

Computing - Progression of Knowledge and Skills

Intent (Aims)	To enable all children to be responsible digital citizens who are confident in computer science, digital literacy and information technology .
Pedagogy (How?)	<p>At Fairlawn Primary School, our computing curriculum aims to give our children the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way. We recognise that huge advancements in technology have been made in recent years, and children are surrounded by and often immersed in a technological world.</p> <ul style="list-style-type: none"> Through the Teach Computing Curriculum, children will experience an array of different progressive and linkable skills and techniques over the course of a child's time at Fairlawn Primary School. This ensures that children are constantly building upon previous learning and are able to expand their knowledge and understanding of problem solving, designing and constructing different products. Children will complete 6 units a year, having one lesson a week over a term to complete each unit so children are fully immersed in each domain. Across key stage 1 and 2, children will be exposed to the key areas of computing: <ul style="list-style-type: none"> Online Safety; Computing and Systems Networks; Data and Information; Creating Media; and Programing. Children are given a variety of programs to explore in detail, expanding their knowledge of how they look and work, allowing children to evaluate them to understand how they work. Teachers support and model increasingly progressive evaluative skills to enable children to become digitally literate.

Computing Skills Progression

Curriculum (What?)	EIFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing and Systems Networks	<p>N - Knows how to operate simple equipment.</p> <p>N - Knows that information can be retrieved from computers</p> <p>N - Shows skill in making toys work by pressing parts or lifting flaps to achieve effects</p> <p>N - Shows an interest in technological toys with knobs or pulleys, or real objects.</p> <p>R - To know routines for classroom technology (class ipads and interactive whiteboards).</p>	<p>To identify technology</p> <p>To identify a computer and its main parts.</p> <p>To use a mouse in different ways.</p> <p>To use a keyboard to type on a computer.</p> <p>To use the keyboard to edit text.</p> <p>To create rules for using technology responsibly.</p>	<p>To recognise the uses and features of information technology</p> <p>To identify the uses of information technology in the school</p> <p>To identify information technology beyond school</p> <p>To explain how information technology helps us</p> <p>To explain how to use information technology safely</p> <p>To recognise that choices are made when using information technology</p>	<p>To explain how digital devices function</p> <p>To identify input and output devices</p> <p>To recognise how digital devices can change the way we work</p> <p>To explain how a computer network can be used to share information</p> <p>To explore how digital devices can be connected</p> <p>To recognise the physical components of a network</p>	<p>To describe how networks physically connect to other networks</p> <p>To recognise how networked devices make up the internet</p> <p>To outline how websites can be shared via the World Wide Web (WWW)</p> <p>To describe how content can be added and accessed on the World Wide Web (WWW)</p> <p>To recognise how the content of the WWW is created by people</p> <p>To evaluate the consequences of unreliable content</p>	<p>To explain that computers can be connected together to form systems</p> <p>To recognise the role of computer systems in our lives</p> <p>To recognise how information is transferred over the internet</p> <p>To explain how sharing information online lets people in different places work together</p> <p>To contribute to a shared project online</p> <p>To evaluate different ways of working together online</p>	<p>To identify how to use a search engine</p> <p>To describe how search engines select results</p> <p>To explain how search results are ranked</p> <p>To recognise why the order of results is important, and to whom</p> <p>To recognise how we communicate using technology</p> <p>To evaluate different methods of online communication</p>
Data and Information	<p>R - Have daily access to a range of technology resources (torches with switches, remote controlled cars, beebots, talking tins, voice-recording toys).</p>	<p>To label objects</p> <p>To identify that objects can be counted</p> <p>To describe objects in different ways</p> <p>To count objects with the same properties</p> <p>To compare groups of objects</p> <p>To answer questions about groups of objects</p>	<p>To recognise that we can count and compare objects using tally charts</p> <p>To recognise that objects can be represented as pictures</p> <p>To create a pictogram</p> <p>To select objects by attribute and make comparisons</p> <p>To recognise that people can be described by attributes</p> <p>To explain that we can present information using a computer</p>	<p>To create questions with yes/no answers</p> <p>To identify the object attributes needed to collect relevant data</p> <p>To create a branching database</p> <p>To explain why it is helpful for a database to be well structured</p> <p>To identify objects using a branching database</p> <p>To compare the information shown in a pictogram with a branching database</p>	<p>To explain that data gathered over time can be used to answer questions</p> <p>To use a digital device to collect data automatically</p> <p>To explain that a data logger collects 'data points' from sensors over time</p> <p>To use data collected over a long duration to find information</p> <p>To identify the data needed to answer questions</p> <p>To use collected data to answer questions</p>	<p>To use a form to record information</p> <p>To compare paper and computer-based databases</p> <p>To outline how grouping and then sorting data allows us to answer questions</p> <p>To explain that tools can be used to select specific data</p> <p>To explain that computer programs can be used to compare data visually</p> <p>To apply my knowledge of a database to ask and answer real-world questions</p>	<p>To identify questions which can be answered using data</p> <p>To explain that objects can be described using data</p> <p>To explain that formulas can be used to produce calculated data</p> <p>To apply formulas to data, including duplicating</p> <p>To create a spreadsheet to plan an event</p> <p>To choose suitable ways to present data</p>

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Creating Media: Text	<p>R - To use technology to create for different purposes (eg ipads to watch videos, play games, take photographs and listen to stories).</p> <p>R - To create a simple image or simple video</p>	<p>To use a computer to write To add and remove text on a computer To identify that the look of text can be changed on a computer To make careful choices when changing text To explain why I used the tools that I chose To compare typing on a computer to writing on paper</p>		<p>To recognise how text and images convey information To recognise that text and layout can be edited To choose appropriate page settings To add content to a desktop publishing publication To consider how different layouts can suit different purposes To consider the benefits of desktop publishing</p>			<p>To review an existing website and consider its structure To plan the features of a web page To recognise the need to preview pages To outline the need for a navigation path To recognise the implications of linking to content owned by other people</p>
Creating Media: Image		<p>To describe what different freehand tools do To use the shape tool and the line tools To make careful choices when painting a digital picture To explain why I chose the tools I used To use a computer on my own to paint a picture To compare painting a picture on a computer and on paper</p>	<p>To use a digital device to take a photograph To make choices when taking a photograph To describe what makes a good photograph To decide how photographs can be improved To use tools to change an image To recognise that photos can be changed</p>		<p>To explain that digital images can be changed To change the composition of an image To describe how images can be changed for different uses To make good choices when selecting different tools To recognise that not all images are real To evaluate how changes can improve an image</p>	<p>To identify that drawing tools can be used to produce different outcomes To create a vector drawing by combining shapes To use tools to achieve a desired effect To recognise that vector drawings consist of layers To group objects to make them easier to work with To evaluate my vector drawing</p>	<p>To consider the ownership and use of images (copyright) To use a computer to create and manipulate three-dimensional (3D) digital objects To compare working digitally with 2D and 3D graphics To construct a digital 3D model of a physical object To identify that physical objects can be broken down into a collection of 3D shapes To design a digital model by combining 3D objects To develop and improve a digital 3D model</p>
Creating Media: Sound			<p>To say how music can make us feel To identify that there are patterns in music To show how music is made from a series of notes To show how music is made from a series of notes To create music for a purpose To review and refine our computer work</p>	<p>To explore a new programming environment To identify that commands have an outcome To explain that a program has a start To recognise that a sequence of commands can have an order To change the appearance of my project To create a project from a task description</p>	<p>To identify that sound can be digitally recorded To use a digital device to record sound To explain that a digital recording is stored as a file To explain that audio can be changed through editing To show that different types of audio can be combined and played together To evaluate editing choices made</p>		
Creating Media: Video				<p>To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images To plan an animation To identify the need to work consistently and carefully To review and improve an animation To evaluate the impact of adding other media to an animation</p>		<p>To explain what makes a video effective To identify digital devices that can record video To capture video using a range of techniques To create a storyboard To identify that video can be improved through reshooting and editing To consider the impact of the choices made when making and sharing a video</p>	

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Programming	<p>R - To use simple programs on a computer or tablet</p> <p>R - To interact with age-appropriate computer software and beebots</p> <p>R - To use sequencing words such as first, next, then</p> <p>R - To follow simple algorithms through games such as 'Simon Says'</p>	<p>-To explain what a given command will do</p> <p>-To act out a given word</p> <p>-To combine forwards and backwards commands to make a sequence</p> <p>-To combine four direction commands to make sequences</p> <p>-To plan a simple program</p> <p>-To find more than one solution to a problem</p> <p>-To choose a command for a given purpose</p> <p>-To show that a series of commands can be joined together</p> <p>-To identify the effect of changing a value</p> <p>-To explain that each sprite has its own instructions</p> <p>-To design the parts of a project</p> <p>-To use my algorithm to create a program</p>	<p>-To describe a series of instructions as a sequence</p> <p>-To explain what happens when we change the order of instructions</p> <p>-To use logical reasoning to predict the outcome of a program</p> <p>-To explain that programming projects can have code and artwork</p> <p>-To design an algorithm</p> <p>-To create and debug a program that I have written</p> <p>-To explain that a sequence of commands has a start</p> <p>-To explain that a sequence of commands has an outcome</p> <p>-To create a program using a given design</p> <p>-To change a given design</p> <p>-To create a program using my own design</p> <p>-To decide how my project can be improved</p>	<p>-To explore a new programming environment</p> <p>-To identify that commands have an outcome</p> <p>-To explain that a program has a start</p> <p>-To recognise that a sequence of commands can have an order</p> <p>-To change the appearance of my project</p> <p>-To create a project from a task description</p> <p>-To explain how a sprite moves in an existing project</p> <p>-To create a program to move a sprite in four directions</p> <p>-To adapt a program to a new context</p> <p>-To develop my program by adding features</p> <p>-To identify and fix bugs in a program</p> <p>-To design and create a maze-based challenge</p>	<p>-To develop the use of count-controlled loops in a different programming environment</p> <p>-To explain that in programming there are infinite loops and count controlled loops</p> <p>-To develop a design that includes two or more loops which run at the same time</p> <p>-To modify an infinite loop in a given program</p> <p>-To design a project that includes repetition</p> <p>-To create a project that includes repetition</p>	<p>-To explain how selection is used in computer programs</p> <p>-To relate that a conditional statement connects a condition to an outcome</p> <p>-To explain how selection directs the flow of a program</p> <p>-To design a program which uses selection</p> <p>-To create a program which uses selection</p> <p>-To evaluate my program</p>	<p>-To define a 'variable' as something that is changeable</p> <p>-To explain why a variable is used in a program</p> <p>-To choose how to improve a game by using variables</p> <p>-To design a project that builds on a given example</p> <p>-To use my design to create a project</p> <p>-To evaluate my project</p> <p>-To create a program to run on a controllable device</p> <p>-To explain that selection can control the flow of a program</p> <p>-To update a variable with a user input</p> <p>-To use a conditional statement to compare a variable to a value</p> <p>-To design a project that uses inputs and outputs on a controllable device</p> <p>-To develop a program to use inputs and outputs on a controllable device</p>

Online Safety Curriculum

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Managing online information	<ul style="list-style-type: none"> -Can I tell an adult if I feel unsafe online? 	<ul style="list-style-type: none"> -Can I follow certain rules to stay safe online? -Can I begin to search for things online? -Can I recognise that some information needs to be kept private? -Can I begin to recognise creative ownership? -Can I recognise how to watch videos safely? 	<ul style="list-style-type: none"> -Can I use simple keywords in search engines? -Can I demonstrate how to navigate a simple webpage to get to information I need? -Can I explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'? 	<ul style="list-style-type: none"> -Can I demonstrate how to use key phrases in search engines to gather accurate information online? -Can I explain how the internet can be used to sell and buy things? -Can I explain the difference between a 'belief', an 'opinion' and a 'fact' and can give examples of how and where they might be shared online? 	<ul style="list-style-type: none"> -Can I analyse information to make a judgement about accuracy and understand why it is important to make my own decisions regarding content and that my decisions are respected by others? -Can I explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't? -Can I describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online? 	<ul style="list-style-type: none"> -Can I evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results? 	<ul style="list-style-type: none"> -Can I explain how search engines work and how results are selected and ranked? -Can I explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal? Health well-being and lifestyle -Can I describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose? -Can I recognise features of persuasive design and how they are used to keep users engaged (current and future use)? -Can I assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise)? Privacy and security -Can I describe simple ways to increase privacy on apps and services that provide privacy settings?
Health wellbeing and lifestyle			<ul style="list-style-type: none"> -Can I explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment? 	<ul style="list-style-type: none"> -Can I explain why spending too much time using technology can sometimes have a negative impact on anyone? 		<ul style="list-style-type: none"> -Can I explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing? -Can I describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively? 	
Privacy and security			<ul style="list-style-type: none"> -Can I explain how passwords can be used to protect information, accounts and devices? -Can I describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords)? 	<ul style="list-style-type: none"> -Can I describe simple strategies for creating and keeping passwords private? 	<ul style="list-style-type: none"> -Can I explain that internet use is never fully private and is monitored, e.g. adult supervision? 	<ul style="list-style-type: none"> -Can I explain what app permissions are and can give some examples? Online relationships -Can I explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault? 	
Online bullying			<ul style="list-style-type: none"> -Can I explain what bullying is, how people may bully others and how bullying can make someone feel? 	<ul style="list-style-type: none"> -Can I describe appropriate ways to behave towards other people online and why this is important? 	<ul style="list-style-type: none"> -Can I explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation)? 	<ul style="list-style-type: none"> -Can I describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying? -Can I identify a range of ways to report concerns and access support both in school and at home about online bullying? 	<ul style="list-style-type: none"> -Can I describe how to capture bullying content as evidence (eg. screen-grab, URL, profile) to share with others who can help me? Online relationships -Can I describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not? -Can I explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this?

Copyright and ownership				-Can I explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause?		-Can I give examples of content that is permitted to be reused and know how this content can be found online?	-Can I demonstrate the use of search tools to find and access online content which can be reused by others? Can I demonstrate how to make references to and acknowledge sources I have used from the internet?
Self-image and identity					-Can I explain that others online can pretend to be someone else, including my friends, and suggest reasons why they might do this?	-Can I demonstrate how to make responsible choices about having an online identity, depending on context?	Can I identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online?
Online relationships and reputation					-Can I describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms)?		Can I explain the ways in which anyone can develop a positive online reputation?