>Information Technology</i> <i>Creating Media</i> <i>Design and Development</i> <i>Communication & Networks</i> <i>Algorithms</i> <i>Programming</i></p>	<p><i>Web Development</i></p> <p><i>Information Technology</i> <i>Creating Media</i> <i>Design and Development</i> <i>Communication & Networks</i> <i>Algorithms</i> <i>Programming</i></p>	<p><i>Artificial Intelligence</i></p>
<p>Skills</p> <p><i>Procedural Knowledge – ‘Know How’</i></p>	<p>Describe what algorithms and programs are and how they differ</p> <p>- Locate and correct common syntax errors -</p> <p>Recall that a program written in a programming language needs to be translated in order to be executed by a machine -</p> <p>Write simple Python programs that display messages, assign values to variables, and receive keyboard input Describe the semantics of assignment statements -</p> <p>Receive input from the keyboard and convert it to a numerical value - Use simple arithmetic expressions in assignment statements to calculate values</p>	<p>Explain the difference between data and information</p> <p>Critique online services in relation to data privacy</p> <p>Identify what happens to data entered online</p> <p>Explain the need for the Data Protection Act</p> <p>Recognise how human errors pose security risks to data</p> <p>Implement strategies to minimise the risk of data being compromised through human error</p> <p>Define hacking in the context of cyber security</p> <p>Explain how a DDoS attack can impact users of online services Identify strategies to reduce the chance of a</p>	<p>Identify columns, rows, cells, and cell references in spreadsheet software</p> <p>Use formatting techniques in a spreadsheet</p> <p>Use basic formulas with cell references to perform calculations in a spreadsheet (+, -, *, /)</p> <p>Use the autofill tool to replicate cell data Explain the difference between data and information</p> <p>Explain the difference between primary and secondary sources of data</p> <p>Collect data Analyse data</p> <p>Create appropriate charts in a spreadsheet</p>	<p>Use HTML to structure static web pages</p> <p>Modify HTML tags using inline styling to improve the appearance of web pages</p> <p>Display images within a web page</p> <p>Apply HTML tags to construct a web page structure from a provided design</p> <p>Describe what CSS is</p> <p>Use CSS to style static web pages</p> <p>Assess the benefits of using CSS to style pages instead of in-line formatting</p>	<p>Use HTML to structure static web pages</p> <p>Modify HTML tags using inline styling to improve the appearance of web pages</p> <p>Display images within a web page</p> <p>Apply HTML tags to construct a web page structure from a provided design</p> <p>Describe what CSS is</p> <p>Use CSS to style static web pages</p> <p>Assess the benefits of using CSS to style pages instead of in-line formatting</p>	<p>Defining Artificial Intelligence</p> <p>Understanding the difference between AI and machine learning</p> <p>Learning different ways in which AI and machine learning are being used in computing</p> <p>Learning Google teachable machine to implement basic AI and machine learning skills</p> <p>To discuss the validity of AI in society</p> <p>To think about the ethical implications of AI What is AI?</p> <p>What is machine learning?</p> <p>How have these processes been implemented in</p>



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	<p>Generate and use random integers - Use binary selection (if, else statements) to control the flow of program execution - Use relational operators to form logical expressions</p> <p>Describe how iteration (while statements) controls the flow of program execution</p> <p>- Use multi-branch selection (if, elif, else statements) to control the flow of program execution</p> <p>Use iteration (while loops) to control the flow of program execution - Use variables as counters in iterative programs</p> <p>Combine iteration and selection to control the flow of program execution - Use Boolean variables as flags</p>	<p>brute force attack being successful</p> <p>Explain the need for the Computer Misuse Act List the common malware threats</p> <p>Examine how different types of malware causes problems for computer systems</p> <p>Question how malicious bots can have an impact on societal issues</p> <p>Compare security threats against probability and the potential impact to organisations</p> <p>Explain how networks can be protected from common security threats</p> <p>Identify the most effective methods to prevent cyberattacks</p>	<p>Use the functions SUM, COUNTA, MAX, and MIN in a spreadsheet</p> <p>Analyse data Use a spreadsheet to sort and filter data Use the functions AVERAGE, COUNTIF, and IF in a spreadsheet</p> <p>Use conditional formatting in a spreadsheet</p>	<p>Describe what a search engine is</p> <p>Explain how search engines 'crawl' through the World Wide Web and how they select and rank results</p> <p>Analyse how search engines select and rank results when searches are made</p> <p>Use search technologies effectively</p> <p>Discuss the impact of search technologies and the issues that arise by the way they function and the way they are used</p> <p>Create hyperlinks to allow users to navigate between multiple web pages</p> <p>Implement navigation to complete a functioning website</p>	<p>Describe what a search engine is</p> <p>Explain how search engines 'crawl' through the World Wide Web and how they select and rank results</p> <p>Analyse how search engines select and rank results when searches are made</p> <p>Use search technologies effectively</p> <p>Discuss the impact of search technologies and the issues that arise by the way they function and the way they are used</p> <p>Create hyperlinks to allow users to navigate between multiple web pages</p> <p>Implement navigation to complete a functioning website</p>	<p>wider society?</p> <p>What are the possible dangers of AI?</p> <p>What are the ethical implications of utilising AI in computing, surveillance and media industries?</p>
<p>Key Questions</p>	<p>How can I use sequence, selection and iteration to develop a program to solve a problem?</p> <p>What is the difference between, and appropriately I can use if and if, then and else statements.</p> <p>Can I use a variable and relational operators within</p>	<p>What are the modern dangers of technology relating to safety and security that affects both individuals and organisations?</p> <p>What are the vulnerabilities of networking hardware and software?</p>	<p>Can I use criteria to evaluate the quality of solutions and identify improvements making some refinements to future solutions.</p> <p>How can I analyse and evaluate data to become information.</p> <p>Do I know that poor quality data leads to</p>	<p>What are the benefits to websites in terms of communication in using 1 universal scripting language</p> <p>What are the benefits of using CSS to a website</p> <p>How can I develop online-based platforms for a specific purpose?</p>	<p>What are the benefits to websites in terms of communication in using 1 universal scripting language</p> <p>What are the benefits of using CSS to a website</p> <p>How can I develop online-based platforms for a specific purpose?</p>	<p>What is AI?</p> <p>What is machine learning?</p> <p>How have these processes been implemented in wider society?</p> <p>What are the possible dangers of AI?</p> <p>What are the ethical</p>



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	<p>a loop to govern termination.</p> <p>Can I use loops and a sequence of selection statements in programs, including an IF, THEN and ELSE statement</p>	<p>How does an organisation or individual protect themselves from network threats?</p>	<p>unreliable results, and inaccurate conclusions for individuals and organisations?</p>			<p>implications of utilising AI in computing, surveillance and media industries?</p>
Assessment	Mid Unit Assessment	End of unit test	End of Unit Test	Website Development	Website Development	End of unit test
Literacy/Numeracy/SMSC/Character				Writing and presenting information suitable for audience and purpose	Writing and presenting information suitable for audience and purpose	Understanding modern technological terminologies. Integrity, Initiative, Aspiration, Creativity. Integrity.