

	Algorithms	Program Development	Data & Data Representation	Hardware & Processing	Communication & Networks	Information Technology
7-9	<ul style="list-style-type: none"> <li>Shows an awareness of tasks best completed by humans or computers. (EV)</li> <li>Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB)</li> <li>Recognises that different solutions exist for the same problem. (AL) (AB)</li> <li>Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Understands the difference between, and appropriately uses if and if, then and else statements. (AL)</li> <li>Uses a variable and relational operators within a loop to govern termination. (AL) (GE)</li> <li>Creates programs that implement algorithms to achieve given goals. (AL)</li> <li>Declares and assigns variables. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Understands how bit patterns represent numbers and images. (AB)</li> <li>Knows that computers transfer data in binary. (AB)</li> <li>Understands the difference between data and information. (AB)</li> <li>Knows why sorting data in a flat file can improve searching for information. (EV)</li> <li>Performs more complex searches for information e.g. Using Boolean and relational operators, pattern matching, uniqueness, limits. (AL) (GE) (EV)</li> </ul>	<ul style="list-style-type: none"> <li>Understands why and when computers are used. (EV)</li> <li>Understands the main functions of the operating system. (DE) (AB)</li> <li>Recognises and understands the function of the main internal parts of basic computer architecture. (AB)</li> <li>Knows that there is a range of operating systems and application software for the same hardware. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Selects, combines and uses internet services. (EV)</li> <li>Demonstrates responsible use of technologies and online services, and knows a range of ways to report concerns.</li> <li>Uses technologies and online services securely, and knows how to identify and report inappropriate conduct. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Makes judgements about digital content when evaluating and repurposing it for a given audience. (EV) (GE)</li> <li>Understands the potential of information technology for collaboration when computers are networked. (GE)</li> <li>Designs criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution. (EV)</li> </ul>
6-8	<ul style="list-style-type: none"> <li>Understands that algorithms are implemented on digital devices as programs. (AL)</li> <li>Designs simple algorithms using loops, and selection i.e. if statements. (AL)</li> <li>Uses logical reasoning to predict outcomes. (AL)</li> <li>Detects and corrects errors i.e. debugging, in algorithms. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Creates programs that implement algorithms to achieve given goals. (AL)</li> <li>Declares and assigns variables. (AB)</li> <li>Uses post-tested loop e.g. 'Until', and a sequence of selection statements in programs, including an if, then and else statement. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Performs more complex searches for information e.g. Using Boolean and relational operators and pattern matching (LIKE). (AL) (GE) (EV)</li> <li>Analyses and evaluates data and information, and recognises that poor quality data leads to unreliable results, and inaccurate conclusions. (AL) (EV)</li> <li>Knows that digital computers use binary to represent all data. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Knows that computers collect data from various input devices, including sensors and application software. (AB)</li> <li>Understands the difference between hardware and application software, and their roles within a computer system. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Understands the difference between the internet and internet service e.g. World Wide Web. (AB)</li> <li>Recognises what is acceptable and unacceptable behaviour when using technologies and online services</li> <li>Understands how to effectively use search engines, and knows how search results are selected, including that search engines use 'web crawler programs'. (AB) (GE) (EV).</li> </ul>	<ul style="list-style-type: none"> <li>Collects, organises and presents data and information in digital content. (AB)</li> <li>Creates digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. Blogging. (AL)</li> <li>Recognises the audience when designing and creating digital content. (EV)</li> <li>Makes appropriate improvements to solutions based on</li> </ul>

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						feedback received, and can comment on the success of the solution. (EV)
5-7	<ul style="list-style-type: none"> <li>Understands that algorithms are implemented on digital devices as programs.(AL)</li> <li>Designs simple algorithms using loops, and selection i.e. if statements. (AL)</li> <li>Uses logical reasoning to predict outcomes. (AL)</li> <li>Detects and corrects errors i.e. debugging, in algorithms. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Uses arithmetic operators, if statements, and loops, within programs. (AL)</li> <li>Uses logical reasoning to predict the behaviour of programs. (AL)</li> <li>Detects and corrects simple semantic errors (debugging) in programs. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Recognises different types of data: text, number. (AB) (GE)</li> <li>Appreciates that programs can work with different types of data. (GE)</li> <li>Recognises that data can be structured in tables to make it useful. (AB) (DE)</li> <li>Performs more complex searches for information e.g. Using Boolean and relational operators. (AL) (GE) (EV)</li> </ul>	<ul style="list-style-type: none"> <li>Recognises that a range of digital devices can be considered a computer. (AB) (GE)</li> <li>Recognises and can use a range of input and output devices.</li> <li>Understands how programs specify the function of a general purpose computer. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Navigates the web and can carry out simple web searches to collect digital content. (AL) (EV)</li> <li>Demonstrates use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online.</li> </ul>	<ul style="list-style-type: none"> <li>Uses technology with increasing independence to purposefully organise digital content. (AB)</li> <li>Shows an awareness for the quality of digital content collected. (EV)</li> <li>Uses a variety of software to manipulate and present digital content: data and information. (AL)</li> <li>Talks about their work and makes improvements to solutions based on feedback received.(EV)</li> </ul>
4-6	<ul style="list-style-type: none"> <li>Understands that algorithms are implemented on digital devices as programs.(AL)</li> <li>Designs simple algorithms using loops, and/or selection i.e. if statements. (AL)</li> <li>Uses logical reasoning to predict outcomes. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Uses arithmetic operators, if statements, and loops, within programs. (AL)</li> <li>Uses logical reasoning to predict the behaviour of programs. (AL)</li> <li>Detects and corrects simple semantic errors (debugging) in programs. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Recognises different types of data: text, number. (AB) (GE)</li> <li>Appreciates that programs can work with different types of data. (GE)</li> <li>Recognises that data can be structured in tables to make it useful. (AB) (DE)</li> <li>Uses filters or can perform single criteria searches for information.(AL)</li> </ul>	<ul style="list-style-type: none"> <li>Recognises that a range of digital devices can be considered a computer. (AB) (GE)</li> <li>Recognises and can use a range of input and output devices.</li> <li>Understands how programs specify the function of a general purpose computer. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Navigates the web and can carry out simple web searches to collect digital content. (AL) (EV)</li> <li>Demonstrates use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online.</li> </ul>	<ul style="list-style-type: none"> <li>Uses technology with increasing independence to purposefully organise digital content. (AB)</li> <li>Shows an awareness for the quality of digital content collected. (EV)</li> <li>Uses a variety of software to manipulate and present digital content: data and information. (AL)</li> <li>Talks about their work and makes improvements to solutions based on</li> </ul>

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3-5	<ul style="list-style-type: none"> <li>Understands what an algorithm is and is able to express simple linear (non-branching) algorithms symbolically. (AL)</li> <li>Understands that computers need precise instructions. (AL)</li> <li>Demonstrates care and precision to avoid errors. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Knows that users can develop their own programs, and can demonstrate this by creating a simple program in an environment that does not rely on text e.g. programmable robots etc. (AL)</li> <li>Executes, checks and changes programs. (AL)</li> <li>Understands that programs execute by following precise instructions. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Recognises that digital content can be represented in many forms. (AB) (GE)</li> <li>Distinguishes between some of these forms and can explain the different ways that they communicate information. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Understands that computers have no intelligence and that computers can do nothing unless a program is executed. (AL)</li> <li>Recognises that all software executed on digital devices is programmed. (AL) (AB) (GE)</li> </ul>	<ul style="list-style-type: none"> <li>Obtains content from the World Wide Web using a web browser. (AL)</li> <li>Understands the importance of communicating safely and respectfully online, and the need for keeping personal information private. (EV)</li> <li>Knows what to do when concerned about content or being contacted. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Uses software under the control of the teacher to create, store and edit digital content using appropriate file and folder names. (AB) (GE) (DE)</li> <li>Understands that people interact with computers.</li> <li>Shares their use of technology in school.</li> <li>Knows common uses of information technology beyond the classroom. (GE)</li> <li></li> </ul>
2-4	<ul style="list-style-type: none"> <li>Uses input, output and variables in programs.</li> <li>Appreciates the need to sequence instructions correctly to achieve the desired effect.</li> </ul>	<ul style="list-style-type: none"> <li>Makes uses of input, output statements, writing them in the correct sequence.</li> <li>Can make simple changes to correct bugs in programs.</li> </ul>	<ul style="list-style-type: none"> <li>Recognises that digital content can be represented in many forms. (AB) (GE)</li> <li>Distinguishes between some of these forms and can explain the different ways that they communicate information. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Knows that a computer needs clear instructions from a user or programmer in order to operate as expected.</li> </ul>	<ul style="list-style-type: none"> <li>Knows what to do when concerned about content or being contacted. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Talks about their work and makes changes to improve it. (EV)</li> <li>Shares their experiences of technology in school and beyond the classroom. (GE) (EV)</li> </ul>
1-3	<ul style="list-style-type: none"> <li>Can apply instructions in the correct sequence to achieve a goal.</li> <li>Uses input and output statements.</li> </ul>	<ul style="list-style-type: none"> <li>Can use inputs and outputs in a program.</li> </ul>	<ul style="list-style-type: none"> <li>Recognises that digital content can be represented in many forms. (AB) (GE)</li> <li>Distinguishes between some of these forms and can explain the different ways that they communicate information. (AB)</li> </ul>	<ul style="list-style-type: none"> <li>Knows that a computer needs clear instructions from a user or programmer in order to operate as expected.</li> </ul>	<ul style="list-style-type: none"> <li>Knows what to do when concerned about content or being contacted. (AL)</li> </ul>	<ul style="list-style-type: none"> <li>Makes improvements to work based on feedback and advice.</li> </ul>