

# Year 8 ICT Curriculum Overview

Year 8		HT1 Sept – Oct (8 weeks)	HT2 Nov – Dec (7 weeks)	HT3 (Jan – Feb (6 weeks)	HT4 Mar – Apr (6 weeks)	HT5 Apr – May (6 weeks)	HT6 Jun – Jul (6 weeks)
	Topic	Computer hardware – Systems architecture	Developing the Web	Introduction to Python	Vector Graphics	Mobile App Development	Binary
	<b>Why this and why now?</b>	To build on knowledge from yr7. Focused on internal hardware, their properties, and functions. Content: - Computer Systems (Von Neumann) Architecture) - CPU Instruction Cycle - Clock speed, Cores, Cache - Logic Gates - Logic Circuits	Learners will continue with knowledge gained from Year 7 SOW (Unit 1). An understanding of safety issues, searching for accurate information & the impact of networking technologies. This Understanding the World Wide Web is essential if students are to successfully produce project work at KS4.	Text based programming moving learners to a more advanced programming language that is used in the GCSE computing courses. Learners will continue with knowledge gained in Year 7 (Unit 6).	Creating vector graphics links to computational thinking. Creating a complex design is a multi-step process that starts with elementary shapes and involves combining them into more intricate ones using operations such as union, difference, and intersection. There are usually multiple paths to achieving the goal and the process involves decomposition and evaluation.	In a world where there's an app for every possible need, this unit aims to take the learners from designer to project manager to developer to create their own mobile app. This unit progresses students' knowledge and understanding of programming constructs in a block-based programming environment. Learners will also develop their computational thinking and project planning, by going from decomposing a larger project into smaller parts and creating success criteria for the project to getting user feedback and evaluating their projects.	Understanding binary is an essential aspect to understanding how computers work. It follows on from the computational work done in Year 7 – Units 4 and 5 (Scratch) and all Year 8 units of work.  This unit also demonstrates a clear link between Computing and mathematical principles.
	<b>What is the essential knowledge that needs to be remembered?</b>	Learners need to know how common characteristics of the CPU affect the performance of the CPU and the computer system. They should also understand what a computer is, and how its constituent parts function together as a whole.	Learners will gain an understanding of the following: HTML, CSS, Search engines & hyperlinks.  Learners will be able to identify the structure of a HTML document, describe CSS, search for accurate information & identify security issues related to technology.	Learners need to understand the importance of de-bugging their programs. They need to be aware of the most common problems that cause a program to fail and be able to solve the problem. Learners need to understand the three main programming concepts – Iteration, Selection and Sequence	Through this unit, learners will be able to better understand the processes involved in creating graphics and will be provided with the knowledge and tools to create their own vector graphics. Learners will be able to draw, manipulate basic shapes and convert shapes. Through this unit, learners will be able to better understand the processes involved in creating graphics and will be provided with the knowledge and tools to create their own.	Learners will be reminded of the uses of apps in their everyday lives and the importance of ensuring that there is an app for virtually any scenario they can think about. Learners may be able to identify a niche in which they can fill a void if no such app exists. Learners will be able to customise a GUI, identify and fix coding issues, input block-based programming and use variables to modify the app.	Learners will gain an understanding of how binary works. Students will be able to Add and Subtract binary digits.  Learners will also be able to identify the different methods of quantifying number such as a bit, byte, megabyte, gigabyte etc. They will also be able to measure the size and length of binary data.  Learners will be able to convert binary number to decimal and decimal to binary.

# Year 8 ICT Curriculum Overview



<b>What is the assessment intent and how will you assess?</b>	<p>Assessment will be a summative assessment based on what the students have learned.</p> <p>There will also be an ongoing formative assessment based on student work. This will be both Peer and Teacher led.</p>	<p>Assessment will be a summative assessment based on what the students have learned.</p> <p>There will also be an ongoing formative assessment based on student work. This will be both Peer and Teacher led.</p>	<p>End of topic assessment is by an independent completion of set programming tasks using functions and techniques learnt.</p> <p>Assessment will also be by summative assessment.</p> <p>There will also be an ongoing formative assessment based on student work. This will be both Peer and Teacher led.</p>	<p>There will also be an ongoing formative assessment based on student work. This will be both Peer and Teacher led.</p> <p>Assessment will also be a summative assessment</p>	<p>Using App Lab from code.org, learners will familiarise themselves with the coding environment and have an opportunity to build on the programming concepts they used in previous units before undertaking their project. Learners will work in pairs to consider the needs of the user; decompose the project into smaller, more manageable parts; use the pair programming approach to develop their app together; and finish off by evaluating the success of the project again. <b>This will be judged using a Rubric.</b></p> <p>Summative Assessment</p>	<p>Assessment will be a summative assessment based on what the students have learned.</p> <p>There will also be an ongoing formative assessment based on student work. This will be both Peer and Teacher led.</p>
<b>What should the end point look like?</b>	<p>Learners will successfully complete a test paper based on past exam questions by achieving their expected performance grades.</p> <p>Learners will be able to identify internal hardware components and explain their functions.</p>	<p>Learners will successfully complete a test paper based on past exam questions by achieving their expected performance grades.</p> <p>Learners will be able to identify the key aspects of the WWW and explain the programming behind it. Learners will also identify security issues.</p>	<p>Learners will apply their knowledge and understand to solve several programming tasks.</p> <p>Learners will be able to write code. They will also be able to spot errors in the programming. They will then be able to modify the code so it works correctly.</p>	<p>Learners will complete a summative assessment task at the end of the unit.</p> <p>Learners will be able to draw, manipulate and convert basic shapes.</p> <p>Learners will be able to identify where vector graphics are used in both industry and society</p>	<p>Learners will have a better understanding about how apps are created and have access to the tools to be able to create apps of their own for recreational purposes or to further develop skills to create apps in which they can seek to publish professionally.</p>	<p>Learners will have knowledge of how binary works and they will be able to identify the link between binary and decimal. Learners will be able to add and subtract binary data and understand the link to how this identifies with decimal (Denary). Learners will be able to identify how the ASCII codes can represent text in computers.</p>
<b>Wider Curriculum Links</b>	<p>The learning will link to current affairs – GREAT Lives and the world outside of school. Numeracy and Literacy skills will be used as well as references to technological developments, historical events, and geographical areas.</p> <p><b>Curriculum links to:</b> Maths; English; Science</p>	<p>The learning will link to current affairs – GREAT Lives, and the world outside of school. Numeracy and Literacy skills will be used as well as references to technological developments, historical events, and geographical areas.</p> <p><b>Curriculum links to:</b> Maths; English; Science; Art &amp; Graphics</p>	<p>The learning will link directly to and enhance their numeracy and literacy skills as well as the use of ICT throughout. Understanding of the world of work and GREAT Lives will also link throughout.</p> <p><b>Curriculum links to:</b> Maths; English; Science</p>	<p>The learning will link to current affairs – GREAT Lives, and the world outside of school. Numeracy and Literacy skills will be used as well as references to technological developments, historical events, and geographical areas.</p> <p><b>Curriculum links to:</b> Maths; English; Science</p>	<p>The learning will link to current affairs – GREAT Lives, and the world outside of school. Numeracy and Literacy skills will be used as well as references to technological developments, historical events, and geographical areas.</p> <p><b>Curriculum links to:</b> Maths; English; Science; Art &amp; Graphics</p>	<p>The learning will link to current affairs – GREAT Lives, and the world outside of school. Numeracy and Literacy skills will be used as well as references to technological developments, historical events, and geographical areas.</p> <p><b>Curriculum links to:</b> Maths; English; Science</p>
<b>How does the topic relate to the National Curriculum?</b>	<p>The topic meets the NC statement requirements for strands 3.4/3.5/3.6</p>	<p>The topic meets the NC statement requirements for strands 3.8</p>	<p>The topic meets the NC statement requirements for strands 3.1/3.2/3.3/3.6</p>	<p>The topic meets the NC statement requirements for strands 3.7/3.8</p>	<p>The topic meets the NC statement requirements for strands 3.1/3.2/3.3/3.8</p>	<p>The topic meets the NC statement requirements for strands 3.6</p>

## Year 8 ICT Curriculum Overview

