

## Curriculum Map – Computer Science Year 9

	1	2	3	4
Y9	<p><b>Topic Title:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Algorithmic thinking</li> <li><input type="checkbox"/> Coding in Python</li> </ul> <p><b>Big questions:</b></p> <p>What is computational thinking? <i>(3.1 Fundamentals of algorithms)</i></p> <p>What does the term ‘algorithm’ mean?</p> <p>What does the term ‘abstraction’ mean?</p> <p>What does the term ‘decomposition’ mean?</p> <p>How can I use flowcharts and <i>pseudocode</i> to represent algorithms?</p> <p><i>(3.2 Programming)</i></p> <p>What is sequential programming and how do we code in Python?</p> <ul style="list-style-type: none"> <li>- print and inputs</li> <li>- variables and constants</li> <li>- formatting print and input statements</li> </ul> <p>How do I use the correct data types &amp; arithmetic operators in my code?</p> <p>What is the difference between selection &amp; iteration?</p> <p>An introduction to if statements and loops.</p>	<p><b>Topic Title:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Data representation (binary)</li> <li><input type="checkbox"/> Coding in Python</li> </ul> <p><b>Big questions:</b></p> <p>How does a computer represent different types of data &amp; instructions? <i>(3.3 Fundamentals of data representation)</i></p> <p>Explain the different number bases – decimal (base 10), binary (base 2), hexadecimal (base 16)</p> <p>Why does a computer use binary?</p> <p>How do you add in binary and perform a binary shift?</p> <p><i>(3.2 Programming)</i></p> <p>What are the different errors and how do we correct them in Python?</p> <p>What is selection and how do we code this in Python? (<i>IF, ELSE and ELIF</i>)</p> <p>-introduction to functions &amp; procedures through Python turtle graphics</p>	<p><b>Topic Title:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Data representation (binary, units of information, character encoding)</li> <li><input type="checkbox"/> Coding in Python</li> </ul> <p><b>Big questions:</b></p> <p>How does a computer represent different types of data &amp; instructions? <i>(3.3 Fundamentals of data representation)</i></p> <p>How do you convert between - number bases? (<i>in both directions</i>)</p> <p>How do you add in Binary?</p> <p>What are the different units of information?</p> <p>What is ‘character encoding’? (ASCII and Unicode)</p> <p><i>(3.2 Programming)</i></p> <p>How can data be represented in and processed in sequences?</p> <p><i>String handling</i></p> <p><i>Create &amp; manipulate lists</i></p>	<p><b>Topic Title:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Data representation (images &amp; sound)</li> <li><input type="checkbox"/> Coding in Python</li> </ul> <p><b>Big questions:</b></p> <p>How does a computer work? <i>(3.3 Fundamentals of data representation)</i></p> <p>How does a computer represent images? (<i>bitmap images, use of colour and binary representation</i>)</p> <p>How does a computer represent sound? (<i>Sound digitization – impact on quality, sample rates</i>)</p> <p><i>(3.2 Programming)</i></p> <p>How can I use iteration/repetition in my code? (<i>use of FOR loops, understand the purpose of a counter, use of WHILE loops</i>).</p> <p>Know how to use relational operators in Python.</p> <p>Using random.</p>

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ASSESSMENT	<p>CFU (live marking) in Algorithmic thinking booklet</p> <p>HW Seneca assignment Algorithms</p> <p>CFU (live marking) Coding tasks CFU quizzes itsLearning</p> <p>Assessment Algorithmic thinking</p>	<p>CFU (live marking) coding tasks</p> <p>HW Seneca assignment Data representation</p> <p>Python turtle graphics assessment</p>	<p>CFU itslearning quiz</p> <p>CFU (live marking) coding tasks</p> <p>Assessment Python lists</p>	<p>CFU itslearning quiz</p> <p>CFU (live marking) coding tasks</p> <p>Assessment Data representation</p>
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