



Mendell Primary School

Aspire Challenge Achieve

Curriculum Progression Document - Computing



KS1 Computing National Curriculum

Pupils should be taught to:

- 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.

KS2 Computing National Curriculum

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, 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
- 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.

	F1	F2	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Computer science	When buttons on technological toys are pushed, they will behave in different ways.	Technological toys need to be instructed to achieve an outcome.	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. Mistakes are called bugs and finding and fixing	Computers' behaviour can be predicted and the outcome tested by following the steps of an algorithm and recognising that the computer will follow instructions precisely.	Repetitions 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 down 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.	

			them is called debugging.						
Evaluate and apply	Use a ipad/interactive whiteboard to create art work e.g. paintbrush/magic paint	Using a device to take digital images	Software is the programs that are used by a computer. It can be used to create and combine digital content for different audiences and purposes.	Multimedia components, such as text, images, audio and video clips, can be created, edited and combined to create content for a range of tasks.	Text, images, animation, audio and video clips can be combined using tools within a piece of software or by using a range of software. For example, an image could be inserted into a word processing document or a video could be inserted into a presentation. When work is saved electronically, it can be stored on a hard drive, a shared drive or online so that it can be opened on the same device or another device at a later time. (except if it is saved on the computer's hard drive).	Manipulating a range of text, images, sound or video clips and animation may include changing their style, size, colour, effect, shape, location or format. Computers and devices can be linked in different ways, such as through a network, the internet and Bluetooth. This allows for the sharing of resources.	Creating, selecting and combining a range of texts, images, sound clips and videos <u>for given purposes</u> could include creating a web page, slide show presentation, short film or an animation. 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 network, such as in school or at home. The internet network can be accessed by anyone.	A variety of software, such as word processing software, image editing software or internet services, can be selected, used and justified to meet a goal. The positives of communicating online include the speed, low cost and ability to communicate globally. The negatives of communicating online include the threat to privacy, influencing of others, access to technology and anonymity.	
Hardware	I have access to tablets and computers.	Smartphones, tablets and computers are types of electronic devices	Hardware is the parts of a computer that you can touch, such as a mouse, tablet or floor robot.	Hardware, such as cameras, scanners and data loggers, can be used to collect data.	Several pieces of hardware can be used together to complete one task, such as using a camera to take a photograph, uploading it to a computer and then printing it using a printer.	Interacting regularly with hardware enables users to recognise common features and become confident in working with new or unfamiliar hardware.	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 touchscreen rather than a mouse to meet a specific need. Choosing the right hardware can increase creativity and productivity.	
Software	I see software being used in school and at home	I can use software on mobile phones, tablets and computers.	Software is the programs that are used by a computer, such as word processing software,	Each type of software, such as word processing, presentation and image editing, can be used for	Several pieces of software can be used together to complete one task, such as adding a	New computing software commonly has features that should be familiar to users, such as	Using prior knowledge and experience of computing skills can be applied to create content	Some software or apps are designed to help increase creativity by saving time or making tasks easier, such	

			presentation software or image editing software.	different purposes, including writing reports and creating slide shows or posters.	video to a word processed document.	icons or terminology.	using unfamiliar programs or apps.	as being able to combine text, images, audio or video content into one place.	
D) Digital Users	Know that appropriate adults can help to keep them safe online.	Know that if they see something online that makes them sad, scared or worried, they should tell an adult straight away.	Private information includes names, addresses, dates of birth or schools and this information should not be shared online. Any concerns or worries should be reported to a trusted adult.	Some websites are not age-appropriate and so it is important to tell a trusted adult about any concerns or worries.	Images and data should not be shared online without the permission of the owner.	Technology can have positive influences on health, Both mental and physical health can be negatively influenced by technology. Technology can have positive influences on the environment,	Digital content can affect others and be available to anyone. Digital content is traceable, which means it can be tracked to the person who created it. To stay safe, it is important to discuss technology use with a trusted adult.	The benefits of devices broadcasting the user's location and passing on personal information include improved customer service, allowing organisations to analyse data and improving the quality of applications. Risks include identity theft, cyberstalking, victimisation and threat to privacy.	
Communication	Digital technology is used at home and school for communicating with others	Digital technology is used in all parts of everyday life. Some technology is used to communicate with others.	Digital technology is used in all parts of everyday life, such as using a tablet to play a game or a microwave to heat food. Some of this digital technology can be used to connect with others locally, such as sharing digital work in the classroom, or globally, such as using Skype on a computer to speak to a friend overseas.	A digital footprint is the information that exists on the internet, following a user's online activity.	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 (once something is published online, it cannot be removed) and a threat to personal safety (access to personal information). Concerns should be reported to a trusted adult.	Cyberbullying is bullying using technology, such as social media or gaming networks and can involve teasing, name calling, harassment, deliberate exclusion, threatening or being undermined. A trusted adult or child safety organisation should be contacted if there are any concerns or worries. A trusted adult can provide help and support or contact	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. Any concerns should be reported to a trusted adult, the police or child protection organisations.	Knowing someone online is not the same as knowing them face to face. People online are not always who they say they are and may use intimate images or content inappropriately. Once something is online, it is not under the user's control and can be made public. Using offensive language can affect others negatively and is a form of bullying called 'trolling'. Privacy and personal boundaries are	

						the police if needed.		important when communicating with others online.	
Digital Searching	I have seen adults in school search online.	I know you can search online to find information	To retrieve specific 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.	A device is online if it is connected to the internet or a network and can communicate with other devices. A device is offline if it is not connected to the internet or network and cannot connect to other devices.	Pop-ups or adverts are a form of online advertising that companies use to encourage users to buy something or go to another website. Some pop-ups can be malicious and lead to a virus, whereas some are helpful and give information. Pop-ups can be blocked by computer software. Concerns should be reported to a trusted adult before clicking on anything.	Some websites have more reliable content than others and content should be verified with another independent source. Digital content may have been edited online by anyone, and so it is important to verify content against other independent or reputable sources.	Search engines take many factors into account, 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.	