

TOPIC	GCSE 1-3	GCSE 4-6	GCSE 7-9
<p>7.0 E-safety & File Management</p>	<ul style="list-style-type: none"> ❑ Can organise work effectively on a computer e.g. sensible file names and directory locations/structure. ❑ Understands what a virus is and how it affects the data on a computer. ❑ Demonstrate that you are a responsible digital citizen. 	<ul style="list-style-type: none"> ❑ Understands what different file extensions are used for and how to search for and organise files effectively. ❑ Understands why it is important to use patches and how anti-virus software works. ❑ Can differentiate between low and high level threats and advise others on how to stay safe online. 	<ul style="list-style-type: none"> ❑ Can save documents as an appropriate file type ❑ Understand how a firewall works and suggest other preventative security measures.
<p>7.1 Under the Hood</p>	<ul style="list-style-type: none"> ❑ Know that computers use binary to represent text, images & sound. ❑ Can describe how computational devices have evolved over time 	<ul style="list-style-type: none"> ❑ Understand basic computer architecture and how memory, the CPU and input and output devices all work together. ❑ Understand the difference between RAM and ROM 	<ul style="list-style-type: none"> ❑ Understand what a quad core processor is ❑ Understands how the CPU speed and memory affect performance. ❑ Understand the important role of the operating system.
<p>7.2 Think Like a Computer Scientist</p>	<ul style="list-style-type: none"> ❑ Can convert binary to denary and denary to binary. ❑ Understand that computers are not intelligent and have to be programmed. 	<ul style="list-style-type: none"> ❑ Can work with different file sizes ❑ Can do binary addition 	<ul style="list-style-type: none"> ❑ Understand how negative numbers are represented in binary ❑ Be able to apply logical and arithmetic shifts ❑ Understand why overflow errors happen & give an example.
<p>7.3 Algorithms</p>	<ul style="list-style-type: none"> ❑ Understand what an algorithm is and be able to give examples ❑ Can create a basic algorithm ❑ Create a simple flowchart, using the correct shapes 	<ul style="list-style-type: none"> ❑ Can independently create a flowchart for a given scenario. ❑ Include inputs, outputs & loops ❑ Identify errors in algorithms and find more efficient solutions 	<ul style="list-style-type: none"> ❑ Test and debug algorithms independently ❑ Use sub-routines ❑ Understand the difference between a flowchart, pseudo-code and programming code.

<p>7.4 Programming</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Understand what an algorithm is and use one to plan a program <input type="checkbox"/> Can independently create a functioning calculator program in Scratch <input type="checkbox"/> Can test and debug a program <input type="checkbox"/> Can create a simple Python program 	<ul style="list-style-type: none"> <input type="checkbox"/> Use arithmetic operators to perform calculations both in Python & Scratch <input type="checkbox"/> Use if, elif, else and while loops <input type="checkbox"/> Understand different error messages in Python and be able to correct syntax errors independently. <input type="checkbox"/> Use coding conventions such as; meaningful variable names, comments & white space. <input type="checkbox"/> Understand the difference between a compiler and interpreter 	<ul style="list-style-type: none"> <input type="checkbox"/> Use sequence, selection & iteration and be able to explain what they are. <input type="checkbox"/> Understand what a logic & runtime error are and be able to give examples <input type="checkbox"/> Be able to initialise a score and use a scoring system <input type="checkbox"/> Use Python libraries e.g. sleep & random <input type="checkbox"/> Explain the advantages and disadvantages of compiled/interpreted programs.
<p>7.5 How the Web Works</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Can effectively use a web browser <input type="checkbox"/> Can use basic search criteria & keywords <input type="checkbox"/> Understands what the parts of a URL represent <input type="checkbox"/> Understands what phishing, cat-fishing & plagiarism are and how to report online threats 	<ul style="list-style-type: none"> <input type="checkbox"/> Understands the difference between the internet and the www <input type="checkbox"/> Can use advanced search criteria, trace web content <input type="checkbox"/> Can compare and comment on the reliability of sources <input type="checkbox"/> Can interrogate digital content and comment on the authenticity of a source 	<ul style="list-style-type: none"> <input type="checkbox"/> Knows a range of ways to report online concerns <input type="checkbox"/> Has an awareness of digital content and references appropriately sources used. <input type="checkbox"/> Understands how search engines rank results. <input type="checkbox"/> Understands internet hardware <input type="checkbox"/> Understands what different internet protocols are used for