



Year 7	Computer Science			Digital Literacy		IT	Computational Thinking
	Algorithms	Programming and Development	Data and data representation	Hardware and Processing	Communication and Networks	IT	Computational Thinking
Developing	<p>Understand what an algorithm is and how it can express simple linear algorithms symbolically.</p> <p>Understand that computers need precise instructions</p> <p>Pay attention to detail to avoid making mistakes.</p> <p>Design simple algorithms</p>	<p>Use graphical based programming and robots to demonstrate a simple program</p> <p>Understand that programs execute by following precise instructions</p> <p>Detect and correct simple errors - debug</p>	<p>Understands the difference between data and information.</p> <p>Recognises different types of data including text and number</p> <p>Identifying that programs can use different types of data</p> <p>Understand how to use tables in programs</p>	<p>Range of digital devices can be considered a computer</p> <p>Identify different input and output devices</p> <p>Understand how programs provide instructions for a computer</p> <p>Understand that computers are only as good as the program</p>	<p>Navigating the network and simple searches</p> <p>Use a web browser to collect information as well as more complex searches</p> <p>Understand how search engines work including the use of 'web crawler programs'</p> <p>Safe use of computers including reporting unacceptable content and unwanted</p>	<p>Independently organise digital content</p> <p>Understand the importance of the quality of digital content</p> <p>Use a variety of software to manipulate and present digital content</p> <p>Understand the impact of technology outside the home</p> <p>Talk about, annotate and make improvements to solutions based on</p>	<p><i>Algorithmic thinking</i></p> <p>Use instructions for specific outcomes</p> <p>Use instructions in a given order</p>



				Recognise that all software executed on digital devices is programmed	contact Understand the importance of safe and respectful communication online Understand reporting procedures in online applications	feedback Collect, organise and present data and information in digital content	
Emerging	Understand that algorithms can be implemented as programs Predict outcomes Use loops and selection Debug	Use logical reasoning to predict the behaviour of programs Using execute, check and changes in a program Understand the difference	Recognise that digital content can be represented in many forms Distinguish between these forms and ways in which they can communicate information	Know that computers collect data from various input devices, including sensors and application software. Understand the difference between	Understand the difference between the internet and internet services e.g WWW Show an awareness and range of internet services including VOIP.	Create digital content to achieve a given goal through combining software packages and internet service to communicate with a wider audience Making	Using arithmetic and logical operations Using loops and iteration <i>Generalisation</i> Identify patterns and commonalities



	Identifying what tasks can best be completed by humans or computers	between different statements like if and if, then and else statements. Use variable and relational operators within a loop	Knowing why sorting data in a flat file can improve searching information Uses filters or can perform single criteria searches for information	hardware and application software and their roles within the computer system		appropriate improvements to solutions based on feedback and can comment on the success of the solution.	
Secure	Designing solutions by decomposing a problem and creating a sub-solutions Recognising that there are different solutions to the same problem	Understand that programming bridges the gap between algorithms and computers. Design, write and debug modular programs and procedures Understand	Perform more complex searches for information using Boolean and relational operators Analyse and evaluate data and information and recognise that poor data leads to unreliable results	Understand why and when computers are used Understand the main functions of an operating system Understand the difference between physical wifi	Understand how search engines rank search results Understand how to construct static web pages using HTML and CSS Understand data transmission between computers over	Make judgements about digital content when evaluating and repurposing it for a given audience Understand collaboration when computers are networked Use criteria to evaluate the	Sequence instructions that store, move and manipulate data Write instructions that allow selection Decomposition Break down the problem into different parts to make



		<p>how a procedure can hide detail and provide efficiency</p> <p>Select appropriate data types</p>	<p>Define data types, real numbers, Boolean algebra and queries on one table using a typical query language</p> <p>Know that digital computers use binary to represent and transfer data</p> <p>Know that computers transfer data in binary</p>	<p>and mobile networks</p>	<p>networks including IP addresses and packet switching</p> <p>material</p>	<p>quality of solutions and identify improvements.</p> <p>Recognise ethical issues surrounding the application of IT beyond school</p>	<p>them easier to work with</p> <p><i>Adapt solutions or parts of solutions so that they apply wo a whole class of similar problems.</i></p> <p><i>Abstraction</i> Make a problem more understandable by hiding unwanted detail.</p>
Mastered	<p>Understanding that different algorithms exist for the same problem</p> <p>Using notation</p>	<p>Use a range of operators and expressions including Boolean and apply them in</p>	<p>Understand how bit patterns represent numbers and images</p>	<p>Recognise and understand the function of basic computer architecture</p>	<p>Using technologies and online services securely and know how to identify and</p>	<p>Design criteria to critically evaluate the quality of solutions and use the criteria to</p>	<p>Group and name instructions to improve efficiency</p> <p>Breaking down</p>



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	<p>to represent solutions Understanding iteration and repetition in as process in a loop</p> <p>Recognising that some problems share the same characteristics and can use the same algorithm to solve both</p>	<p>the context of a program</p> <p>Has practical experience of a high-level textual language.</p> <p>Uses nested functions Understands the need for, and writes custom functions including using parameters.</p>	<p>Understand the relationship between file size and binary.</p>	<p>Understand the concepts behind the fetch-execute cycle</p> <p>Know that there is a range of operating systems and application software for the same hardware.</p>	<p>report inappropriate material</p>	<p>identify improvements and make appropriate refinements</p> <p>Justify the choice of and independently combine and use multiple digital devices, internet services and application software to achieve given goals.</p>	<p>a problem into simpler versions of the same problem that can be solved in the same way</p> <p>Transfer ideas and solutions from one problem area into another</p>
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