



# Curriculum Map

**Subject:** Computer Science

**Year group:** 9

	Autumn1	Autumn 2	Spring1	Spring2	Summer 1/ Summer 2
<p><b>Content</b></p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p><b>Python Programming with PRIMM</b></p> <p><i>Algorithms Programming</i></p>	<p><b>Python Programming with PRIMM</b></p> <p><i>Algorithms Programming</i></p>	<p><b>Cybersecurity</b></p> <p><i>Computer Systems Design and development Data and Information Information Technology Networks Programming Safety and Security</i></p>	<p><b>Data Science</b></p> <p><i>Creating Media Computer Systems Design and development Data and Information Information Technology Effective use of technology</i></p>	<p><b>My Digital World</b></p> <p><i>Creating Media Design and Development Data and Information Information Technology Effective use of technology</i></p>
<p><b>Skills</b></p> <p><i>Procedural Knowledge – ‘Know How’</i></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> <p>Receive input from the keyboard and convert it to a numerical value</p> <p>Use relational operators to form logical expressions</p>	<p>Write programs that display messages, receive keyboard input, and use simple arithmetic expressions in assignment statements</p> <p>Locate and correct common syntax errors</p> <p>Create lists and access individual list items</p> <p>Use selection (**if-elif-else* statements) to control the flow of program execution</p> <p>Perform common operations on lists or individual items</p> <p>Use iteration (while statements) to control</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</p>	<p>Define data science</p> <p>Explain how visualising data can help identify patterns and trends in order to help us gain insights</p> <p>Use an appropriate software tool to visualise data sets and look for patterns or trends</p> <p>Recognise examples of where large data sets are used in daily life</p> <p>Select criteria and use data set to investigate predictions</p> <p>Evaluate findings to support arguments for or against a prediction</p> <p>Define the terms ‘correlation’ and ‘outliers’ in relation to data trends</p> <p>Identify the steps of the investigative cycle</p>	<p>I can justify the choice of and independently combine and I use multiple digital devices, internet services and application software to achieve given goals.</p> <p>I can identify and explain how the use of technology can impact on society.</p>



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	<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>Describe how iteration (while statements) controls the flow of program execution</p> <p>Use iteration (while loops) to control the flow of program execution</p> <p>Use variables as counters in iterative programs</p> <p>Combine iteration and selection to control the flow of program execution</p> <p>Use Boolean variables as flags</p>	<p>the flow of program execution</p> <p>Perform common operations on lists or individual items</p> <p>Perform common operations on strings or individual characters</p> <p>Use iteration (for statements) to iterate over list items</p> <p>Perform common operations on lists or strings</p> <p>Use iteration (for loops) to iterate over lists and strings</p> <p>Use variables to keep track of counts and sums</p> <p>Combine key programming language features to develop solutions to meaningful problems</p> <p>Apply all of the skills covered in this unit- Draw conclusions and report findings</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>	<p>Solve a problem by implementing steps of the investigative cycle on a data set</p> <p>Use findings to support a recommendation</p> <p>Identify the steps of the investigative cycle</p> <p>Identify the data needed to answer a question defined by the learner</p> <p>Create a data capture form</p> <p>Describe the need for data cleansing</p> <p>Apply data cleansing techniques to a data set</p> <p>Visualise a data set</p> <p>Visualise a data set</p> <p>Analyse visualisations to identify patterns, trends, and outliers</p>	
<p><b>Key Questions</b></p>	<p>How can I use computational thinking to solve complex problems?</p> <p>How can I use sequence, selection and iteration to develop a program to solve a problem?</p>	<p>What is the general software life cycle for a computer program?</p> <p>How do functions provide modularity in my program?</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</p>	<p>What is Data Science? Why do we need Data Science to analyse data sets? What is Big Data?</p> <p>Why are Data Scientists key in our society? How can we use that data analysis for effectiveness. How can</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>How do I use media effectively so that I can get the message I need across.</p>



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	<p>I can represent solutions using a structured notation.</p> <p>I know that different algorithms exist for the same problem.</p> <p>I know that programming bridges the gap between algorithmic solutions and computers.</p>	<p>How do I identify and fix errors in my code?</p> <p>What is the purpose of testing code for robustness?</p> <p>Can I successfully create program code as a solution to a problem I have solved.</p>	<p>software?</p> <p>How does an organisation or individual protect themselves from network threats?</p>	<p>it be used for different technologies?</p> <p>Are the latest technological advances that will affect society?</p> <p>What are the benefits and pitfalls of specific current and future technology initiatives? How do data scientists play a key role?</p>	<p>How do I ensure my digital artefact is fit for purpose?</p>
<b>Assessment</b>	<p>Online Baseline assessment at start of topic</p>	<p>Programming project assessment (Maze Game)</p> <p>Online Baseline assessment revisited</p>	<p>Mini Group Project</p>	<p>Data Science Infographic assessment Activity</p>	<p>Group Video Project on the affects of social media and mental health</p>
<b>Literacy/Numeracy/ SMSC/Character</b>	<p>Creativity, Resilience, Initiative. Peer support. Algorithmic Thinking</p>	<p>Understanding modern technological terminologies. Integrity, Initiative, Aspiration, Creativity. Integrity.</p>	<p>Analysing and presenting information suitable for audience and purpose. Integrity. Initiative, Aspiration, Creativity. Integrity</p>	<p>Initiative. Moral and Ethical decision-making. Mental Health. Integrity. Understanding Legislation. Initiative, Aspiration, Creativity. Integrity.</p>	