Curriculum Skills Overview
Computing

EYFS	Information Technology	ELG Technology: children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.
	Communication and Networks	ELG Managing feelings and behaviour: children talk about how they and others show feelings, talk about their own and others' behaviour, and its consequences, and know that some behaviour is unacceptable. They work as part of a group or class and understand and follow the rules. They adjust their behaviour to different situations and take changes of routine in their stride.
	Algorithms	ELG Understanding: children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.
	Information Technology	ELG Being imaginative: children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role-play and stories.
Year 1	Algorithms	Understands what an algorithm is and is able to express simple linear algorithms symbolically
		Understands that computers need precise instructions
	Programming and Development	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
		Understands that programs execute by following precise instructions.
	Data and Data Representation	Recognises that digital content can be represented in many forms (pictures, videos, text, etc)
	Hardware and Processing	Understands that computers have no intelligence and that computers can do nothing unless a program is executed
	Communication and Networks	Obtains content from the world wide web using a web browser.
		Understands the importance of communicating safely and respectfully online and the need for keeping personal information private
		Knows what to do when concerned about content or being contacted
	Information Technology	Uses software under the control of the teacher to create, store and edit digital content using appropriate file and folder names
		Shares their use of technology in school
		Knows common uses of information technology beyond the classroom
Year 2	Algorithms	Demonstrates care and precision to avoid algorithm errors
		Understands that algorithms are implemented on digital devices as programs
		Uses logical reasoning to predict outcomes of simple algorithms
		Detects and corrects errors i.e. debugging, in simple algorithms
	Programming and Development	Executes, checks and changes programs
		Uses logical reasoning to predict the behaviour of simple programs
		Detects and corrects simple semantic errors, i.e. debugging in simple programs
	Data and Data Representation	Distinguishes between some of the forms in which digital content can be represented and can explain the different ways that they communicate information
		Recognises different types of data: text, number

		Recognises that data can be structured in tables to make it useful
	Hardware and Processing	Recognises that all software executed on digital devices is programmed
		Recognises that a range of digital devices can be considered a computer
	Communication and Networks	Understands the importance of communicating safely and respectfully online and the need for keeping personal information private
		Knows what to do when concerned about content or being contacted
		Navigates the web and can carry out simple web searches to collect digital content
	Information Technology	Uses software with more independence to create, store and edit digital content using appropriate file and folder names
		Understands that people interact with computers
		Talks about their work and makes changes to improve it
		Shares their experience of technology in school and beyond the classroom
Year 3	Algorithms	Designs simple algorithms using loops and selection (e.g. 'repeat' and 'if' statements)
		Uses logical reasoning to predict outcomes of algorithms using loops and selection
		Detects and corrects errors i.e. debugging, in algorithms using loops and selection
	Programming and Development	Uses arithmetic operators, 'if' statements and loops within programs
		Uses logical reasoning to predict the behaviour of programs
		Detects and corrects simple semantic errors, i.e. debugging in programs
	Data and Data Representation	Appreciates that programs can work with different types of data
		Recognises that data can be structured in tables to make it useful
	Hardware and Processing	Recognises and can use a range of input and output devices
		Understands how programs specify the function of a general purpose computer
	Communication and Networks	Navigates the web and can carry out simple web searches to collect digital content
		Demonstrates use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online
	Information Technology	Uses technology with increasing independence to purposefully organise digital content
		Shows an awareness for the quality of digital content collected
		Uses a variety of software to manipulate and present digital content, data and information
		Talks about their work and makes improvements to solutions based on feedback received
Year 4	Algorithms	Designs solutions (algorithms) that use repetition and two way selection ('if, then, else' statements)
		Uses diagrams to express solutions
	Programming and Development	Creates programs that implement algorithms to achieve given goals
		Declares and assigns variables

		Understands the difference between, and appropriately uses, 'if' and 'if, then, else' statements
	Data and Data Representation	Understands the difference between data and information (data = facts, information = facts which are recorded in some way)
	Hardware and Processing	Knows that computers collect data from various input devices, including sensors and application software
		Understands the difference between hardware and application software, and their roles within a computer system
	Communication and Networks	Understands the difference between the internet and internet services such as the world wide web (internet = series of connected computers that can transfer information, WWW = software used to access the information stored)
		Recognises what is acceptable and unacceptable behaviour when using technologies and online services
	Information Technology	Collects, organises and presents data and information in digital content
Year 5	Algorithms	Uses logical reasoning to predict outputs, showing an awareness of inputs
		Shows an awareness of tasks best competed by humans or computers
		Designs solutions by decomposing a problem into parts
	Programming and Development	Uses post-tested loops ('until' loops) and a sequence of selection statements in programs, including an 'if, then, else' statement
		Uses a variable and relational operators within a loop to govern termination
	Data and Data Representation	Knows why sorting data in a flat file (e.g. Excel) can improve searching for information
		Analyses and evaluates data and information, and recognises that poor quality data leads to unreliable results and inaccurate conclusions
	Hardware and Processing	Understands why and when computers are used
	Communication and Networks	Shows an awareness of, and can use, a range of internet services
		Recognises what is acceptable and unacceptable behaviour when using technologies and online services
		Understands how to effectively use search engines and knows how search results are selected, including that search engines use 'web crawler programs'
	Information Technology	Creates digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience, e.g. blogging
		Makes appropriate improvements to solutions based on feedback received, and can comment on the success of the solution
		Makes judgements about digital content when evaluating and repurposing it for a given audience
Year 6	Algorithms	Designs solutions by decomposing a problem and creates a sub-solution for each of these parts
		Recognises that different solutions exist for the same problem

	Programming and Development	Designs, writes and debugs modular programs using procedures
		Knows that a procedure can be used to hide the detail with sub-solution
	Data and Data Representation	Uses filters or can perform single criteria searches for information
		Performs more complex searches for information, e.g. using Boolean and relational operators
	Hardware and Processing	Understands the main functions of the operating system
		Knows the difference between physical, wireless and mobile networks
	Communication and Networks	Selects, combines and uses internet services
		Demonstrates responsible use of technologies and online services, and knows a range of ways to report concerns
	Information Technology	Recognises the audience when designing and creating digital content
		Understands the potential of information technology for collaboration when computers are networked
		Uses criteria to evaluate the quality of solutions, can identify improvements, making some refinement to the solution and future solutions