



**CURRICULUM PLAN Computer Science (Year 10)**

Therefore, choose

YEAR	TRINITY 2	MICHAELMAS 1	MICHAELMAS 2	LENT 1	LENT 2	TRINITY 1
10	<p><b>Computational Thinking &amp; Python Basics Recap</b></p> <p>In this unit pupils will recap key programming skills including inputting and outputting text and using selection. Pupils will be able to identify the different data types used in a program. Furthermore, pupils will develop an understanding of the difference between syntax and logic errors.</p> <p>Pupils will investigate different types of searching and sorting algorithms</p>	<p><b>Programming Concepts</b></p> <p>During this unit pupils will investigate the use of:</p> <ul style="list-style-type: none"> <li>• Variable declaration</li> <li>• Constant declaration</li> <li>• Assignment</li> <li>• Iteration</li> <li>• Selection</li> <li>• String handling</li> <li>• Random number generation</li> </ul> <p>Pupils will be develop their use of count controlled and condition controlled iteration and nested iteration and selection. Pupils will make use of relational and Boolean operations used in programming languages.</p>	<p><b>Data Structures &amp; Structured Programming</b></p> <p>Pupils will investigate the use of arrays and records in programs during this unit.</p> <p>Pupils will develop their programming skills to include the use of subroutines, understanding how subroutine is structured and the advantages of using subroutines within a program.</p>	<p><b>Robust &amp; Secure Programming</b></p> <p>During this unit pupils will consolidate their programming skills, independently creating solutions to given problems.</p> <p>Pupils will also understand the importance of robust and secure programming and will be able to:</p> <ul style="list-style-type: none"> <li>• Write simple validation routines;</li> <li>• Write simple authentication routines;</li> <li>• Understand what test data is and describe different types of tests</li> </ul>	<p><b>Fundamentals Of Data Representation 1</b></p> <p>In this unit pupils will investigate the difference between decimal, binary and hexadecimal numbers and will be able to convert between the three number bases. Pupils will develop their knowledge of binary arithmetic and will know different values of units of information.</p> <p>Pupils will understand how images and sound are represented within a computer system</p> <p>Pupils will understand that character codes are commonly grouped and run in sequence within encoding tables (including ASCII and Unicode)</p>	<p><b>Fundamentals Of Data Representation 2</b></p> <p>During this unit pupils will investigate what data compression is and why and how data may be compressed.</p> <p>Pupils will be able to explain how data can be compressed using Huffman coding and will be able to interpret Huffman trees.</p> <p>Pupils will investigate the how data can be compressed using RLE and represent data in RLE frequency.</p>