

Computing Knowledge Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Communication, Real World, Digital Citizenship & Staying Safe	All internet and device usage are to be monitored by a trusted adult. The internet must be used safely, this includes showing any changes on a device or game to trusted adult.	Data can be controlled manually or using digital technology, such as data loggers. It can be represented in different electronic forms, including charts and tables. Private information includes names, addresses, dates of birth or schools and this information should not be shared online. Any concerns/worries should be reported to a trusted adult.	Software is available that can be used to represent collected data digitally, such as in a pictogram or bar chart. Digital technology is used in everyday life and can be used to support learning and connect with others. Some websites are not age appropriate and so it is important to tell a trusted adult about any concerns/worries.	Advantages of communicating electronically are that it is available at any time, instant and global. Disadvantages include easier misunderstandings, people pretending to be someone they are not, lack of privacy and a threat to personal safety. Concerns should be reported to a trusted adult.	Appropriate behaviour when contributing to collaborative online projects includes consideration towards others, awareness of copyright and keeping personal data safe.	Working online requires a level of responsibility and strategies to stay safe, including protecting private information and accounts. This enables people to protect themselves and others from potential online dangers, inappropriate behaviour and bullying. Concerns should be reported to a trusted adult, the police or child protection organisations. The benefits of devices broadcasting the users location and passing on personal information include improved customer service, allowing organisations to analyse data and improve the quality of applications. Risks include identity theft, cyberstalking, victimisation and threat to privacy.	
Data & Thinking	Steps, instructions or rules can be sequenced to perform a specific task.	An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially.	Computers' behaviours can be predicted and the outcome tested by following the steps of an algorithm and recognising that the computer will follow instructions precisely.	Repetitions or loops can be used in programming where a computer will continue to run part of a program a number of times or until a condition is met, using the term 'repeat...until'. The given feedback can be used to identify and correct any mistakes in the program.	A loop is a sequence of instructions that repeats continually until a certain condition is met. A program that contains a looping element is useful for a wide range of scenarios, such as controlling traffic lights.	Sequences of instructions (algorithms) that contain IF, THEN, and OTHERWISE statements are called selections. The computer will complete operations based on whether the conditions of these selections are met or not.	Decomposition is breaking down a problem into smaller parts to make it easier to process and following a sequence of instructions. Decomposition is useful for checking programs and debugging because it saves time.

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Digital searching	The internet can be used to find out new information.	To search for digital content, the user needs to know the file name, file type and folder name or keywords and search terms to find the correct information.		The World Wide Web is a collection of web pages that are run via the internet. The information requested can be displayed as text, images or videos.	Search engines take many factors into consideration, such as the quality of the site, number of updates or number of matches to keywords. However, search engines do not consider whether the content is true, age-appropriate or relevant, and so users need to be aware of these things when searching.
Software & Hardware	N/A	N/A		New computing software commonly has features that should be familiar to users, such as icons and terminology.	Using prior knowledge and experience of computing skills can be applied to unfamiliar hardware to solve a problem successfully. Some hardware is more effective than others in particular contexts, such as using virtual reality or a touch screen rather than a mouse to meet a specific need. Choosing the right hardware can increase creativity and productivity.
Networks	N/A	N/A		A school network has computers that are connected together so they can share hardware, software and data.	Computer networks are made up of computers that are connected by cables, fibres or wireless links. Each network can only be accessed by computers within their networks, such as in school or at home. The internet can be accessed by anyone.
Physical Interactions	An action or instruction can cause an effect. Multiple actions or instructions and cause a sequence of effects.	For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Mistakes are called bugs and finding and fixing them is called debugging.	Robots can be programmed to follow a series of instructions using algorithms.	Sequencing instructions is the step-by-step process that robots or other devices follow to achieve specific outcomes. This can be a single algorithm or a series of algorithms called a program.	Input and output devices can be combined with programming software to control a physical system, such as using sensors to create a sensory station that incorporates motors, lights and buzzers.