



Curriculum Map

Subject: Computer Science

Year group: 9

	Autumn 1/ Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content <i>Declarative Knowledge – ‘Know What’</i>	<i>Python Programming</i> <i>Computational thinking techniques and problem solving : Bebras and GCHQ Challenges</i>	<i>Data Representation</i> <i>Information Technology Communication and Networks</i>	<i>Media - Animation</i> <i>Creative Media Design and Development Information Technology</i>	<i>Artificial Intelligence</i> <i>Algorithms Programming Creative media</i>	<i>Developing for the Web</i>
Skills <i>Procedural Knowledge – ‘Know How’</i>	Describe what algorithms and programs are and how they differ - Locate and correct common syntax errors - Recall that a program written in a programming language needs to be translated in order to be executed by a machine - Write Python programs that display messages,assign values to variables, and receive keyboard input Describe the semantics of assignment statements - Receive input from the keyboard and convert it to a numerical value - Use simple arithmetic expressions in assignment	List examples of representations Recall that representations are used to store, communicate, and process information Provide examples of how different representations are appropriate for different tasks Recall that characters can be represented as sequences of symbols and list examples of character coding schemes Measure the length of a representation as the number of symbols that it contains Provide examples of how symbols are carried on physical media Explain what binary digits (bits) are, in terms of	Add, delete, and move objects Scale and rotate objects Use a material to add colour to objects Add, move, and delete keyframes to make basic animations Play, pause, and move through the animation using the timeline Create useful names for objects Join multiple objects together using parenting Use edit mode and extrude Use loop cut and face editing Apply different colours to different parts of the same model Use proportional editing Use the knife tool	Defining Artificial Intelligence Understanding the difference between AI and machine learning Learning different ways in which AI and machine learning are being used in computing Learning Google teachable machine to implement basic AI and machine learning skills To discuss the validity of AI in society To think about the ethical implications of AI What is AI? What is machine learning? How have these processes been implemented in wider society?	Use HTML to structure static web pages Modify HTML tags using inline styling to improve the appearance of web pages Display images within a web page Apply HTML tags to construct a web page structure from a provided design Describe what CSS is Use CSS to style static web pages Assess the benefits of using CSS to style pages instead of in-line formatting Describe what a search engine is Explain how search engines ‘crawl’ through the World Wide



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	statements to calculate values 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 Describe how iteration (while statements) controls the flow of program execution - Use multi-branch selection (if, elif, else statements) to control the flow of program execution Use iteration (while loops) to control the flow of program execution - Use variables as counters in iterative programs	familiar symbols such as digits or letters Measure the size or length of a sequence of bits as the number of binary digits that it contains Describe how natural numbers are represented as sequences of binary digits Convert a decimal number to binary and vice versa Convert between different units and multiples of representation size Provide examples of the different ways that binary digits are physically represented in digital devices	Use subdivision Add and edit set lighting Set up the camera Compare different render modes Create a 3–10 second animation Render out the animation	What are the possible dangers of AI? What are the ethical implications of utilising AI in computing, surveillance and media industries?	Web and how they select and rank results Analyse how search engines select and rank results when searches are made Use search technologies effectively Discuss the impact of search technologies and the issues that arise by the way they function and the way they are used Create hyperlinks to allow users to navigate between multiple web pages Implement navigation to complete a functioning website



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	Combine iteration and selection to control the flow of program execution - Use Boolean variables as flags				
Key Questions	How can I use sequence, selection and iteration to develop a program to solve a problem ? What is the difference between, and appropriately I can use if and if, then and else statements. Can I use a variable and relational operators within a loop to govern termination. Can I use loops and a sequence of selection statements in programs, including an IF, THEN and ELSE statement	What is binary? How does it work in circuitry ? Why do computers use binary? How do I convert between binary and decimal(vice versa) What are the different ways binary digits are physically represented in digital devices? What are RGB colours? How is this represented in binary? What is colour depth?	What are the different render modes available? How do you switch between and compare render modes? What steps are involved in planning a short animation? How do you ensure the animation meets the time requirement? What is the process to render an animation? How do you choose the appropriate render settings?	What is AI? What is machine learning? How have these processes been implemented in wider society? What are the possible dangers of AI? What are the ethical implications of utilising AI in computing, surveillance and media industries? What are the limitations, risks and ethical implications of AI in society?	<i>Developing for the Web</i>
Assessment	End of Unit Assessment	End of unit test	3-10 second animation	End of Unit Test	Developing a multi-page website
Literacy/Numeracy/ SMSC/Character	Problem solving and algorithmic thinking. Peer support and experimentation. Confidence. Resilience. Initiative. Video Game responsibility	Initiative, Aspiration. Resilience, Problem Solving	Initiative, Aspiration. Resilience	Understanding modern technological terminologies. Integrity, Initiative, Aspiration, Creativity. Integrity.	Resilience, Initiative, Confidence