

	<u>Topic</u>	<u>Key concept – what do I want the students to learn from this unit?</u>	<u>What knowledge will they acquire? (taken from Nat Curr)</u>
Half-term 1	<u>Search & Sort Algorithms</u>	<p>How do computers search and sort data?</p> <p>Be able to explain the methods of searching and sorting algorithms used by computers</p> <p>Be able to perform bubble, merge and insertion sorts.</p>	<p>understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem</p>
Half-term 2	<u>Python 3</u>	<p>How do we build programs in Python?</p> <p>Be able to use lists and string manipulation to create programs</p> <p>Be able to develop 1D and 2D arrays</p> <p>Be able to explain the difference between a function and procedure</p> <p>Be able to develop basic programs in Python for a specific function</p>	<p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or function</p>
Half-term 3+4	<u>Business Literacy</u>	<p>How do businesses use computers to help them make decisions?</p> <p>Be able to create spreadsheets using formulas to calculate profit/loss and cashflow</p> <p>Be able to create and search a database</p>	<p>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</p> <ul style="list-style-type: none"> • An understanding of how excel and databases are used within a business’s everyday operations. • Developing the skills of what excel and access can do to help a business make decisions.
Half-term 5	<u>Logic Gates</u>	<p>What are logic gates?</p> <p>Be able to explain the use of AND, OR and NOT gates</p> <p>Be able to predict the outcome for AND, OR and NOT gates for given inputs</p>	<p>understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming;</p>

<p>Half-term 6</p>	<p><u>Data Representation</u></p>	<p>How are letters and sound represented by computers?</p> <p>Be able to explain how ASCII and Unicode represents letters</p> <p>Be able to explain how sound is stored digitally using sampling</p>	<p>understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</p>
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