



Curriculum Map

Subject: Computer Science

Year group: 8

	Autumn 1	Autumn 2	Spring 1	Spring 2	Spring 2/Summer 1	Summer 2
<p>Content</p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p>Website Development</p> <p><i>Information Technology Creating Media Design and Development Communication & Networks Algorithms Programming</i></p>	<p>Representations - from clay to silicon</p> <p><i>Data and Information Computer Systems</i></p>	<p>Modelling data - Spreadsheet</p> <p><i>Data and Information Effective use of digital tools Programming</i></p>	<p>Mobile App Development</p> <p><i>Algorithms Programming Using Media Computer Systems Design and Development Networks</i></p>	<p>Computer Programming - Microbits</p> <p><i>Algorithms Programming Using Media Computer Systems Design and Development Networks</i></p>	<p>Developing Programming Skills - Intro to Python</p> <p><i>Algorithms Programming Computer Systems</i></p>
<p>Skills</p> <p><i>Procedural Knowledge – ‘Know How’</i></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>Describe what a search engine is</p>	<p>List examples of representations</p> <p>Recall that representations are used to store, communicate, and process information</p> <p>Provide examples of how different representations are appropriate for different tasks</p> <p>Recall that characters can be represented as sequences of symbols and list examples of character coding schemes</p> <p>Measure the length of a representation as the number of symbols that it contains</p> <p>Provide examples of how symbols are carried on physical media</p> <p>Explain what binary digits (bits) are, in terms of</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</p> <p>Explain the difference between data and information</p> <p>Explain the difference between primary and secondary sources of data</p> <p>Collect data</p> <p>Analyse data</p>	<p>Establish user needs when completing a creative project</p> <p>Apply decomposition to break down a large problem into more manageable steps</p> <p>Use a block based programming language to create a sequence</p> <p>Recognise that events can control the flow of a program</p> <p>Implement and customise GUI elements to meet the needs of the user</p> <p>Use variables in an event driven programming environment</p> <p>Pass the value of a variable into an object</p> <p>Use user input in an event driven programming environment.</p>	<p>Describe what the micro:bit is</p> <p>List the micro:bit’s input and output devices</p> <p>Use a development environment to write, execute, and debug a Python program for the micro:bit</p> <p>Write programs that use the micro:bit’s built-in input and output devices</p> <p>Write programs that use GPIO pins to generate output and receive input</p> <p>Write programs that communicate with other devices by sending and receiving messages wirelessly</p> <p>Design a physical computing artefact purposefully, keeping in mind the problem at hand, the needs of the</p>	<p>Describe what algorithms and programs are and how they differ</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</p> <p>Locate and correct common syntax errors</p> <p>Describe the semantics of assignment statements</p> <p>Use simple arithmetic expressions in assignment statements to calculate values</p>



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	<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>familiar symbols such as digits or letters</p> <p>Measure the size or length of a sequence of bits as the number of binary digits that it contains</p> <p>Describe how natural numbers are represented as sequences of binary digits</p> <p>Convert a decimal number to binary and vice versa</p> <p>Convert between different units and multiples of representation size</p> <p>Provide examples of the different ways that binary digits are physically represented in digital devices</p>	<p>Create appropriate charts in a spreadsheet</p> <p>Use the functions SUM, COUNTA, MAX, and MIN in a spreadsheet</p> <p>Analyse data</p> <p>Use a spreadsheet to sort and filter data</p> <p>Use the functions AVERAGE, COUNTIF, and IF in a spreadsheet</p> <p>Use conditional formatting in a spreadsheet</p>	<p>Identify and fix common coding errors in a block-based environment.</p> <p>Use a block based programming language to include selection.</p>	<p>audience involved, and the available resources</p> <p>Decompose the functionality of a physical computing system into simpler features</p> <p>Implement a physical computing project, while following, revising, and refining the project plan</p>	<p>Receive input from the keyboard and convert it to a numerical value</p> <p>Use relational operators to form logical expressions</p> <p>Use binary selection (if, else statements) to control the flow of program execution</p> <p>Generate and use random integers</p> <p>Use multi-branch selection (if, elif, else statements) to control the flow of program execution</p>
<p>Key Questions</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 binary? How does it work in circuitry? Why do computers use binary? How do I Convert between binary and decimal (vice versa)</p> <p>What are the different ways binary digits are physically represented in digital devices?</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 unreliable results, and inaccurate conclusions for</p>	<p>How can I create and reuse digital artefacts and multiple applications across a range of devices</p> <p>Can I identify when a problem needs to be broken down</p> <p>Can I apply decomposition to break down a larger problem into more manageable steps</p>	<p>How can I create and reuse digital artefacts and multiple applications across a range of devices to present information suitable for my audience?</p> <p>Can I identify when a problem needs to be broken down</p> <p>Can I apply decomposition to break down a larger problem into more manageable steps</p>	<p>How can I use computational thinking to solve problems?</p> <p>Can I apply block based programming concepts to high level programming.</p> <p>Can I create programs that implement algorithms to achieve given goals.</p> <p>Can I use loops and a sequence of selection statements in programs,</p>



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			individuals and organisations?	Can I establish user needs when completing a creative project		including an IF, THEN and ELSE statement. Can I use sequence, selection to develop a program to solve a problem?
Assessment	Students to create a basic website under timed conditions	End of unit online test and practical assessment	End of unit online test and practical assessment	End of unit online test and practical assessment	End of unit online test and practical assessment	Assessment of programming project - (ChatBot)
Literacy/Numeracy/ SMSC/Character	Writing and presenting information suitable for audience and purpose	Initiative, Aspiration. Resilience, Problem Solving	Initiative, Aspiration, Resilience. Using Microsoft Excel for mathematical calculations	Initiative, Aspiration. Resilience, Problem Solving	Understanding responsible ways to use technology. Initiative, Aspiration. Resilience, Problem Solving	Initiative, Aspiration. Resilience, Problem Solving. Algorithmic thinking