Inspire Education Trust

Computing Progression of Skills

National Curriculum Reference for KS1	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	Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Recognise common uses of information technology beyond school	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.
	Coding			Word, Publisher & PowerPoint	Emailing & Web Browsing	E-Safety
Year 1	To understand **algorithms** as **sequences** of instructions in everyday contexts.	To understand that programs execute by following clear instructions. To start to understand that programs respond to inputs to do different things. To combine start up and input events to create more advanced apps and programs. Learn to give precise instructions.	To give explanations for what they think a **program** will do.	To turn on computer and find software required. To type a sentence and edit basic font features, font, size, colour. To use a text box.	To mention some of the ways in which IT is used to communicate beyond school. E.g. They might know that some people use social media such as Facebook, email, video calls or online greetings to say happy birthday to their friends.	To understands what personal information is. To identify personal information. To knows that when they need help online children would speak to a trusted adult.
Year 2	To understand **algorithms** as **sequences** of instructions or sets of rules in everyday contexts. To program on screen	To understand that programs respond to different sorts of inputs, and that the keyboard can be used to control objects on screen,	To give logical explanations for what they think a **program** will do.	To use copy and paste tools for text and pictures. To save and load work.	To be able to name a number of purposes for which IT is used beyond school. E.g. The child might know that adults can	To understands the need for keeping personal information private. To know what to do when concerned about content or being contacted online.

	using **sequences** of instructions to implement an **algorithm**.	not just by clicking them directly. To understand that one object can be used to control another object. e.g. writing code so clicking a button gives an instruction to make a lorry move.		To use present functions of PowerPoint and combine with previous skills.	share work and discuss ideas in online communities; that photos can be taken, edited and shared easily using digital technology; that the **web** is made up of information shared by people and organisations; that people use email for a range of purposes and in a variety of contexts; that scientists use computers when collecting and analysing **data**.	The child understands the importance of communicating safely and respectfully online.

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Computing Progression of Skills

National Curriculum Reference for KS2	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Understand computer networks including the 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	Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
	Coding		Email & web browsing		Word, Publisher, Excel, PowerPoint & APPs	E-Safety
Year 3	To be able to make things happen in a sequence, creating simple animations and simulations. To be able to code with 'if statements', which select different pieces of code to execute depending on what happens to other objects.	To explain a simple, sequence- based **algorithm** in their own words. To use logical reasoning to detect errors in programs. To understand that computer **networks** transmit information in a digital (binary) format. To understand that email and videoconferencing are made possible through the internet.	To use browser-specific tools (e.g. the Find **command)** and site-specific tools (such as the search tools for Wikipedia or YouTube) to locate particular information on a web page or within a website. To understand that search engines select pages according to keywords found in the content.		To be able to edit the layout of a document (orientation and border styles) To save and load work on school network. To work collaboratively to create a presentation using skills learnt previously.	To understand how to use the internet safely and responsibly. To understand what cyber bullying is and what to do if it happens. To be aware of the rules and risks of both online gaming and social networks.
	To understand how computers use variables to count things and keep track	To be able to explain an **algorithm** using	To use a common search engine (such as Google with **safe search mode**		To be able to use more advanced publishing	To develop understanding of

Year 4	of what is going on. (Pupils learn to create simple games which use a score variable.) To understand how computers use repetition and loops to do things over and over again.	**sequence** and **repetition** in their own words. To be able to use logical reasoning to detect and correct errors in programs. To understand that the internet transmits information as **packets of data**. To understand how the internet makes the **web** possible.	locked in place) effectively, to search for particular information on the **web**, such as answers to questions they identify in a research project. To understand that search engines rank pages according to relevance.	features such as Word Art and shapes. To be able to use advanced PowerPoint such as animations and transitions. To work collaboratively to create a presentation using skills learnt previously.	cyberbullying and its consequences. To understands that good online research involves processing the information (rather than copying) and interpreting it for others. To be able to explain the purpose of passwords and security.
Year 5	To understand how computers use numbers to represent things such as how fast things are moving, and where they are. To understands how computers can generate random numbers and how these can be used in simulations.	To be able to explain a rule-based **algorithm** in their own words. To be able to use logical reasoning to detect errors in **algorithms**. To understand how data routing works on the internet. To understand how web pages are created and transmitted.	To use a common search engine (such as Google with **safe search mode** locked in place) effectively, to search for particular information on the **web**, such as answers to questions they identify in a research project. (They should use built-in search tools to filter their results, such as by time, location or reading level.) To understand that search engines use a **cached** copy of the crawled **web** to select and rank results.	To be able to read and change data on a spread sheet. To create a simple spread sheet. To be able to insert video/audio into PowerPoint and control playback.	To be aware of social networking sites/online gaming and are able to protect themselves if they choose to use them. To knows how to report any concerns they may have about cyberbullying. To be able to identify who they should talk to online. To learn that not everything on the internet is true and that they should check

					several sources to verify information.
Year 6	To use variables in more complex ways, and to manipulate inputs to create useful outputs. To understands more about how computers use property values and parameters to store information about objects.	To be able to give clear and precise logical explanations of a number of **algorithms**. To be able to use logical reasoning to detect and correct errors in **algorithms** (and **programs**). To understand how mobile phone or other **networks** operate. To understand how domain names are converted into **IP addresses** on the internet.	To be able to show that they can use effectively a range of different search technologies, including alternatives to Google (such as Bing or Yahoo) and site-specific search engines (such as those for the App Store or Google Play). E.g. They could demonstrate how they would use a range of search engines when researching available smartphone apps for a particular purpose. To be able to appreciate that search engines rank pages based on the number and quality of in-bound links.	To use formulas to calculate in Excel. To be able to present data using Excel. To be able to combine all skills learnt previously to create a presentation Using data in Excel and PowerPoint	To be able to recognise what is acceptable and unacceptable behaviour when using technologies and online services. To understand what is meant by a 'Digital Footprint'. To be aware and know how to deal with issues around cyberbullying, online gaming and copyright.