



Curriculum Map

Subject: Computer Science

Year group: 7

	Autumn 1/Autumn 2	Autumn 2	Autumn 2/Spring 1	Spring 2	Summer 1	Summer 2
<p>Content</p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p><i>Chromebook Introduction</i></p> <p><i>From Scratch to code</i></p>	<p><i>Cyber security</i></p>	<p><i>Python 1</i></p>	<p><i>Layers of computer systems</i></p>	<p><i>Using media to support a cause</i></p>	<p><i>Python Turtle</i></p>
<p>Skills</p> <p><i>Procedural Knowledge – ‘Know How’</i></p>	<p>Organise files and folders in Google Drive</p> <p>Rename files and folders in Google Drive</p> <p>Upload files to Google Drive</p> <p>Understand how to share files and folders</p> <p>Format text within a Google Doc</p> <p>Create and edit tables within a Google Doc</p> <p>Import images from the Internet into a Google Doc</p> <hr/> <p>Predict the outcome of a simple sequence</p> <p>Modify a sequence</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>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</p> <p>Describe the semantics of assignment statements</p> <p>- Receive input from the keyboard and convert it to a numerical value</p>	<p>Recall that a general-purpose computing system is a device for executing programs</p> <p>Recall that a program is a sequence of instructions that specify operations that are to be performed on data</p> <p>Explain the difference between a general-purpose computing system and a purpose-built device</p> <p>Describe the function of the hardware components used in computing systems</p> <p>Describe how the hardware components used in computing systems work together in order to execute programs</p>	<p>Select the most appropriate software to use to complete a task</p> <p>Identify the key features of a word processor</p> <p>Apply the key features of a word processor to format a document</p> <p>Evaluate formatting techniques to understand why we format documents</p> <p>Select appropriate images for a given context</p> <p>Apply appropriate formatting techniques</p> <p>Demonstrate an understanding of licensing issues involving online content by applying</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</p> <p>Describe the semantics of assignment statements</p> <p>- Receive input from the keyboard and convert it to a numerical value</p>



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<p>Define a variable as a name that refers to data being stored by the computer</p> <p>Recognise that computers follow the control flow of input/process/output</p> <p>Predict the outcome of a simple sequence that includes variables</p> <p>Trace the values of variables within a sequence</p> <p>Make a sequence that includes a variable</p> <p>Define a condition as an expression that will be evaluated as either true or</p> <p>Identify that selection uses conditions to control the flow of a sequence</p> <p>Identify where selection statements can be used in a program</p> <p>Modify a program to include selection</p> <p>Create conditions that use comparison operators (>,<=)</p> <p>Create conditions that use logic operators (and/or/not)</p> <p>Identify where selection statements can be used in a program that include</p>	<p>Explain how a DDoS attack can impact users of online services</p> <p>Identify strategies to reduce the chance of a brute force attack being successful</p> <p>Explain the need for the Computer Misuse Act</p> <p>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>	<ul style="list-style-type: none"> - Use simple arithmetic expressions in assignment statements to calculate values <p>Generate and use random integers</p> <ul style="list-style-type: none"> - Use binary selection (if, else statements) to control the flow of program execution - Use relational operators to form logical expressions <p>Describe how iteration (while statements) controls the flow of program execution</p> <ul style="list-style-type: none"> - Use multi-branch selection (if, elif, else statements) to control the flow of program execution <p>Use iteration (while loops) to control the flow of program execution</p> <ul style="list-style-type: none"> - Use variables as counters in iterative programs <p>Combine iteration and selection to control the flow of program execution</p> <ul style="list-style-type: none"> - Use Boolean variables as flags 	<p>Recall that all computing systems, regardless of form, have a similar structure ('architecture')</p> <p>Analyse how the hardware components used in computing systems work together in order to execute programs</p> <p>Define what an operating system is, and recall its role in controlling program execution</p> <p>Describe the NOT, AND, and OR logical operators, and how they are used to form logical expressions</p> <p>Use logic gates to construct logic circuits, and associate these with logical operators and expressions</p> <p>Describe how hardware is built out of increasingly complex logic circuits</p> <p>Recall that, since hardware is built out of logic circuits, data and instructions alike need to be represented using binary digits</p> <p>Provide broad definitions of 'artificial intelligence' and 'machine learning'</p> <p>Identify examples of artificial intelligence and</p>	<p>appropriate Creative Commons licences</p> <p>Demonstrate the ability to credit the original source of an image</p> <p>Critique digital content for credibility</p> <p>Apply techniques in order to identify whether or not a source is credible</p> <p>Apply referencing techniques and understand the concept of plagiarism</p> <p>Evaluate online sources for use in own work</p> <p>Construct a blog using appropriate software</p> <p>Organise the content of the blog based on credible sources</p> <p>Apply referencing techniques that credit authors appropriately</p> <p>Design the layout of the content to make it suitable for the audience</p> <p>Construct a blog using appropriate software</p> <p>Organise the content of blog based on credible sources</p>	<ul style="list-style-type: none"> - Use simple arithmetic expressions in assignment statements to calculate values <p>Generate and use random integers</p> <ul style="list-style-type: none"> - Use binary selection (if, else statements) to control the flow of program execution - Use relational operators to form logical expressions <p>Describe how iteration (while statements) controls the flow of program execution</p> <ul style="list-style-type: none"> - Use multi-branch selection (if, elif, else statements) to control the flow of program execution <p>Use iteration (while loops) to control the flow of program execution</p> <ul style="list-style-type: none"> - Use variables as counters in iterative programs <p>Combine iteration and selection to control the flow of program execution</p>
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	<p>comparison and logical operators</p> <p>Define iteration as a group of instructions that are repeatedly executed</p> <p>Describe the need for iteration</p> <p>Identify where count-controlled iteration can be used in a program</p> <p>Implement count-controlled iteration in a program</p> <p>Detect and correct errors in a program (debugging)</p> <p>Independently design and apply programming constructs to solve a problem (subroutine, selection, count-controlled iteration, operators, and variables)</p>			<p>machine learning in the real world</p> <p>Describe the steps involved in training machines to perform tasks (gathering data, training, testing)</p> <p>Describe how machine learning differs from traditional programming</p> <p>Associate the use of artificial intelligence with moral dilemmas</p> <p>Explain the implications of sharing program code</p>	<p>Apply referencing techniques that credit authors appropriately</p> <p>Design the layout of the content to make it suitable for the audience</p>	<p>- Use Boolean variables as flags</p>
<p>Key Questions</p>	<p>What makes a good presentation? What are the appropriate fonts to use? Who is my audience? Why does my audience matter?</p> <hr/> <p>How can I use sequence, selection and iteration to develop a program to solve a problem?</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>How does an organisation or individual protect</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 a loop to govern termination.</p>	<p>How instructions are stored and executed within a computer system? How is binary used to store various data types?</p> <p>How can computers collect data from various input devices, including sensors and application software.</p> <p>What is the difference between hardware and application software, and</p>	<p>What are application software? How do I identify the most appropriate type of software to use that is most suitable for the problem to be solved.</p> <p>When is a source credible? Can I use this source in my work? What is a creative commons licence?</p> <p>What is a blog? What makes a good blog? What</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 a loop to govern termination.</p>



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	<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 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>themselves from network threats?</p>	<p>Can I use loops and a sequence of selection statements in programs, including an IF, THEN and ELSE statement</p>	<p>their roles within a computer system.</p> <p>I know that digital computers use binary to represent all data.</p>	<p>is the most suitable layout for my blog? How do I format correctly so that the information I am trying to get across is effective and gets the message across.</p>	<p>Can I use loops and a sequence of selection statements in programs, including an IF, THEN and ELSE statement</p>
Assessment	<p>Chromebook - Multiple Choice Google Form</p> <p>Scratch to Python - End of unit test</p>	<p>End of unit test</p>	<p>Combination of test and portfolio of work</p>	<p>End of unit test</p>	<p>Portfolio of work</p>	<p>Assessed by outcomes</p>
Literacy/Numeracy/ SMSC/Character	<p>Problem solving and algorithmic thinking. Peer support and experimentation. Confidence. Resilience. Initiative. Video Game responsibility</p>	<p>Understanding modern technological terminologies. Integrity, Initiative, Aspiration, Creativity. Integrity.</p>	<p>Problem solving and algorithmic thinking. Peer support and experimentation. Confidence. Resilience. Initiative. Video Game responsibility</p>	<p>Combining hardware and software terminologies. Problem solving and algorithmic thinking. Confidence. Resilience. Initiative.</p>	<p>Writing and presenting information suitable for audience and purpose. Resilience, Initiative, Confidence,</p>	<p>Problem solving and algorithmic thinking. Peer support and experimentation. Confidence. Resilience. Initiative. Video Game responsibility</p>