



Linden Primary School Computing Curriculum Map



Computing		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Substantive Knowledge & Disciplinary Knowledge	Find out about and use a range of everyday technology Explore how things work	Use technology safely and respectfully with support from adults	Find out about and use a range of everyday technology Create simple programs	Use technology safely and respectfully with support from adults	Explore how things work Use technology to record their work and ideas	Use technology safely and respectfully with support from adults
			Online Safety: Self-image and Identity https://projectevolve.co.uk/toolkit/resources/years/early-years-7/self-image-and-identity/ I can recognise, online or offline, that anyone can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.		Online Safety: Online Relationships https://projectevolve.co.uk/toolkit/resources/content/online-relationships/early-years-7/i-can-recognise-some-ways-in-which-the-internet-can-be-used-to-communicate/?from=years I can recognise some ways in which the internet can be used to communicate.		Online Safety – Managing Online Information https://projectevolve.co.uk/toolkit/resources/content/managing-online-information/early-years-7/i-can-talk-about-how-to-use-the-internet-as-a-way-of-finding-information-online/?from=years I can talk about how to use the internet as a way of finding information online.
Reception	Substantive Knowledge & Disciplinary Knowledge	Take photographs using digital equipment	Describe what they would do if they saw something online that made them sad, scared or worried	Explain that digital technology is used in the home and at school for communication Input simple instructions to make technological toys operate, including floor robots and onscreen sprites	Describe what they would do if they saw something online that made them sad, scared or worried	Input simple instructions to make technological toys operate, including floor robots and onscreen sprites	Describe what they would do if they saw something online that made them sad, scared or worried
			Online Safety: Online Reputation https://projectevolve.co.uk/toolkit/resources/years/early-years-7/online-reputation/ I can identify ways that I can put information on the internet.		Online Safety: Online Bullying https://projectevolve.co.uk/toolkit/resources/years/early-years-7/online-bullying/ I can describe ways that some people can be unkind online.		Online Safety: Privacy and Security https://projectevolve.co.uk/toolkit/resources/years/early-years-7/privacy-and-security/ I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location).



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Year 1	Substantive Knowledge	<p><u>Technology around us</u></p> <p>Understand the term technology, identify examples of technology around them and how technology can help people</p> <p>How to use a laptop – turning on, logging in and using the mouse</p> <p>How to use the mouse effectively to navigate on a laptop</p> <p>Begin to learn how to type</p> <p>How to use a keyboard to edit a text</p>	<p><u>Creating media – digital painting</u></p> <p>Know that freehand tools can be used to create digital images</p> <p>Understand how to use line, shape and undo tools to create digital images</p> <p>Make careful choices to create digital images selecting the best digital tools</p> <p>Digital artwork can be created using a variety of colours, brush sizes and brush tools</p> <p>Be able to make informed choices about whether to create artwork using digital tools or on paper</p>	<p><u>Programming moving a robot</u></p> <p>Know how to use floor robots including linking inputs to outputs</p> <p>Understand terms including ‘clear memory’ and ‘run program’</p> <p>That robots follow clear, fixed commands in a precise and repeatable way</p> <p>How to create slightly more complex programs through trial and error</p> <p>How to create a program including debugging errors</p> <p>That the same outcome can be achieved through different programs</p>	<p><u>Data - Grouping Data</u></p> <p>Know how to label and group objects. Understanding that same objects can match more than one category</p> <p>Understand that computers need input from humans in order to complete tasks</p> <p>Objects can be grouped based on their properties</p> <p>How to make choices based on how to group objects</p> <p>How to group objects to answer questions</p>	<p><u>Creating media – digital writing</u></p> <p>That keyboards can be used to input text into a word processor</p> <p>That text can be removed and edited using a keyboard</p> <p>Word processors have toolbars that are used to alter the image of the text</p> <p>The mouse can be used to select text to be altered</p> <p>Explain the choices they have made to the design of a text</p> <p>Explain differences between typing and writing. Being able to explain when they would choose to type or write</p>	<p><u>Programming animations</u></p> <p>That on-screen commands can be used to move animations</p> <p>Programs can contain multiple blocks including the start program block</p> <p>Values in blocks can be changed to effect the program</p> <p>Sprites are characters that can be added, deleted and programmed</p> <p>Backgrounds can be changed and programmed</p> <p>What an algorithm and program is. That algorithms and programs can be tested to see how effective programs are</p>
		<p>Online Safety: Self-Image and identity</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-one/self-image-and-identity/</p> <p>If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.</p>	<p>Online Safety: Online Relationships</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-one/online-relationships/</p> <p>I can give examples of when I should ask permission to do something online and explain why this is important.</p>	<p>Online Safety: Online Reputation</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-one/online-reputation/</p> <p>I can recognise that information can stay online and could be copied.</p>	<p>Online Safety: Online Bullying</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-one/online-bullying/</p> <p>I can describe how to behave online in ways that do not upset others and can give examples.</p>	<p>Online Safety: Managing Online Information</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-one/managing-online-information/</p> <p>I know / understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke.</p>	<p>Online Safety: Privacy and Security</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-one/privacy-and-security/</p> <p>I can explain how passwords are used to protect information, accounts and devices.</p>



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	Disciplinary Knowledge	<p>Identify technology</p> <p>Explain technology as something that helps us</p> <p>Identify a computer and its main parts (screen, mouse, keyboard)</p> <p>Use a mouse in different ways</p> <p>Use a keyboard to type on a computer</p> <p>Save and open my work</p>	<p>Use the freehand, line and shape tools to create digital images</p> <p>Change colour and brush styles</p> <p>Make careful choices when painting a digital painting</p>	<p>To follow an instruction</p> <p>Recognise that the order of instructions in an algorithm is important</p> <p>Combine four direction commands to make sequences</p> <p>Control a floor robot</p>	<p>Label objects</p> <p>Identify that objects can be counted</p> <p>Describe properties</p> <p>Count and group objects</p>	<p>Use letters, numbers, space and back key</p> <p>Type capital letters</p> <p>Use the arrow keys to move the cursor</p> <p>Use bold, italic and underline</p> <p>Change the font style, size and colour</p> <p>Explain why I used the tools that I choose</p>	<p>Create algorithms for sprites</p> <p>Debug my program</p> <p>Plan a simple program</p> <p>Use commands to move a sprite</p> <p>Use a Start block in a program</p> <p>Explain that each sprite has its own instructions</p> <p>Add programming blocks based on my algorithm</p> <p>Test the programs I have created</p>
Year 2	Substantive Knowledge	<p><u>Technology around us</u></p> <p>Identify and name devices that are computers. Explain how IT can help them both at home and in school</p> <p>To be able to name common uses of IT</p> <p>Be able to discuss the uses of IT in the world around them including familiar places such as shops</p> <p>Explain the benefits of IT in the world around them including in familiar places such as shops</p> <p>Name different rules to help them use IT safely</p> <p>How to use IT responsibly</p>	<p><u>Creating Media – Digital Photography</u></p> <p>That digital devices can be used to take photographs</p> <p>Photographs can be taken in either landscape or portrait explaining why</p> <p>Understand what good photographic composition is</p> <p>Artificial light can improve the quality of photographs</p> <p>How to change the colour of a photograph by editing</p> <p>Understand that images can be edited and not all images you see are real</p>	<p><u>Programming Robots</u></p> <p>Understand the term ‘algorithm’ and be able to explain what makes a good instruction – clear and precise</p> <p>Understand the term ‘sequence’ and how instructions given in a different sequence will change the outcome</p> <p>Understand the term ‘prediction’ and make logical predictions of outcomes based on inputs</p> <p>Programming includes artefacts related to the project such as artwork and mats</p>	<p><u>Data – Pictograms</u></p> <p>That it is important to organise data effectively for counting and comparing</p> <p>How to use a tally chart</p> <p>Become familiar with the term ‘pictogram’. Pictograms can be created manually or on a computer</p> <p>What is an attribute and that objects can be grouped based on them</p> <p>Data can be presented in other ways such as block diagrams</p>	<p><u>Creating Digital Music</u></p> <p>Be able to explain the differences between rhythms created on percussion instruments and those created digitally</p> <p>How to use a computer to change the pitch of a piece of music</p> <p>Computers can be used to create musical patterns</p> <p>Computers can be used to edit pieces of music</p>	<p><u>Programming Quizzes</u></p> <p>A sequence of commands has an outcome</p> <p>Backgrounds can be changed in a program by using algorithms</p> <p>More complex programs can be created using longer sequences</p> <p>Computer programs can be improved through testing, debugging and evaluating</p>



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				<p>Identify start and finishing points of a route and that algorithms can be used to program a robot to move between the start and finish point</p> <p>Understand the terms 'decomposition and debugging'</p> <p>Understand that larger programs can be achieved by chunking into smaller tasks to be programmed</p>			
	<p>Online Safety: Self-image and identity</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-two/self-image-and-identity/</p> <p>I can explain how other people may look and act differently online and offline.</p>	<p>Online Safety: Online Relationships</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-two/online-relationships/</p> <p>I can identify who can help me if something happens online without my consent.</p>	<p>Online Safety: Online Reputation</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-two/online-reputation/</p> <p>I know who to talk to if something has been put online without consent or if it is incorrect.</p>	<p>Online Safety: Managing Online Information</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-two/managing-online-information/</p> <p>I can explain why some information I find online may not be real or true.</p>	<p>Online Safety: Privacy and Security</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-two/privacy-and-security/</p> <p>I can explain and give examples of what is meant by 'private' and 'keeping things private'.</p>	<p>Online Safety: Copyright and Ownership</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-two/copyright-and-ownership/</p> <p>I can recognise that content on the internet may belong to other people.</p>	
Disciplinary Knowledge	<p>Recognise the uses and features of information technology</p> <p>Identify that a computer is a part of IT</p>	<p>Use a digital device to take a photograph</p> <p>Take photos landscape and portrait</p> <p>Explore the effect of light on a photo</p>	<p>Recognise the importance of giving clear instructions</p> <p>Use an algorithm to program a sequence on a floor robot</p> <p>Plan algorithms for different parts of a task</p>	<p>Recognise that objects can be represented as pictures</p> <p>Create a pictogram</p> <p>Select objects by attribute</p> <p>Explain that we can present information using a computer</p>	<p>Create rhythm patterns on a computer</p> <p>Experiment with pitch and duration</p> <p>Create a musical pattern using three notes</p>	<p>Predict outcomes of real life scenarios and simple programs</p> <p>Create an algorithm to meet my goal</p> <p>Test and debug each part of the program</p>	



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		<p>Identify the uses of information technology in the school</p> <p>Talk about uses of information technology beyond school e.g. in a shop</p>	<p>Recognise that images can be altered</p> <p>Use tools to change an image</p>	<p>Identify that a program needs to be started</p>		<p>Create music for a purpose</p> <p>Review and refine content</p>	<p>Decide which blocks to use to meet the design</p> <p>Build the sequences of blocks I need</p> <p>Create a program based my own design</p> <p>Compare my project to my design</p> <p>Debug my program</p>
Year 3	Substantive Knowledge	<p><u>Technology Around Us - Connecting Computers</u></p> <p>Understand that computers are controlled by inputs, follow processes and this produces an outcome</p> <p>Name the parts of digital devices that are used for inputs, processes and outcomes in digital devices that they are familiar with</p> <p>Explain how digital devices can help us by comparing work produced using digital and non-digital tools</p> <p>Explain how and why computers are connected to create computer networks</p> <p>The key components of a computer network and their role including a server and wireless access points</p> <p>Explain what the computer network at school looks like</p>	<p><u>Creating Media – Stop Frame Animation</u></p> <p>Understand that animations are a sequence of still images</p> <p>Tablets can be used to create images to make an animation</p> <p>To create animations, they first need to be planned on a storyboard</p> <p>Onion skinning is a method used to see small changes between frames</p> <p>Animations need to maintain consistency throughout</p> <p>Animations can be improved by listening to feedback</p> <p>Animations can be supplemented with other media such as music and text</p>	<p><u>Programming – Sequencing Sounds</u></p> <p>Identify backdrops and sprites in Scratch</p> <p>Multiple sprites can be programmed to move in different ways at the same time</p> <p>Sequences are blocks of code joined together.</p> <p>Algorithms can be started in a variety of different ways using different event blocks</p> <p>Music can be created by sequencing different sound commands</p> <p>Projects can be created using sequences to vary music, costumes and backdrops</p> <p>Code can be copied from one sprite to another</p> <p>Algorithms should be tested to see if they perform as expected. Any errors should be debugged</p>	<p><u>Data - Branching Databases</u></p> <p>Objects can be compared and identified through yes/no questions</p> <p>Attributes can be used to sort objects into groups and further groups within groups</p> <p>Objects can be arranged into a tree structure</p> <p>Online database tools can be used to arrange objects into a branching database</p> <p>Databases need to be tested to see how efficiently they work and identify improvements</p> <p>Physical versions of databases can be created as a plan to use to create digital databases</p>	<p><u>Creating Media – Desktop publishing</u></p> <p>Understand that text and images need to be selected carefully to convey messages effectively</p> <p>Font, size and colour are used to create more attractive pieces. The function of the shift, return and backspace keys</p> <p>Understand the terms ‘templates’, ‘placeholders’ and ‘orientations’</p> <p>Templates are used to add content too</p> <p>Once content has been added it can be rearranged later.</p> <p>Layouts can be changed to match the purpose of the content</p> <p>Explain the benefits of using desktop publishing</p>	<p><u>Programming – Events & Actions In Sprites</u></p> <p>Sprites can be moved using event blocks</p> <p>The size of sprites can be altered to match a backdrop</p> <p>Code can be duplicated and modified to make programming more efficient</p> <p>There are programmable extension blocks such as ‘pen’</p> <p>Debugging is the process of identifying and fixing errors</p> <p>Identify code matched to an outcome</p> <p>Use a template to complete a maze project</p>



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	<p>Online Safety: Self-image and Identity</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-three/self-image-and-identity/</p> <p>I can explain what is meant by the term 'identity'.</p>	<p>Online Safety: Online Relationships</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-three/online-relationships/</p> <p>I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with.</p>	<p>Online Safety: Online Reputation</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-three/online-reputation/</p> <p>I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal.</p>	<p>Online Safety: Online Bullying</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-three/online-bullying/</p> <p>I can give examples of how bullying behaviour could appear online and how someone can get support.</p>	<p>Online Safety: Managing Online Information</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-three/managing-online-information/</p> <p>I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc.</p>	<p>Online Safety: Health, Well-being and Lifestyle</p> <p>https://projectevolve.co.uk/toolkit/resources/years/year-three/health-well-being-and-lifestyle/</p> <p>I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged</p>
Disciplinary Knowledge	<p>Explain how digital devices function (input, output, process)</p> <p>Identify input and output devices</p> <p>Explain how a computer network can be used to share information</p> <p>Recognise the physical components of a network (switch, sever, wireless access point)</p>	<p>Understand how animation works</p> <p>Plan an animation</p> <p>Use onion skinning to create small changes between frames</p> <p>Review and improve an animation</p> <p>Add and evaluate the impact of adding other media to an animation</p>	<p>Successfully modify a program</p> <p>Create a sequence of commands using a block language to produce a given outcome</p> <p>Use an event block to start a program</p> <p>Debug errors to accomplish specific goals</p> <p>Explain the order (sequence) of commands can effect the outcome (same commands, different order -G same or different outcome)</p> <p>Identify different sequences can achieve the same outcome</p> <p>Work with others to decompose a problem into smaller steps in planning a project</p>	<p>Identify object attributes needed to collect relevant data</p> <p>Create a branching database</p> <p>Identify objects using a branching database</p> <p>Compare branching database structures and comment on their effectiveness</p> <p>Compare information shown in a pictogram with a branching database</p> <p>Explain that data can be used to answer questions</p>	<p>Identify the advantages and disadvantages of using text and images</p> <p>Change font style, size and colour for a given purpose</p> <p>Consider how different layouts can suit different purposes</p> <p>Define the term 'page orientation'</p> <p>Type with increased confidence and speed using age appropriate punctuation</p> <p>Recognise a document can be formatted with placeholders</p> <p>Identify the use of desktop publishing in the real world</p>	<p>Successfully modify a program</p> <p>Create a sequence of commands using a block language to produce a given outcome</p> <p>Use an event block to start a program</p> <p>Debug errors to accomplish specific goals</p> <p>Explain the order (sequence) of commands can effect the outcome (same commands, different order -G same or different outcome)</p> <p>Identify different sequences can achieve the same outcome</p>



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Year 4	Subst antiv e Know ledge	<u>Technology Around Us - Internet</u>	<u>Creating Media – Audio Production</u>	<u>Programming – Repetition In Shapes</u>	<u>Data - Data logging</u>	<u>Creating Media – Photo Editing</u>	<u>Programming – Repetition In Games</u>
		<p>Networks can pass information to other networks via the internet</p> <p>Why and how networks are kept safe</p> <p>The parts of a network that are connected together to make the internet</p> <p>Understand what the world-wide webs is and how we view webpages</p> <p>Identify the key parts of a website</p> <p>Ownership and copyright laws on the world wide web</p> <p>Understand that not all information on the world wide web is true or accurate</p>	<p>Input devices are used to record sound and output devices are used to play sound</p> <p>Recordings are subject to ownership and copyright laws</p> <p>Recordings can be edited to remove pauses and mistakes</p> <p>Sound effects can be used to create layers in recordings</p> <p>Podcasts are created through planning, recording and editing</p> <p>Multiple sounds can be layered to create effects</p> <p>Podcasts are evaluated to identify improvements</p>	<p>Logo is a text-based programming language where commands are typed which are then drawn on screen</p> <p>Algorithms can be written in a text-based language</p> <p>Text based programming languages need to be checked for errors and debugged</p> <p>The repeat command is used to make programming more efficient avoiding code having to be written repeatedly</p> <p>To count controlled loops to make predictions about outcomes</p> <p>Tasks need to be decomposed into small steps</p> <p>How to create, name and call procedures in Logo – code snippets – which can be reused when programming</p> <p>Creating programs involves creating algorithms which need debugging – with a focus on count-controlled loops</p>	<p>Understand what data is and how it is collected over time</p> <p>Data can be collected automatically through data loggers and the use of sensors</p> <p>Data loggers collect data at regular intervals and do not need to be connected to a computer. Information is then downloaded at a later date</p> <p>Software can be used to find key information in a data file</p> <p>Data can be used to propose enquiries to be investigated</p> <p>Explain the benefits of using a data logger</p>	<p>Images can be edited by using an image editor to make changes</p> <p>Images can be edited using rotation and cropping</p> <p>Understand the term ‘composition’</p> <p>Depending on the purpose images can be edited by altering their colours</p> <p>Parts of a photo can be removed or duplicated using cloning</p> <p>Images can be altered by using cloning on a specific area of the photo</p> <p>Explain why some photos may be edited and the ethical arguments against doing this</p> <p>Images can be combined and edited as part of a project</p> <p>Feedback is used as a guide for making changes</p> <p>Text can be combined with images as part of a project</p>	<p>Count controlled loops can be used to achieve a desired outcome</p> <p>Explain the significance of the values in loops</p> <p>Understand the difference between an infinite loop and a count-controlled loop</p> <p>Games can be modified by editing the code already written</p> <p>Identify elements within a pre-existing game that can be modified to create a new game matching the desired outcome</p> <p>Designs need to be reviewed and modified</p> <p>Games are created by: following designs to create algorithms, debugging errors that exist and evaluating for improvements</p>



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	<p>Online Safety: Self-Image and Identity</p> <p>https://projectevolve.co.uk/toolkit/resources/years/4/self-image-and-identity/</p> <p>I can explain how my online identity can be different to my offline identity.</p>	<p>Online Safety: Online Relationships</p> <p>https://projectevolve.co.uk/toolkit/resources/years/4/online-relationships/</p> <p>I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.</p>	<p>Online Safety: Online Bullying</p> <p>https://projectevolve.co.uk/toolkit/resources/years/4/online-bullying/</p> <p>I can 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).</p>	<p>Online Safety: Managing Online Information</p> <p>https://projectevolve.co.uk/toolkit/resources/years/4/managing-online-information/</p> <p>I can 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.</p>	<p>Online Safety: Health, Well-being and lifestyle</p> <p>https://projectevolve.co.uk/toolkit/resources/years/4/health-well-being-and-lifestyle/</p> <p>I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.</p>	<p>Online Safety: Privacy and Security</p> <p>https://projectevolve.co.uk/toolkit/resources/years/4/privacy-and-security/</p> <p>I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure.</p>
Disciplinary Knowledge	<p>Describe how networks physically connect to other networks</p> <p>Describe the internet as a network or networks</p> <p>Describe how the world wide is part of the internet</p> <p>Describe how content can be added and accessed on the World Wide Web</p> <p>Recognise how the content of the WWW is created and shared by people</p>	<p>Press/tap buttons to start and stop recordings</p> <p>Recognise recorded audio is stored as a file</p> <p>Edit and alter recorded audio</p> <p>Layer sounds</p> <p>Save/export an audio file</p> <p>Consider the results of editing choices made</p>	<p>Plan a program using a block language which includes repetition</p> <p>Debug errors in increasingly complex programs to accomplish specific goals</p> <p>Evaluate the effectiveness of a program</p> <p>Identify patterns (repetition) in a sequence</p> <p>Understand repetition in programming is also called looping</p> <p>Identify a loop in a program</p> <p>Understand, identify and justify when to use 'infinite' or 'count - controlled' loops</p> <p>Explain the importance in instruction order in a loop</p>	<p>Collect data using a digital device</p> <p>Recognise that a sensor can be used as an input device for data collection</p> <p>Use a larger data set to find information</p> <p>Use a computer program to sort data by one attribute</p> <p>Export information and present data in a table and a graph</p> <p>Interpret data that has been collected and draw conclusions</p>	<p>Use a computer to (further) manipulate images</p> <p>Change the composition of an image</p> <p>Recognise images can be changed for different purposes</p> <p>Describe positive and negative effects that retouching can have on an image</p> <p>Use the most appropriate tool for a particular purpose</p>	<p>Plan a program using a block language which includes repetition</p> <p>Debug errors in increasingly complex programs to accomplish specific goals</p> <p>Evaluate the effectiveness of a program</p> <p>Identify patterns (repetition) in a sequence</p> <p>Understand repetition in programming is also called looping</p> <p>Identify a loop in a program</p> <p>Understand, identify and justify when to use 'infinite' or 'count - controlled' loops</p> <p>Explain the importance in instruction order in a loop</p>



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				Independently decompose a problem into smaller steps in planning a project			Independently decompose a problem into smaller steps in planning a project
Year 5	Substantive Knowledge	<p><u>Technology Around Us - Systems and searching</u></p> <p>Systems are built using a number of components. These components work together to complete a task</p> <p>Larger computer systems are built up of multiple devices</p> <p>Identify tasks performed by larger computer systems and the benefits they bring</p> <p>There are multiple search engines</p> <p>Web searches need to be refined to ensure the correct information is found</p> <p>Web crawlers automatically index information on the world wide web</p> <p>Search engines order results by focusing on key words found on web pages</p>	<p><u>Creating Media – Video Production</u></p> <p>Video is a media format that is edited to produce content</p> <p>Digital devices can be used to record video and can be affected by the camera angle used</p> <p>Different video techniques can be used depending on the purpose</p> <p>Videos are planned using storyboards that describe the scene, script, camera angles and filming techniques</p> <p>Completed videos can be imported and edited using video editing software</p> <p>Videos are edited by removing unwanted content and reordering clips</p>	<p><u>Programming – Physical computing</u></p> <p>Micro-controllers are an input that can control an output</p> <p>Components can be controlled by a computer program to achieve a specified outcome</p> <p>Conditions are statements that depending on whether true or false affect the outcome of the program</p> <p>Conditions can change the flow of an algorithm altering the outcome depending on if the condition is met eg, if...then...</p> <p>Name real life examples of a condition starting an action</p> <p>That algorithms involving conditions need to be written and tested</p>	<p><u>Data - Flatfile Databases</u></p> <p>Databases consist of records which contain fields that can be viewed</p> <p>Data can be grouped or sorted digitally based on the chosen values</p> <p>Records can be searched for based on multiple values by using 'and' or 'or' searches</p> <p>Data can be presented visually in charts explaining the benefits of different charts</p> <p>That databases have real life applications eg a travel agent searching for a flight</p>	<p><u>Vector Drawing</u></p> <p>Vector drawings are made up of simple lines and shapes</p> <p>Each element of a vector drawing is known as an 'object'. These can be moved, resized, rotated, colour altered and duplicated</p> <p>The zoom function can be used to add detail to a vector drawing</p> <p>Alignment grids can improve the consistency of drawings</p> <p>Understand what layering is and how this can be used to create more complex images</p> <p>Objects can be easily manipulated by grouping or ungrouping</p> <p>Vector drawings can be used to create an image for a specific purpose</p>	<p><u>Programming – Selection in quizzes</u></p> <p>Selections can be determined by using conditions including if...then....else....Repetition can be used to check the conditions multiple times as they may change</p> <p>The flow of an algorithm can branch according to a condition</p> <p>Branching flows need to be predetermined and planned by identifying the outcome of an input</p> <p>Programs need to be tested to identify errors that need debugging</p> <p>Programs should be evaluated to identify improvements</p>



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	<p>Online Safety: Self-Image and Identity</p> <p>https://projectevolve.co.uk/toolkit/resources/years/5/self-image-and-identity/</p> <p>I can demonstrate how to make responsible choices about having an online identity, depending on context.</p>	<p>Online Safety: Online Relationships</p> <p>https://projectevolve.co.uk/toolkit/resources/years/5/online-relationships/</p> <p>I can 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.</p>	<p>Online Safety: Online Reputation</p> <p>https://projectevolve.co.uk/toolkit/resources/years/5/online-reputation/</p> <p>I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect</p>	<p>Online Safety: Online Bullying</p> <p>https://projectevolve.co.uk/toolkit/resources/years/5/online-bullying/</p> <p>I can identify a range of ways to report concerns and access support both in school and at home about online bullying.</p>	<p>Online Safety: Managing Online Information</p> <p>https://projectevolve.co.uk/toolkit/resources/years/5/managing-online-information/</p> <p>I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.</p>	<p>Online Safety: Privacy and Security</p> <p>https://projectevolve.co.uk/toolkit/resources/years/5/privacy-and-security/</p> <p>I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.</p>
Disciplinary Knowledge	<p>Explain that computers can be connected together to form systems</p> <p>Describe a computer system</p> <p>Recognise the role of computer systems in our lives</p> <p>Recognise how information is transferred over the internet using packets</p> <p>Explain how sharing information online lets people in different places work together</p> <p>Contribute to a shared project online</p> <p>Evaluate different ways of working together online</p> <p>Understand that search engines select pages according to keywords found in the content</p>	<p>Identify the features of a good video</p> <p>Plan a video production using a story board</p> <p>Use a computer to make a video</p> <p>Make edits to a video to improve the outcome</p> <p>Consider the impact of changes made on the quality of the video</p>	<p>Define that conditional statements (selection) are used in computer programs</p> <p>Program a microcontroller to control lights and a motor</p> <p>Explain a loop can stop when a condition is met (number of times or event)</p> <p>Explain a that program flow can branch according to a condition</p> <p>Use a condition in an if...then... statement to produce a given outcome</p> <p>Plan a solution to a problem using decomposition</p>	<p>Explain 'fields' and 'records'</p> <p>Navigate a flat -file database</p> <p>Apply Substantive Knowledge of a database to ask and answer real -world questions</p> <p>Design a structure for a flat -file database</p> <p>Choose tools to select and analyse data to answer questions</p> <p>Use 'AND' and 'OR' to refine data selection</p> <p>Select an appropriate graph to visually compare data</p>	<p>Recognise vector drawings are made using shapes</p> <p>Add, remove, modify and combine objects to create graphical drawing on a computer</p> <p>Change the order of layers in a vector drawing</p> <p>Group objects to create a single object</p> <p>Edit and refine work</p>	<p>Plan a program which includes selection to produce a given outcome</p> <p>Debug errors in increasingly complex programs to accomplish specific goals</p> <p>Evaluate the effectiveness of a program and ways it could be improved</p> <p>Define that conditional statements (selection) are used in computer programs</p> <p>Program a microcontroller to control lights and a motor</p> <p>Explain a loop can stop when a condition is met (number of times or event)</p> <p>Explain a that program flow can branch according to a condition</p>



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		<p>Use a standard search engine to find information</p> <p>Understand that search engines rank pages according to relevance</p> <p>Use filters to make more effective use of a standard search engine</p> <p>Understand that search engines use a cached copy of the crawled web to select and rank results</p>					<p>Use a condition in an if...then... statement to produce a given outcome</p> <p>Plan a solution to a problem using decomposition</p>
Year 6	Substantive Knowledge	<p><u>Technology Around Us - Communication & Collaboration</u></p> <p>Computers communicate with each other through the use of IP addresses</p> <p>Domain Name Servers translate web addresses into IP addresses</p> <p>Data is transferred in packets. The key parts of a data packet are the header and data payload</p> <p>Networks and the internet allow people in different locations to work collaboratively</p> <p>Shared working is reusing and modifying someone else's work depending on</p>	<p><u>Creating Media – Web Page Creation</u></p> <p>Name the features of a good website</p> <p>Websites are created using HTML code</p> <p>Templates can be used to create websites. Depending on the content being added some templates are more effective than others</p> <p>Understand the terms 'fair use', 'copyright' and 'copyright-free'</p> <p>Know how to search for copyright-free images</p>	<p><u>Programming – Variables In Games</u></p> <p>Understand what a variable is including real life examples</p> <p>Variables can be used in programming – they need to be named and can only hold one value at a time</p> <p>Learners are able to apply their Substantive Knowledge of variables to predict how outcomes will change</p> <p>Identify variables that will occur in a program</p> <p>How to evaluate a game and make decisions based on how the game could be improved by adding a variable</p>	<p><u>Data – Introduction To Spreadsheets</u></p> <p>Data can be collected and inputted into a spreadsheet</p> <p>Understand cell references, data items and the concept of formatting cells</p> <p>Spreadsheets perform calculations through the input of formulas</p> <p>Formulas can be duplicated and applied to multiple cells</p> <p>Spreadsheets can be used to answer questions – eg the cost of an event</p> <p>Spreadsheets can be used to present data</p>	<p><u>Creating Media – 3D Modelling</u></p> <p>Models can be represented in 3D on computers</p> <p>3D objects can be manipulated digitally by resizing the different dimensions</p> <p>3D models can be lifted or lowered relative to the workplane</p> <p>3D objects can be grouped or ungrouped and duplicated</p> <p>Digital holes can be made in 3D shapes</p> <p>Computer based 3D design is used in architecture to design buildings</p>	<p><u>Programming – Sensing Movement</u></p> <p>Microbits are input, process, output devices that can be programmed</p> <p>If...then...else... Variables are used to select the flow of a program</p> <p>Inputs can be determined through the use of sensors</p> <p>Operands are used to determine the selection flow of a program</p> <p>Substantive Knowledge of variables and operands can be used to create physical devices such as step counters</p>



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	<p>copyright permission being given</p> <p>People communicate in a variety of different ways using the internet</p> <p>Communication on the internet may not be private and we need to decide which information to share</p> <p>Different methods of communication are more effective depending on the purpose of the communication</p>	<p>Web pages need to be evaluated to identify improvements</p> <p>Websites need careful planning with navigation paths clearly thought out to allow easy access to web pages</p> <p>Understand the implication of linking to other people's work</p>			<p>3D designs need evaluating to identify improvements</p>	
	<p>Online Safety: Self-Image and Identity</p> <p>https://projectevolve.co.uk/toolkit/resources/years/6/self-image-and-identity/</p> <p>I can 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.</p>	<p>Online Safety: Online Relationships</p> <p>https://projectevolve.co.uk/toolkit/resources/years/6/online-relationships/</p> <p>I can 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.</p>	<p>Online Safety: Online Reputation</p> <p>https://projectevolve.co.uk/toolkit/resources/years/6/online-reputation/</p> <p>I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.</p>	<p>Online Safety: Online Bullying</p> <p>https://projectevolve.co.uk/toolkit/resources/years/6/online-bullying/</p> <p>I can describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me.</p>	<p>Online Safety: Managing Online Information</p> <p>https://projectevolve.co.uk/toolkit/resources/years/6/managing-online-information/</p> <p>I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news).</p>	<p>Online Safety: Health, Well-being and Lifestyle</p> <p>https://projectevolve.co.uk/toolkit/resources/years/6/health-well-being-and-lifestyle/</p> <p>I can 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).</p>
Disciplinary Knowledge	<p>Describe different ways people communicate online</p> <p>Choose a method of communication to suit a particular purpose</p>	<p>Recognise components of a webpage layout</p> <p>Create a webpage including text, images, hyperlinks and embedded content</p>	<p>Plan a program which includes variable to produce a given outcome</p> <p>Test programs on an emulator</p>	<p>Identify questions that can be answered using data</p> <p>Create a spreadsheet for a purpose</p>	<p>Create 3D graphical objects on a computer</p> <p>Rotate and re-position a 3D space</p>	<p>Plan a program which includes variable to produce a given outcome</p> <p>Test programs on an emulator</p>



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			<p>Understand the need for a navigation path</p>	<p>Use a range of approaches to debug errors in increasingly complex programs to accomplish specific goals</p> <p>Define 'variable' as something that is changeable</p> <p>Explain that a variable has a name and a value</p> <p>Identify a variable in an existing program</p> <p>Use a variable in a conditional statement to control the flow of a program</p> <p>Solve problems using decomposition, tackling each part separately</p>	<p>Apply a formula that can be used to produce calculated data</p> <p>Recognise data can be calculated using different operations</p> <p>Evaluate results in comparison to the question asked</p> <p>Choose suitable ways to presents data such as a graph</p>	<p>Modify multiple 3D objects</p> <p>Combine 3D objects to create desired effect</p> <p>Apply blank 3D objects as placeholders to create holes</p>	<p>Use a range of approaches to debug errors in increasingly complex programs to accomplish specific goals</p> <p>Define 'variable' as something that is changeable</p> <p>Explain that a variable has a name and a value</p> <p>Identify a variable in an existing program</p> <p>Use a variable in a conditional statement to control the flow of a program</p> <p>Program a microcontroller with selection and variables</p> <p>Solve problems using decomposition, tackling each part separately</p>
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