Computing Progression of Skills

DIGITAL LITERACY – Online Safety						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Know that it is important to be kind on the internet. Understand self-image and identity online. Understand how to safely find information online.	Keep safe and respect others using digital technology. Explain why they need to keep safe. Understand things on the internet can be seen by others. Be aware that information stored on the web or transmitted via internet is available to other people.	Keep safe and respect others using digital technology. Know that it is important to keep themselves safe. Understand that they should not share personal information online. Understand personal information should be kept private. Understand what to do if they have concerns about content or contact online. Know what to do if they come across	Use digital technology safely and show respect for others online. Recognise unacceptable behaviour when using digital technology. Know who to talk to about concerns and inappropriate behaviour. Know how to report inappropriate behaviour when using technology. Decide whether a web page is relevant for a given purpose.	Demonstrate they can act responsibly on computers. Understand the difference between acceptable and unacceptable behaviours when using digital literacy. Know who to talk to about concerns and inappropriate behaviours at home or school. Know to report inappropriate behaviour when using technology in school and to discuss concerns with trusted adult.	Demonstrate they can act responsibly when using the internet. Can discuss consequences of particular behaviours when using digital technology. Knows how to report concerns and inappropriate behaviour in a range of contexts. Can decide whether digital content is reliable and unbiased. Can work collaboratively with classmates on a class website or blog.	Can show they can think through consequences of their actions when using digital technology. Can identify principles underpinning unacceptable behaviour. Knows a range of ways to report concerns and inappropriate behaviour in a range of contexts. Can form opinion on effectiveness of digital content. Can use online tools to plan and carry out collaborative project related to online safety.

		inappropriate content.		Decide whether digital content is relevant for a given purpose or question. Work collaboratively with classmates on a shared wiki.		

COMPUTER SCIENCE – Programming and Algorithms						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Recognise that a range of technology is used in differed places and is selected for a given purpose. Explore toys that stimulate control devices and the commands needed to stimulate them.	Give sequence of instructions to a floor turtle. Use a Bee-Bot to understand algorithms as a sequence of instructions using the Go button.	Create a simple program on-screen using pre-made sprites that shows an algorithm as a sequence of instructions, correcting any errors. Debug any errors in their own code.	Use sequence in programs. Write a program on-screen to produce output on screen.	Can use sequence and repetition in programs. Can write a program that accepts keyboard input and produces on-screen output.	Can use sequence, selection and repetition in programs. Can write a program that accepts keyboard and mouse input and produces output on screen and through speakers.	Can use sequence, selection, repetition and variables in programs. Can write a program that accepts inputs other than keyboard and mouse and produces outputs other than screen or speakers.

COMPUTER SCIENCE – Problem Solving						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Explore simple simulations and ask 'What if…'	Understand algorithms in everyday context. Plan sequence of events based on real world problems e.g.	Use algorithms as set of instructions or rules in every day contexts. Recognise common sequences of	Design and write a program using block language without user interaction.	Can design and write a program using block language to a given brief, including simple interaction.	Can design, write and debug a program using a block language based on their own ideas.	Can design, write and debug a program using a second programming language based on their own ideas.

	making simple food. Program floor turtles using sequences of instructions to implement an algorithm.	instructions can be recognised as algorithms e.g. recipes. Program on screen using sequences of instructions to implement an algorithm.	Design a program that includes movement and dialogue; may also use sound effects and some costumes to allow for animated movement. Explore simulations of physical systems on-screen. To plan a project.	Can develop their own simulation of a simple physical system on-screen. Can work with other to plan a project.	Can test and debug their code, explain what bugs they found and how they fixed them. Can plan a solution to a problem using decomposition.	Can design, write and debug their own computer control. Can solve problems using decomposition, tackling each part separately.

INFORMATION TECHNOLOGY LITERACY – Creating Content and Using Software						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Interact and explore environment using multimedia devices e.g. iPads to catch still images. Know that technology can be used to create content.	Use a range of digital technology to store, access and create content of everyday life. These may include: laptop computers, tablets, smartphones, digital cameras, video cameras and audio recorders. Use a range of digital technology to retrieve information and store it. Create original digital content using a range of technologies.	To store, organise and retrieve content on digital devices for a given purpose. Create and edit original content when specified to.	Use a range of programs on a computer. Use a range of software on a laptop or tablet computer with some degree of independence. Design and create content on a computer.	Can use and combine a range of programs on a computer. Can design and create content on a computer in response to a given goal. Can collect and present data.	Can use and combine a range of programs on multiple devices. Can design and create programs on a computer in response to a given goal. Can analyse and evaluate information.	Can select, use and combine a range of programs on multiple devices. Can design and create systems in response to a given goal. Can analyse and evaluate data.

INFORMATION TECHNOLOGY LITERACY – Using IT Beyond School and Searching						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Can understand how to log on and off. Can use different devices such as a mouse or keyboard. Can use a range of technology in their home and learning environment. Know that technology can be used to digitally communicate.	Can show an awareness of how IT is used for communication in school Can mention some of the ways in which IT is used to communicate beyond school e.g. people use social media, email, make video calls.	Can show awareness of hot IT is used for a range of purposes beyond school. Can name a number of purposes for which IT is used beyond school e.g. adults share work or discussing ideas online. Editing and sharing photos. Know that scientists use computers when collecting and analysing data.	Can search for information without a single file. Can understand that search engines select pages according to key words found in the content.	Can use standard search engine to find information. Can understand that search engines rank pages according to relevance.	Can use filters to make more effective use of a standard search engine. Can understand that search engines use a cached copy of the crawled web to select and rank results.	Can make use of a range of search engines appropriate to finding information that is required. Can appreciate that search engines rank pages based on the number and quality of in-bound links.

LOGICAL THINKING						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Give explanations of what they think a program will do. Explain to the teacher and peers what they think a program written by themselves, the class or a familiar software (including games)	Give logical reasons for what they think a program will do.	Explain what a simple, sequence-based algorithm is in their own words. Use logical reasoning to detect errors in programs. Understand computer networks transmits	Can explain an algorithm using sequence and repetition in their own words. Can use logical reasoning to detect and correct errors in programs.	Can explain rule-based algorithm in their own words. Can use logical reasoning to detect errors in algorithms. Can understand how data routing works on the internet.	Can give clear and precise logical explanations to a number of algorithms. Can use logical reasoning to detect and correct errors in algorithms (and programs).

			information in a digital (binary) format. Understand that email and videoconferencing are made possible through the internet.	Can understand that the internet transmits information as packets of data. Can understand how the internet makes the web possible. Can give an explanation of how requests for web pages, and the HTML for those webpages, are transmitted via the internet.	Can understand how web pages are created and transmitted.	Can understand how mobile phone or other networks operate. Can understand how domain names are converted into IP addresses on the internet.