Progression through the three strands

Computing Strand	Year 1	Year 2	Expectation at the end of key stage
Computer Science	• Understand what an algorithm is and create simple linear algorithms. • Understand that computers need precise instructions. • Understand how to develop programs, avoid errors and make checks and changes. • Create a simple program using Blubots (an environment that does not rely on text). • Understand that computers have no intelligence and they can do nothing unless a program is executed. • Recognise that all software executed on digital devices is programmed.	• Understand that algorithms are implemented on digital devices as programs. • Design simple algorithms using loops, and selection i.e. if statements. • Uses logical reasoning to predict outcomes. • Detect and correct errors i.e. debugging, in algorithms. • Recognise that a range of digital devices can be considered a computer. • Understand how programs specify the function of a general purpose computer.	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • Create and debug simple programs. • Use logical reasoning to predict the behaviour of simple programs.

Information Technology	• Recognise that digital content can be represented in many forms. • Explain the different ways that digital content can communicate information. • Obtain content from the world wide web using a web browser. • Use software under the control of the teacher to create, store and edit digital content using appropriate file and folder names. • Talks about their work and makes changes to improve it.	• Recognise different types of data: text, number. • Appreciate that programs can work with different types of data. • Recognise that data can be structured in tables to make it useful. • Recognise that a range of digital devices can be considered a computer. • Recognise and use a range of input and output devices. • Navigate the web and carry out simple web searches to collect digital content. • Use technology with increasing independence to purposefully organise digital content. • Uses a variety of software to manipulate and present digital content: data and information. • Share experiences of technology in school and beyond the classroom. • Talk about their work and make improvements to	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school.

		solutions based on feedback received.	
Digital Literacy	• Understand the importance of communicating safely and respectfully online, and the need for keeping personal information private. • Know what to do when concerned about content or being contacted. • Know common uses of information technology beyond the classroom. • Share their use of technology in school.	• Demonstrate use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online. • Show an awareness for the quality of digital content collected.	• Use technology safely and respectfully, keeping personal information private. • Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Computing Strand	Year 3	Year 4	Year 5	Year 6	Expectation at the end of key stage
Computer Science	• Design algorithms that use repetition and two-way selection	• Show an awareness of tasks best completed by humans or computers.	• Understands that iteration is the repetition of a process	• Defines data types. • Knows that digital computers use binary to	• Design, write and debug programs that accomplish specific goals,

	i.e. if, then and else. • Use diagrams to show algorithms. • Use logical reasoning to predict outputs, showing an awareness of inputs. • Create programs that implement algorithms to achieve given goals. • Use variables.	• Design solutions by decomposing a problem and creating a sub-solution for each of the parts. • Recognise that different solutions exist for the same problem. • Understand the difference between, and appropriately use if and if, then and else statements. • Use variables within a loop.	such as a loop. • Recognises that different algorithms exist for the same problem. • Represents solutions using a structured notation. • Can identify similarities and differences in situations and can use these to solve problems (pattern recognition). • Understands that programming bridges the gap	represent all data. • Understands how bit patterns represent numbers and images. • Knows that computers transfer data in binary. • Understands the relationship between binary and file size (uncompressed). • Recognises and understands the function of the main internal parts of basic computer architecture. Understands the concepts behind the fetch-execute cycle.	including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

	• Use post-tested loop e.g. 'until', and a sequence of selection statements in programs, including an if, then and else statement. • Know that computers collect data from various input devices, including sensors and application software.	• Design, write and debug codes. • Know the different ways to create a code and how to make it the most efficient • Understands why and when computers are used. • Understands the main functions of the operating system. • Understands how to effectively use search engines, and knows how search	between algorithmic solutions and computers. • Has practical experience of a high-level textual language, including using standard libraries when programming. • Uses a range of operators and expressions and applies them in the context of program control.	• 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 i.e. IP addresses and packet switching..	

	• Understand the difference between hardware and application software, and their roles within a computer system. • Understand the difference between the internet and internet service e.g. world wide web.	results are selected, including that search engines use 'web crawler programs'.	• Selects the appropriate data types.		
Information Technology	• Understands the difference between	• Performs more complex searches for	• Queries data on one table using a	• Evaluates the appropriateness of digital devices,	• Understand computer networks including the

	data and information. • Knows why sorting data in a flat file can improve searching for information. • Uses filters or can perform single criteria searches for information. • Shows an awareness of, and can use a range of internet services	information e.g. using Boolean • and relational operators. • Analyses and evaluates data and information, and recognises that poor quality data leads to unreliable results, and inaccurate conclusions. • Knows the difference between physical, wireless and mobile networks. • Recognises the audience when designing	typical query language. • Knows that there is a range of operating systems and application software for the same hardware.	internet services and application software to achieve given goals. • Designs criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution.	internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration. • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

	e.g. VOIP. • Collects, organises and presents data and information in digital content. • Creates digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience	and creating digital content. • Uses criteria to evaluate the quality of solutions, can identify improvements making some refinements to the solution, and future solutions.			

	e.g. blogging. Makes appropriate improvements to solutions based on feedback received, and can comment on the success of the solution.				
Digital Literacy	• Recognises what is acceptable and • unacceptable behaviour when using • technologies and	• Makes judgements about digital content when evaluating and repurposing it for a given audience. • Demonstrates	• Recognises ethical issues surrounding the application of information technology beyond school.	• Uses technologies and online services securely, and knows how to identify and report inappropriate conduct. • Identifies and explains how the use of	• Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of

	online services.	responsible use of technologies and online services, and knows a range of ways to report concerns. • Selects, combines and uses internet services. • Understands the potential of information technology for collaboration when computers are networked.		technology can impact on society.	programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. • Use technology safely, respectfully and responsibly.