

Griffin Park Computing Curriculum

Golden Threads



Computer Science



Information Technology









Digital Literacy





Online Safety








EYFS

Thread	Unit	Knowledge and Skills	Vocabulary	
	Computer Discovery	To understand how to use computers and digital devices and developing an understanding of how computers help us. To understand the differences between different types of digital technology and basic components.	Computer Device Monitor	Keyboard Mouse Tablet
	Early Programming	To understand how to develop programming skills using a range of hardware and equipment. To understand what programming is and how to follow basic sequencing instructions.	Beebot Instructions Sequence	Directions
	Mouse and Keyboard Skills	To understand how to type with a physical keyboard, using all fingers (touch typing) rather than using a tablet. To understand how a mouse works with a PC, exploring the different functions and ideally using the right hand to control the mouse.	Mouse Cursor Scroll wheel	Trackpad Left button Home row
	Early Digital Music	To understand how music is created digitally, and why musicians may use computers sometimes instead of real instruments (computers can make it quicker to make music and use lots of different sounds).	Rhythm Melody Tempo	Beat Sound
	Digital Photos and Video	To understand the developments made rapidly in how to photograph / video, particularly using smartphones and tablets. To understand that photos are usually taken with mobile phones and tablets (digital cameras are less common nowadays).	Photograph Time-lapse Video	
	Digital Art and Design	To understand and develop further mouse control and interaction with programs to nurture creativity and begin making decisions on which digital tools are appropriate for creating different content.	Mouse Colour Fill bucket	


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	Digital Literacy and Numeracy	To understand how to develop mathematics and literacy skills using different types of technology.	<div>Mouse</div> <div>Cursor</div> <div>Scroll wheel</div> <div>Trackpad</div> <div>Left button</div> <div>Home row</div>
	Online Safety	To understand why it is important to be polite and kind. To understand and know that the internet can be safe and unsafe.	







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Year 1				
Thread	Unit	Knowledge and Skills	Vocabulary	
	Introduce Programming	To understand how a sequence of instructions makes a device work. To understand how to program technology, such as robots, traffic lights and on-screen characters.	Sequence Predict Debug	Algorithm Execute
	Mouse and Keyboard Skills	To understand how to type with a physical keyboard, using all fingers (touch typing) rather than using a tablet. To understand how a mouse works with a PC, exploring the different functions and ideally using the right hand to control the mouse.	Mouse Cursor Scroll wheel	Trackpad Left button Home row
	Digital Art	To understand how to use technology to create art. To understand that tools needed for art are in a toolbox on a device.	Pixels Fill Zoom	Grid Check
	3D Design	To understand how to use CAD (computer aided design) to design 3D objects. To understand how to view or change how 3D objects look on a 2D screen by moving, resizing or editing them.	3D Arrange Flip	Rotate
	Text and Images	To understand that text and images are made on a computer to make a page of a magazine / newspaper / poster, etc. look interesting. To understand how to format text and images to change their appearance (size, colours, etc.) and make the page look how we want it to.	Picture Text Resize	Link
	Comic Creation	To understand how to use a computer to make our own comics using background pictures, characters, text and stickers. To understand how to include prior learning about text and images to improve our work.	Panel Stickers Arrange	Narration Scale Flip
	Music Creation	To understand how music is created digitally, and why musicians may use computers sometimes instead of real instruments (computers can make it quicker to make music and use lots of different sounds).	Rhythm Melody Tempo	



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	Online Safety	<p>To understand how to identify trusted adults within your family and at school.</p> <p>To understand that strangers use online services.</p> <p>To understand that some online content is inappropriate.</p> <p>To understand that damaged or strange devices should not be touched.</p> <p>To understand that it is important to make good choices about when and where to use a device.</p> <p>To understand that personal information should not be shared with strangers.</p>	
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Year 2				
Thread	Unit	Knowledge and Skills		Vocabulary
	Developing Programming	To understand how to create and debug simple programs using correct sequences. To understand and predict the behaviour of simple programs. To understand how loops can simplify a program.		Sequence Algorithm Predict Execute Debug
	Programming with Scratch Jr	To understand how code blocks are used for various things in programming. To understand how to program for movements, errors, inputs and conditioning.		Outputs Inputs Execute Loops Selection Debug
	Introduction to Animation	To understand that stop motion animation is a process of taking a photo of objects, moving them slightly then taking another photo (frame). To understand how films such as Wallace and Gromit were made using stop motion animation, and how computer software makes it quicker to create this digitally.		Frame Frame rate Clone Onion skin
	Introduce Data Handling	To understand how a computer can be very useful for making pictograms, bar charts, line graphs, etc. To understand how to add data to a table and then create a chart using technology.		Data Table Pie chart Pictogram Bar chart
	Ebook Creation	To understand how an Ebook blends together different forms of media and communication (text, audio and images) into one book. To understand how to add various media to an Ebook in order to make it clear, engaging and interesting.		Fill Record New page Images Delete Share
	Recognise Uses of IT	To understand that computers are found in many objects that we program to do tasks for us, such as calculators, microwaves and washing machines. To understand how to recognise common uses of information technology and how this helps us at home and at school.		Microprocessor Analogue Digital




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	<p>Internet Research</p>	<p>To understand how a web-page displays information in different ways; text, images, videos and interactive elements. To understand how to use a web-page to answer questions using keywords.</p>	<p>Internet browser Bullet points Video transcript</p> <p>Keywords Web-page Search</p>
	<p>Online Safety</p>	<p>To understand where to go for help and support when you have concerns about content or contact on the internet and other online technologies. To understand who trusted adults are within the family, school and emergency services. To understand that strangers who ask questions may be dangerous. To understand that it's good to check with someone before accessing something online. To understand that being patient with devices is a good choice. To understand how to check before giving permission when using technology.</p>	







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Year 3				
Thread	Unit	Knowledge and Skills	Vocabulary	
	Programming in Kodu	To understand how to apply programming skills on various platforms, such as Kodu. To understand how to use inputs to control the Kodu and to use selection to have objects interact with each other.	Sequence Inputs Conditions	Selection
	Programming in Scratch	To understand how code blocks have different uses to piece together like a jigsaw in order to program an object (sprite) to move and interact. To understand how to program an input, how to use repetition and how to find errors in a program.	Sprite Stage Sequence	Debug Loop Inputs
	Document Editing and Creation	To understand what a word processor is and how its software makes it quick to create and edit text. To understand that tools in a word processor can find and replace words and also insert images. To understand how keyboard shortcuts work.	Word processor Find and replace Bullet points	Format Text wrapping Shortcut
	Comic Creation	To understand how to use a computer to make our own comics using background pictures, characters, text and stickers. To understand how to include prior learning about comic creation to improve our work.	Panel Stickers Arrange	Narration Scale Flip
	Digital Art	To understand that the process of creating art using technology allows us to use lots of tools on one device. To understand how to speed up or complete complicated tasks by using copying, flipping, rotating, etc. To understand how to add detail to our artwork by using zoom and other tools.	Rotation Flip Stamp	Zoom Symmetry GIF
	3D Design	To understand how to use CAD (computer aided design) to design 3D objects. To understand how to recreate or design familiar 3D models using cubes, such as tables and chairs. To understand how to apply 3D skills to your own design.	3D Zoom Spray	Rotate Grid Bucket



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	Branching Databases	To understand that we can use a computer to sort objects and to help people to find information. To understand how yes / no questions can sort information until it is sorted (classified) correctly.	Classify Yes/no questions Branching database	Sort Data
	Music Creation	To understand why musicians use technology to create music digitally (computers can make it quicker to make music and use lots of different sounds). To understand how music is created using technology, such as sequencing, layering, loops and variables.	Scales Chord Arpeggio	Bars and beats Sampled sound Effects
	Online Safety	To understand and identify a wider range of places / ways to report concerns. To understand that going online in a private place is a bad idea. To understand that not everything online is true. To understand that devices can be distracting. To understand that using a device at certain times can be disrespectful. To understand what makes an effective password.		







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Year 4				
Thread	Unit	Knowledge and Skills	Vocabulary	
	Programming in Scratch	To understand how to use Scratch to program games and quizzes. To understand how sprites can be controlled in different ways using keyboard or touch screen inputs. To understand that programs can be variable.	Inputs Selection Sensing	Variables Debug
	Graphic Design	To understand how graphic design is the use of artwork for all sorts of publications. To understand how to create a design using shapes, lines, colours, text and images.	Shapes Text Fill	Arrange Masking Transparency/opacity
	Animation	To understand how animation is used in television and film to make cartoons and how stop motion animation works. To understand that how to create a stop motion video by duplicating slides that include backgrounds and shapes. To understand how to use transition and animation effects in presentation software, and to save it as a GIF.	Clone Timeline GIF	Frame/frame rate Transition Onion skin
	Data Handling	To understand the various ways in which spreadsheets can be used. To understand how to change the appearance of cells in a spreadsheet (fill / colour / border) and how to add and align text. To understand how to add data to a spreadsheet and resize cells.	Spreadsheet Pie chart Line graph	Cell Bar chart
	Video Editing	To understand how videos are edited to make them look and sound as good as possible. To understand how to add clips and use transition effects. To understand how to use various other elements to improve a project.	Clip Split Voiceover	Timeline Transition Export
	Internet Research	To understand how to adapt the way we search in order to refine our results and make them more accurate. To understand the features of an internet browser, and how to spot fake-news. To understand how search results are selected and ranked.	www Ranking Search engine	Web address Address bar Browser



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	<p>Inside a Computer</p>	<p>To understand how some of the different parts inside a computer work. To understand what a hard drive is, and that memory is measured in bytes and gigabytes.</p>	<p>CPU RAM Fan</p>	<p>Hard drive Graphics card</p>
	<p>Online Safety</p>	<p>To understand how to use a wider range of places / ways to report concerns. To understand that online gifts aren't always what they seem. To understand that opinions should be supported by facts. To understand that devices can be distracting to other people. To understand that breaking age limits can have consequences. To understand what a digital footprint is.</p>		







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Year 5				
Thread	Unit	Knowledge and Skills	Vocabulary	
	Physical Devices	To understand how computers work by programming a microbit, including the inputs (lights and sensors) and outputs (lights). To understand how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.	Microbit Inputs Outputs	Accelerometer Processor
	Programming in Scratch	To understand how to program so that sprite can be controlled, sense other sprites/objects and make choices. To understand how to program variables, including random variables that can be used to make a game unpredictable.	Inputs Selection Sensing	Variables Debug
	Text-based Programming	To understand what Javascript and Logo are (text-based programming languages that use letters, numbers and symbols to program). To understand that programming commands need to be typed accurately, as errors could stop the program from working correctly.	Javascript Logo Loops / repetition	Variables Function
	Ebook Creation	To understand how to create an Ebook by using skills in positioning and formatting text. To understand how to add audio, images and hyperlinks to enhance the quality of an Ebook.	Inspector Preview Page shape	Hyperlink Add content
	Operating Systems	To understand that operating systems help us to use a computer better, because we can control software, applications, files and settings. To understand that there are different operating systems for different types of computers, such as Windows, iPads and Chromebooks. To understand the importance of an operating system and its key features.	Operating system Multi-tasking File manager	Apps Settings Accessibility
	App Design	To understand that mobile apps are designed differently to websites because they are often used on a smaller screens, such as mobile phones. To understand how to use the tools in different presentation software to design an app.	Screen dimensions Navigation Duplicate	Icons Hyperlinks


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	<p>Computer Networks and the Internet</p>	<p>To understand that computers in large buildings are connected to a network, which allows them to share information, software and save files to one central computer (the server). To understand the advantages of a computer network (share information, troubleshoot computers, accessing files on different computers) and the term 'cloud computing'. To understand why a computer network needs to be secure.</p>	<p>Server Firewall WAP</p> <p>Router IP address Cloud computing</p>
	<p>Online Safety</p>	<p>To understand the different benefits of reporting systems. To understand that asking permission before capturing an image is important. To understand that people can learn to show respect and self-control. To understand what to do if you find a lost device. To understand how using a device at night can affect your wellbeing. To understand that apps may collect lots of data.</p>	

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Year 6			
Thread	Unit	Knowledge and Skills	Vocabulary
	Programming in Scratch	To understand how to program interactions so that a sprite can be controlled, sense other sprites/objects and make choices. To understand how to program variables, including random variables that can be used to make a game unpredictable. To understand how to program broadcasts, and to send messages between sprites.	Inputs Sensing Broadcasts Operators Variables
	Machine Learning and AI	To understand how computers use information to learn by solving new problems and following new instructions. To understand and use examples of machine learning. To understand and recognise the potential dangers of AI.	Machine learning Artificial intelligence
	Virtual Reality	To understand what virtual reality is and how it can be used to help people. To understand how to animate, add, move and resize objects in a virtual reality environment. To understand how to apply programming skills to work on a VR task.	Immersive Animate Scenes Grouping Virtual reality Interactions
	Data Detectives	To understand how information is used to create enormous spreadsheets that contains masses of data. To understand how to use spreadsheet tools (filters and conditional formatting) to find specific data.	Spreadsheet Filter Conditional formatting Cell
	Web Design	To understand how websites are designed to be attractive, suitable and engaging to their audience, taking account of colours, text size, image size and layout. To understand how to use headers, sidebars, widgets and sub-menus to aid navigation.	Domain name Widgets Navigation Sidebar Static page Wordpress
	Image Editing	To understand that the quality of the photos posted online should be the best they can be, especially for professional purposes on company websites. To understand how images can be improved in different ways, using different image editing tools and features.	Aspect ratio Colour editing Light editing Crop Filters

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	Online Safety	<p>To understand how reporting a concerns works at a new school.</p> <p>To understand that sharing images can have consequences.</p> <p>To understand that some content can promote stereotypes.</p> <p>To understand that losing patience with a device can have bad consequences.</p> <p>To understand that devices cost valuable resources.</p> <p>To understand your data rights and responsibilities.</p>	
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