

## Computing (Year 8)

	<b>Initial</b> – a student who is still initial will be able to partially meet some of the following with support:	<b>Emerging</b> – a student whose understanding is still emerging will be able to:	<b>Developing</b> – a student whose understanding is developing will also be able to:	<b>Secure</b> – a student whose understanding is secure will also be able to:	<b>Advanced</b> – a student whose understanding is advanced will be able to do some of the following:	<b>Mastered</b> – a student who has mastered their understanding will be able to do all of the following consistently:
<b>Programming and Development</b>	<p>Is able to use text based and graphical based programming methods.</p> <p>Can use if, then and else statements to create programs.</p> <p>Appreciates the need to debug programmes in order to create a working programme.</p>	<p>Is able to use text based and graphical based programming methods.</p> <p>Understands the difference between, and appropriately uses if, then and else statements.</p> <p>Designs, writes and with support debugs their own programmes.</p>	<p>Is able to use text based and graphical based programming methods.</p> <p>Is able to use predefined functions by parsing parameters to them in order to achieve a specific outcome. Is able to use if, then and else structures confidently to create programmes with multiple outcomes.</p> <p>Is as able to detect and correct syntactical errors in their code.</p>	<p>Is able to use text based and graphical programming methods.</p> <p>Can use sequence, selection, and iterative structures to write efficient code.</p> <p>Is confident in the process of detecting and correcting errors in their code.</p>		

<p><b>Data and Data Representation</b></p>	<p>Understands the difference between data and information.</p>	<p>Knows that digital computers use binary to represent all data. Understands how bit patterns represent numbers and images. Knows that computers transfer data in binary.</p>	<p>Understands how numbers, images, sounds and character sets use the same bit patterns. Performs simple operations using bit patterns e.g. binary addition. Understands the relationship between binary and file size (uncompressed).</p>	<p>Knows the relationship between data representation and data quality. Understands the relationship between binary and electrical circuits, including Boolean logic. Understands how and why values are data typed in many different languages when manipulated within programmes.</p>
<p><b>Hardware and Processing</b></p>	<p>Understands why and when computers are used. Understands the main functions of the operating system. Knows the difference between physical, wireless and mobile networks.</p>	<p>Recognises and understands the function of the main internal parts of basic computer architecture. Knows that there is a range of operating systems and application software for the same hardware.</p>	<p>Be aware of the von Neumann architecture in relation to the fetch- execute cycle, including how data is stored in memory. Uses technologies and online services securely, and knows how to identify and report inappropriate conduct.</p>	<p>Knows that processors have instruction sets and that these relate to low-level instructions carried out by a computer.</p>
<p><b>Communications and Networks</b></p>	<p>Understands how to effectively use search engines, and knows how search results are selected, including that search engines use 'web crawler programs'. Selects, combines and uses internet services. Demonstrates responsible use of technologies and online services, and knows a range of ways to report concerns.</p>	<p>Understands how search engines rank search results. Understands how to construct static web pages using HTML and CSS. Understands data transmission between digital computers over networks, including the internet ie IP addresses and packet switching.</p>	<p>Knows the names of hardware e.g. hubs, routers, switches, and the names of protocols associated with networking computer systems.</p>	<p>Knows the purpose of the hardware and protocols associated with networking computer systems. Understands the client-server model including how dynamic web pages use server-side scripting and that web servers process and store data entered by users. Recognises that persistence of data on the internet requires careful protection of online identity and privacy.</p>

<p><b>IT</b></p>	<p>Makes judgements about digital content when evaluating and repurposing it for a given audience.</p> <p>Recognises the audience when designing and creating digital content.</p> <p>Understands the potential of information technology for collaboration when computers are networked.</p> <p>Uses criteria to evaluate the quality of solutions, can identify improvements making some refinements to the solution, and future solutions.</p>	<p>Evaluates the appropriateness of digital devices, internet services and application software to achieve given goals.</p> <p>Recognises ethical issues surrounding the application of information technology beyond school.</p> <p>Designs criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution.</p>	<p>Justifies the choice of and independently combines and uses multiple digital devices, internet services and application software to achieve given goals.</p> <p>Evaluates the trustworthiness of digital content and considers the usability of visual design features when designing and creating digital artefacts for a known audience.</p> <p>Identifies and explains how the use of technology can impact on society.</p> <p>Designs criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution.</p>	<p>Undertakes creative projects that collect, analyse, and evaluate data to meet the needs of a known user group. Effectively designs and creates digital artefacts for a wider or remote audience.</p> <p>Considers the properties of media when importing them into digital artefacts.</p> <p>Documents user feedback, the improvements identified and the refinements made to the solution.</p> <p>Explains and justifies how the use of technology impacts on society, from the perspective of social, economic, political, legal, ethical and moral issues.</p>
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