



## Subject: Computing

Year group	National Curriculum	Sticky knowledge	Skills	Area	Key vocabulary
Nursery	<p>Explore how things work</p> <p>Children recognise that a range of technology is used in places such as homes and schools.</p> <p>They will be taught to select and safely use technology for particular purposes.</p>	<ul style="list-style-type: none"> <li>• Knows how to switch on basic equipment and toys.</li> <li>• Knows how to make toys and books work by lifting flaps/pressing buttons etc.</li> <li>• Knows how to use cameras/mobile phones etc appropriately in their play.</li> <li>• Knows how to give a peer/adult simple instructions eg how to play a game.</li> <li>• Knows how to capture images and sound using simple equipment.</li> <li>• Knows how to use a simple paint package.</li> </ul>	<p>Computational Thinking:            Playing and exploring            Creating, checking and fixing things            Playing and working collaboratively            Not giving up            Anticipating and explaining            Grouping things, comparing, spotting similarities and differences, working out rules            Naming and labelling</p>	ALL AREAS	Choices Internet Website Bee-bot Equipment Buttons Movement Screen Mouse Images Keyboard Paint Technology Share Create Collect Photos Count Organise
Rec	<p>Children recognise that a range of technology is used in places such as homes and schools.</p>	<ul style="list-style-type: none"> <li>• Knows how to navigate known apps/programs on laptops, tables and the interactive whiteboard.</li> <li>• Knows how to move a Bee-bot – forwards and backwards, left and right.</li> <li>• Knows how to tinker with a range of technology to see how it works.</li> <li>• Knows how to make simple videos</li> <li>• Knows how to use more features of a simple paint package.</li> </ul>	<p>Ignoring what is unimportant            Creating a summary            Responding to instructions            Ordering things            Sequencing            Working out how to do something            Breaking instructions down into steps.</p>		
Y1	<p>Key stage 1 Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> </ul>	<p>DIGITAL LITERACY</p> <ul style="list-style-type: none"> <li>• Knows how to log in safely.</li> <li>• Knows how to navigate to a document area where saved work by child can be found.</li> <li>• Knows how to use search to locate applications or resources on a platform such as Purple Mash.</li> <li>• Knows how to enhance work by adding multimodal items such as text and images.</li> </ul>	<p>Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons.</p> <p>Children take ownership of their work and save this in their own private space.</p>	DIGITAL LITERACY	Log in Username Password Avatar Log out Save Notification Technology



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<ul style="list-style-type: none"> <li>• create and debug simple programs</li> <li>• use logical reasoning to predict the behaviour of simple programs</li> <li>• use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> <li>• recognise common uses of information technology beyond school</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Knows how to open, save and print work.</li> <li>• Knows the importance of logging out of an account.</li> <li>• Knows where technology is used in the local environment and outside school.</li> </ul>	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.		
	<p><b>DATA HANDLING</b></p> <ul style="list-style-type: none"> <li>• Knows how to sort items using a range of criteria.</li> <li>• Knows how to use software for grouping items such as tools within Purple mash.</li> <li>• Knows that data can be represented in a picture format e.g. pictogram.</li> <li>• Knows how to contribute to a class pictogram.</li> <li>• Knows how to use a software such as 2Count to record results of an experiment into a pictogram format.</li> </ul>	Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources.	INFORMATION TECHNOLOGY	Sort Criteria Data Collate
	<p><b>COMPUTATIONAL THINKING</b></p> <ul style="list-style-type: none"> <li>• Knows how to compare the effects of adhering strictly to instructions when completing tasks without complete instructions.</li> <li>• Knows how to follow and create simple instructions on the computer.</li> <li>• Knows that the order of instructions affects the end result for a given instructional task.</li> <li>• Knows the functionality of the direction keys in 2GO.</li> <li>• Knows how to create and debug a set of simple instructions (algorithm).</li> <li>• Knows how to use the additional direction keys within 2Go as part of an algorithm.</li> <li>• Knows how to change and extend the algorithm list in 2Go.</li> </ul>	<p>Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective.</p> <p>They know that an algorithm written for a computer is called a program.</p> <p>Children can work out what is wrong with a simple algorithm when the steps are out of order and can write their own simple algorithm.</p>	COMPUTER SCIENCE	Instruction Algorithm Computer Program Debug Direction Challenge Arrow Undo Rewind Forwards Backwards Right turn Left turn Debug Instruction Algorithm



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		<p><b>CODING</b></p> <ul style="list-style-type: none"> <li>• Knows what instructions are and can predict what might happen when they are followed.</li> <li>• Knows how to plan and make a simple computer program e.g. fish moves right, crab moves up.</li> <li>• Knows what objects, actions and backgrounds are within a coding environment.</li> <li>• Knows what an event is and knows how to use an event to control an object.</li> <li>• Beginning to know how code executes when a program is run.</li> </ul>	<p>Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code.</p> <p>When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.</p>	<b>COMPUTER SCIENCE</b>	<ul style="list-style-type: none"> <li>Action</li> <li>Background</li> <li>Button</li> <li>Code block</li> <li>Code design</li> <li>Collision</li> <li>Detection</li> <li>Input</li> <li>Design mode</li> <li>Command</li> <li>Coder</li> <li>Scale</li> <li>Properties</li> </ul>
		<p><b>MULTIMEDIA</b></p> <ul style="list-style-type: none"> <li>• Knows what e-books are.</li> <li>• Knows of software such as 2Create a Story that allows users to create interactive stories.</li> <li>• Knows how to add animation to an interactive story.</li> <li>• Knows how to add sound, including voice recordings and music to a story they have created using software.</li> <li>• Beginning to know how to work on more complex digital stories, including adding backgrounds, copying and pasted pages.</li> <li>• Knows how to share digital stories with others such as using Digital Display Boards.</li> </ul>	<p>Children can understand the differences between traditional books and e-books.</p> <p>Children can add animation, sound, voice recordings, backgrounds and music to their page.</p> <p>Children can add additional pages to make their own e-book.</p>	<b>INFORMATION TECHNOLOGY</b>	<ul style="list-style-type: none"> <li>Animation</li> <li>E-Book</li> <li>Font</li> <li>File</li> <li>Sound Effect</li> </ul>



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Y2	<p>Key stage 1 Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> <li>use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> <li>recognise common uses of information technology beyond school</li> <li>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.</li> </ul>	<p><b>DIGITAL LITERACY</b></p> <ul style="list-style-type: none"> <li>Knows how searches can be refined when searching digitally and therefore attempts refining when searching.</li> <li>Knows that digitally created work can be shared with others e.g. Purple Mash Display Boards.</li> <li>Has knowledge and understanding about sharing more globally on the Internet.</li> <li>Knows that email is a type of communication tool.</li> <li>Knows how to open and send simple online communications in the form of email e.g. 2Email (virtual email client).</li> <li>Knows that there is an appropriate way to communicate with others in an online situation.</li> <li>Knows that information put online leaves a digital footprint.</li> <li>Knows some steps that can be taken to keep personal data and hardware secure.</li> <li>Knows the meaning of key Internet and searching terms.</li> <li>Knows the basic parts of a web search engine page.</li> <li>Knows how to navigate a web search results page.</li> <li>Knows how to search the Internet to some degree for answers to a quiz.</li> <li>Knows the premise of what effective Internet searching is.</li> </ul>	<p>Children know the implications of inappropriate online searches.</p> <p>Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board.</p> <p>They develop an understanding of using email safely and know ways of reporting inappropriate behaviours and content to a trusted adult.</p> <p>Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge.</p>	<p>DIGITAL LITERACY</p>	<p>Search Internet Sharing Email Attachment Digital footprint Search engine</p>
		<p><b>MULTIMEDIA</b></p> <ul style="list-style-type: none"> <li>Knows the purpose and benefits of painting software tools such as 2Paint a Picture.</li> <li>Knows how to recreate Impressionism, surrealism and Pointillism using features within 2Paint a Picture.</li> <li>Knows how to reproduce the style of William Morris by using repeating patterns, manipulating patterns and adding multiple effects in painting software such as 2Paint a picture.</li> </ul>	<p>Children are confident when creating, naming, saving and retrieving content.</p> <p>Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.</p>	<p>INFORMATION TECHNOLOGY</p>	<p>Pallet Share</p>



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		<p><b>MULTIMEDIA</b></p> <ul style="list-style-type: none"> <li>• Knows how to make forms of music (digitally) using age appropriate software such as 2Sequence.</li> <li>• Knows how to edit and combine sounds using 2Sequence.</li> <li>• Knows how to refine composed music.</li> <li>• Knows how to upload/import and record sounds beyond the software environment.</li> </ul>	<p>Children are able to edit more complex digital data such as music compositions.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">INFORMATION TECHNOLOGY</p>	<p>Soundtrack Composition Tempo Sound effects Digitally Volume Bpm</p>
		<p><b>DATA HANDLING</b></p> <ul style="list-style-type: none"> <li>• Know how to set up a graph with a given number of fields using graphing software (2Graph).</li> <li>• Know how to enter data for a graph.</li> <li>• Know how to select the most appropriate chart type for their data and explain reasoning.</li> <li>• Know how to sort data in graphing software to enable easier analysis.</li> </ul>	<p>Children understand that the information on pictograms cannot be used to answer more complicated questions.</p> <p>Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database, using graphs.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">INFORMATION TECHNOLOGY</p>	<p>Bar chart Block graph Column Data Field Graph Line graph Pie chart Row</p>
		<p><b>CODING</b></p> <ul style="list-style-type: none"> <li>• Knows what an algorithm is and can explain that it is a set of instructions and that algorithms follow a sequence.</li> <li>• Knows how to create a computer program using an algorithm.</li> <li>• Knows how to create a computer program from a given design.</li> <li>• Knows that collision detection is an event type in coding.</li> <li>• Knows how to design an algorithm that follows a timed sequence.</li> <li>• Knows that different objects within the coding environment have different properties.</li> <li>• Knows that there are different events in coding and knows what some of these events are.</li> <li>• Knows the function of buttons in the coding environment.</li> </ul>	<p>Children can explain that an algorithm is a set of instructions to complete a task.</p> <p>When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.</p> <p>Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors,</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">COMPUTER SCIENCE</p>	<p>Action Character Command Algorithm Code block Code design Bug Input Object Repeat Scale Timer Properties</p>



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		<ul style="list-style-type: none"> <li>• Knows how to interpret and debug simple programs.</li> </ul>			
		<p><b>MULTIMEDIA</b></p> <ul style="list-style-type: none"> <li>• Know that digital content can be presented in many different forms e.g. stories.</li> <li>• Know how to use presentational or interactive software such as a quiz, making improvements to it based on people feedback.</li> <li>• Know that data can be structured in tables to make it useful for an audience.</li> <li>• Know how to add images such as clipart and photos to presentational software.</li> <li>• Know how to collect, organise and present data and information in digital format.</li> </ul>	Children use a range of media in their digital content including photos, text and sound.	INFORMATION TECHNOLOGY	<p>Audience Presentation Quiz Narrative Non-fiction Node Concept Map</p>
Year 3	<p>Key stage 2 Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<p><b>DIGITAL LITERACY</b></p> <ul style="list-style-type: none"> <li>• Knows what makes a safe password and how to keep it safe.</li> <li>• Knows the main outcomes of not keeping passwords safe.</li> <li>• Knows all the common ways the Internet enables people to effectively communicate.</li> <li>• Know that a blog can be used to help communicate with a wider audience.</li> <li>• Know how to contribute to a blog with clear and appropriate messages.</li> <li>• Know that some information held on websites may not be accurate or true.</li> <li>• Beginning to know how to search the Internet and how to think critically about the results returned.</li> <li>• Know why there are age restrictions on digital media and devices.</li> <li>• Know where to turn to for help if they see inappropriate content or have inappropriate contact from others.</li> </ul>	<p>Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure.</p> <p>They understand the importance of staying safe and the importance of their conduct when using familiar communication tools.</p> <p>They know more than one way to report unacceptable content and contact.</p>	DIGITAL LITERACY	<p>Concept map Blog Password Internet Website Webpage Username PEGI rating Spoof website</p>



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<ul style="list-style-type: none"> <li>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</li> <li>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>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 resending data and information</li> <li>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	<p><b>DATA HANDLING</b></p> <ul style="list-style-type: none"> <li>Know how to sort objects using just YES/NO.</li> <li>Know how YES/NO questions are structured and answered.</li> <li>Know how to complete a branching database.</li> <li>Know how to edit and adapt a branching database.</li> <li>Know how to create a branching database including debugging it.</li> </ul>	<p>Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database, using graphs.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">INFORMATION TECHNOLOGY</p>	<p>Branching database Database Data Question</p>
	<p><b>DIGITAL LITERACY</b></p> <ul style="list-style-type: none"> <li>Know the different methods of communication and know the strengths and weaknesses of his form.</li> <li>Know how to open and responding to email.</li> <li>Know how to use an address book to write an email.</li> <li>Know how to use an email environment safely including the importance of the draft feature.</li> <li>Know how to add attachments to an email.</li> <li>Know what CC means and how to use it.</li> </ul>	<p>Children can list a range of ways that the internet can be used to provide different methods of communication.</p> <p>They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails</p> <p>They can describe appropriate email conventions when communicating in this way.</p>		<p style="writing-mode: vertical-rl; transform: rotate(180deg);">DIGITAL LITERACY</p>
	<p><b>DATA HANDLING</b></p> <ul style="list-style-type: none"> <li>Know how to create tables of data within a spreadsheet.</li> <li>Know how to use a spreadsheet program to automatically create charts and graphs from data.</li> <li>Know how to use various features within a spreadsheet to support solutions to calculations. For example, 'more than', 'less than', and 'equals'.</li> <li>Know how to describe a cell location in a spreadsheet.</li> <li>Know how to find specified locations in a spreadsheet.</li> </ul>	<p>Children can navigate around a spreadsheet.</p> <p>Children can use tools to calculate totals.</p> <p>Children can collect some simple data and use a spreadsheet to interpret it.</p> <p>Children can find specified locations in a spreadsheet.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">INFORMATION TECHNOLOGY</p>	



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		<p><b>CODING:</b></p> <ul style="list-style-type: none"> <li>• Knows what a flowchart is and how flowcharts are used in computer programming.</li> <li>• Knows how to use a flowchart to create a computer program.</li> <li>• Knows that there are different types of timers used in coding environments such as 2Code.</li> <li>• Knows which timer should be used for a given purpose.</li> <li>• Know what a repeat command is and how to use the repeat command.</li> <li>• Know how to create a range of programs using coding knowledge.</li> <li>• Know how to run, test and debug their own programs.</li> <li>• Know what nesting is and that this should be considered when debugging.</li> <li>• Know how to change attributes/properties of any objects in a program they have made.</li> </ul>	<p>Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts.</p> <p>Their design shows that they are thinking of the desired task and how this translates into code.</p> <p>Children can identify an error within their program that prevents it following the desired algorithm and then fix it.</p>	<p>COMPUTER SCIENCE</p>	<ul style="list-style-type: none"> <li>Action</li> <li>Algorithm</li> <li>Alert</li> <li>Background</li> <li>Bug</li> <li>Button</li> <li>Click Event</li> <li>Code</li> <li>Collision</li> <li>Detection Event</li> <li>Command</li> <li>De-Bug</li> <li>Flowchart</li> <li>Input</li> <li>Interval</li> <li>Predict</li> <li>Nesting</li> <li>Run</li> <li>Scene</li> <li>Repeat</li> <li>Properties</li> <li>Timer</li> </ul>
		<p><b>PRESENTING</b></p> <ul style="list-style-type: none"> <li>• Know what presentation is and how it can be used.</li> <li>• Know how to add pages/slides, text and shapes to pages, and also format them.</li> <li>• Know how to add media such as images, audio and videos.</li> <li>• Know how to use effects and features such as animations and slide transitions.</li> <li>• Know how timings can help when presenting and know how to include them in presentations.</li> <li>• Know how to effectively present to an audience using presentation software.</li> </ul>	<p>Children can consider what software is most appropriate for a given task.</p> <p>They can create purposeful content to attach to emails.</p>	<p>INFORMATION TECHNOLOGY</p>	<ul style="list-style-type: none"> <li>Animation</li> <li>Audio</li> <li>Templates</li> <li>Animation</li> <li>Font</li> <li>Media</li> <li>Presentation</li> <li>Slideshow</li> <li>Stock image</li> <li>Text box</li> <li>Text formatting</li> <li>Transition</li> <li>WordArt</li> </ul>



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Year 4	<p>Key stage 2 Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>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</li> <li>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>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 resending data and information</li> </ul>	<p>DIGITAL LITERACY</p> <ul style="list-style-type: none"> <li>Know that information put online leaves a digital footprint or trail and can expand on prior years' scope of this fact.</li> <li>Know some of the ways children can protect themselves from online identity theft.</li> <li>Know that information put online by users could be used for identity theft.</li> <li>Know the main risks and benefits of installing software and applications.</li> <li>Know that copying work of others and presenting it as their own is plagiarism.</li> <li>Knows the consequences of plagiarism.</li> <li>Knows appropriate behaviour when participating or contributing to collaborative online projects for learning.</li> <li>Know some of the main positive and negative influences technology has on health and the environment.</li> <li>Knows the importance of balancing screen time with non-screen time.</li> </ul>	<p>Children can explore key concepts relating to online safety using concept mapping.</p> <p>They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.</p>	COMPUTING SCIENCE	<p>Digital footprint Copyright Computer virus Cookies Identity theft Malware computer system. Phishing Email Plagiarism Spam</p>
		<p>DIGITAL LITERACY</p> <ul style="list-style-type: none"> <li>Know how to find information from a search results page.</li> <li>Know how to search effectively to find out information.</li> <li>Know how to identify if an information source is true and reliable.</li> <li>Know there are key parts that make up a computer.</li> <li>Know what each of the key parts is called and the function of them.</li> </ul>	<p>Children understand the function, features and layout of a search engine.</p> <p>They can appraise selected webpages for credibility and information at a basic level.</p> <p>They can 'read' programs with several steps and predict the outcome accurately. Children recognise the main component parts of hardware which allow computers to join and form a network.</p>	DIGITAL LITERACY	<p>Internet browser Search Search engine Spoof website Website Motherboard CPU RAM Graphics card Network card Monitor Speakers Keyboard and mouse</p>



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<ul style="list-style-type: none"> <li>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>		<p>Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.</p>		
	<p><b>DATA HANDLING</b></p> <ul style="list-style-type: none"> <li>Know what cell formatting is.</li> <li>Know how to format cells as currency, percentage, decimal or fraction.</li> <li>Know how to use formula wizard tools.</li> <li>Know how to combine spreadsheet tools to create a purposeful spreadsheet e.g. a timed times table test.</li> <li>Know how to use a spreadsheet to model a real life situation e.g. budget planner.</li> <li>Know how to add a formula to a cell in order to create automatic calculations.</li> </ul>	<p>Children make informed software choices when presenting information and data.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">INFORMATION TECHNOLOGY</p>	<p>Average Advance mode Copy and Paste Cells Columns Charts Equals tool Formula Formula Wizard Move cell tool Random tool Spin Tool Rows Spreadsheet Timer</p>
	<p><b>CODING</b></p> <ul style="list-style-type: none"> <li>Know the structure of the coding language of Logo.</li> <li>Know how to input simple instructions in Logo language environment.</li> <li>Know how to create letter shapes using Logo.</li> <li>Know what the repeat function in Logo is and its usefulness. Use it to create shapes such as squares.</li> <li>Know what procedures are and use this knowledge to build procedures in Logo.</li> </ul>	<p>Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. e.g. traffic light algorithm.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">COMPUTER SCIENCE</p>	<p>LOGO Moves: BK FD RT LT REPEAT SETPC SETPS PU PD</p>



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		<p><b>CODING</b></p> <ul style="list-style-type: none"><li>• Begin to know what selection is in computer programming.</li><li>• Know how an IF statement works.</li><li>• Know how to interpret an IF statement and therefore know how to create a program that includes an IF statement.</li><li>• Know how to use co-ordinates in computer programming.</li><li>• Know what the 'repeat until' command is.</li><li>• Know how an IF/ELSE statement works.</li><li>• Know what a variable is in programming.</li><li>• Know how to use variables within their programs.</li><li>• To know how to create a playable game using a block coding environment.</li></ul>	<p>When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition.</p> <p>Children make more intuitive attempts to debug their own programs.</p>	<p><b>COMPUTER SCIENCE</b></p> <p>Action Alert Background Button Code Block Command Co-ordinates Debug/Debugging Execute Flowchart If (command) If/Else (command) Nesting Number Variable Object Types Predict Prompt Prompt for Input Properties Repeat Repeat Until Selection Timer Variable Variable Value</p>
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		<p><b>MULTIMEDIA</b></p> <ul style="list-style-type: none"> <li>• Know how animations are created by hand.</li> <li>• Know how animations are created using computers.</li> <li>• Know what onion skinning is when referring to animation.</li> <li>• Know that animations can be enhanced using features in software such as background and sounds.</li> <li>• Know what 'stop motion' animation is.</li> </ul>	<p>They create linked content using a range of software.</p> <p>Children share digital content within their community, i.e. using Virtual Display Boards.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">INFORMATION TECHNOLOGY</p>	<p>Animation Flipbook Frame Onion skinning Background Play Sound Stop motion Video clip</p>
Year 5	<p>Key stage 2 Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>• 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</li> <li>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> </ul>	<p><b>DIGITAL LITERACY</b></p> <ul style="list-style-type: none"> <li>• Know in more detail from prior learning of the impact that sharing digital content can have.</li> <li>• Know how to think critically about information they share online.</li> <li>• Know responsibilities they have for themselves and others regarding online behaviour.</li> <li>• Know and have developed knowledge from prior years about maintaining secure passwords.</li> <li>• Know about image manipulation using software and the advantages or disadvantages of this when shared online.</li> <li>• Know what is meant by appropriate and inappropriate text, photographs and videos.</li> <li>• Know about the impact of sharing media such as photographs and videos online.</li> <li>• Know about the importance of citing content online from others and know how to do this.</li> <li>• Know how to select keywords and search techniques to find relevant information to increase reliability.</li> </ul>	<p>Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services.</p> <p>Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">DIGITAL LITERACY</p>	<p>Smart rules SMART Online safety Shared image Password Encryption Reputable Identity theft Citations Plagiarism Reference Bibliography</p>
		<p><b>COMPUTATIONAL THINKING</b></p> <ul style="list-style-type: none"> <li>• Know what some of the main elements are that make a successful game.</li> <li>• Know how to plan a playable game.</li> <li>• Know how to incorporate media such as sound and images.</li> <li>• Know how to manipulate media including adding</li> </ul>	<p>Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">COMPUTER SCIENCE</p>	<p>Animation Customise Evaluation Image Instructions Screenshot Texture</p>



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<ul style="list-style-type: none"> <li>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 resending data and information</li> <li>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	<p>animation.</p> <ul style="list-style-type: none"> <li>Know how to successfully evaluate games.</li> </ul>	<p>They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.</p>		<p>Perspective Playability</p>
	<p>WORD PROCESSING</p> <ul style="list-style-type: none"> <li>Know what a word processing tool is for.</li> <li>Know how to create a word processing document.</li> <li>Know how to alter the look of text and navigate around a document.</li> <li>Know how to alter page layout including heading and columns.</li> <li>Know how to add and edit images.</li> <li>Know how to add features to enhance look and usability within a document. For example: textboxes, hyperlinks, contents pages.</li> <li>Know how to use tables to present information.</li> </ul>	<p>Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief.</p>	<p>INFORMATION TECHNOLOGY</p>	<p>Copyright Cursor Document Font In-built styles Merge cells Text formatting Text wrapping Word Art Readability Template Word processing tool</p>
	<p>MODELLING</p> <ul style="list-style-type: none"> <li>Know what modelling software is and the skills of computer aided design.</li> <li>Know the effect of moving points when designing.</li> <li>Know how to design a 3D model to fit certain criteria.</li> <li>Know how to refine and print a model.</li> </ul>	<p>Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief.</p>		<p>INFORMATION TECHNOLOGY</p>



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		<p><b>CODING</b></p> <ul style="list-style-type: none"> <li>• Begin to know how to simplify code in order to make own programming more efficient.</li> <li>• Know how to create a simple simulation using 2Code. For example, a traffic light sequence.</li> <li>• Know what decomposition and abstraction are in computer science.</li> <li>• Know the need to start coding at a basic level of abstraction to remove superfluous details from own programs.</li> <li>• Know how to use decomposition to make a plan of a real-life situation.</li> <li>• Know what a function is in coding and know how to use a function in own program to make it more efficient.</li> <li>• Know what different variable types are.</li> <li>• Know what strings are and how to use them.</li> <li>• Know how to set and change variable values in code.</li> <li>• Know some of the common ways that text variables can be used in programming.</li> <li>• Know and use concatenation in own programs.</li> </ul>	<p>Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts.</p> <p>Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures.</p> <p>When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">COMPUTER SCIENCE</p>	<ul style="list-style-type: none"> <li>Action</li> <li>Abstraction</li> <li>Algorithm</li> <li>Button</li> <li>Called</li> <li>Co-ordinates</li> <li>Decomposition</li> <li>Event</li> <li>Function</li> <li>If</li> <li>Repeat</li> <li>Run</li> <li>Repeat</li> <li>Score</li> <li>Sequence</li> <li>Simplify/Simplifi ed</li> <li>Simulation</li> <li>Tab</li> <li>Timer</li> <li>Variable</li> <li>Nesting</li> <li>Object</li> <li>Physical System</li> <li>Properties</li> <li>Writing code</li> </ul>
Year 6	<p>Key stage 2 Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with</li> </ul>	<p><b>DIGITAL LITERACY</b></p> <ul style="list-style-type: none"> <li>• Know the benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location.</li> <li>• Know what secure sites are.</li> <li>• Know that secure sites will have industry standard seals of approval.</li> <li>• Build on knowledge of Digital Footprints. For example, know how and why people use their information.</li> </ul>	<p>Children demonstrate the safe and respectful use of a range of different technologies and online services.</p> <p>They identify more discreet inappropriate behaviours through developing critical thinking.</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">DIGITAL LITERACY</p>	<ul style="list-style-type: none"> <li>Digital footprint</li> <li>PEGI rating</li> <li>Phishing</li> <li>Spoof website</li> <li>Password</li> <li>Screen time</li> <li>Audience</li> <li>Blog</li> <li>Blog page</li> <li>Blog post</li> </ul>



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<p>variables and various forms of input and output</p> <ul style="list-style-type: none"> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>• 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</li> <li>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>• 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 resending data and information</li> <li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	<ul style="list-style-type: none"> <li>• Build on knowledge of appropriate online behaviours and how this can protect themselves and others from possible online dangers.</li> <li>• Have greater knowledge of how to make more informed choices of how free time is used.</li> <li>• Know the effects on individual health when having too much screen time.</li> </ul> <p>Know the purpose of writing a blog.</p> <ul style="list-style-type: none"> <li>• Know the features of successful blog writing.</li> <li>• Know how to plan and write a blog post..</li> <li>• Know that the way information is presented within a blog has an impact upon the audience.</li> <li>• Know how to contribute to others' blogs.</li> <li>• Know the importance of having an approval process when creating blog content or modifying it.</li> <li>• Know from Online Safety knowledge that content within blogs applies.</li> </ul>	<p>They recognise the value in preserving their privacy when online for their own and other people's safety.</p> <p>Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet.</p> <p>They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.</p>		Collaborative Icon
	<p><b>NETWORKS</b></p> <ul style="list-style-type: none"> <li>• Know the difference between the World Wide Web and the Internet.</li> <li>• Know what a WAN and LAN is and the key differences between them.</li> <li>• Know how a school network accesses the Internet.</li> <li>• Know the history of the Internet.</li> <li>• Know some of the major changes in technology which have taken place in their lifetime.</li> </ul>	<p>Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.</p>	COMPUTER SCIENCE	Internet World Wide Web Network Local area network (LAN) Wide area network (WAN) Router Network cables wireless
	<p><b>DATA HANDLING USING EXCEL</b></p> <ul style="list-style-type: none"> <li>• Know the uses of spreadsheets and familiar with the spreadsheet environment.</li> </ul>	<p>Children can use the series fill function.</p> <p>Children recognise how using</p>		Alignment Format Row



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		<ul style="list-style-type: none"> <li>• Know how to navigate around a spreadsheet using cell references.</li> <li>• Know key vocabulary: Cells, columns, rows, cell names, sheets, workbooks.</li> <li>• Know how to use a spreadsheet to carry out basic calculations including addition, subtraction, multiplication and division formulae.</li> <li>• Know how to use the series fill function.</li> <li>• Know that using formulae allows the data to change and the calculations to update automatically.</li> <li>• Know how to use a spreadsheet to solve a problem.</li> <li>• Know how to use the SUM function.</li> <li>• Know how to manipulate the way data is presented.</li> <li>• Know what is meant by a delimiter.</li> <li>• Know how to create formulae that deals with percentages, averages, max and min.</li> <li>• Know what range notation is.</li> <li>• Know that there are ways to present data graphically.</li> <li>• Know how to use charting features to create charts from data in cells.</li> <li>• Know how to use sparklines and data bars to illustrate data.</li> <li>• Know the advantages to using formulae when data is subject to change in a spreadsheet.</li> <li>• Know how to print spreadsheets.</li> </ul>	<p>formulae allows the data to change and the calculations to update automatically.</p> <p>Children can use a spreadsheet to solve a problem.</p> <p>Children can use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet.</p> <p>Children understand how to sort data.</p> <p>Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets.</p> <p>Children know that there are ways to represent their data graphically and that spreadsheets can make the process of representing data easier.</p> <p>Children make a variety of charts using Sheets.</p>		<p>Area Formula(e) Spreadsheet Calculate Function Style Cell Graph Sum Cell reference Graphics Table Chart Model Text Wrapping Column Open Value Data Range Workbook Effects Reference</p>
		<p><b>CODING</b></p> <ul style="list-style-type: none"> <li>• Know what a text based adventure is.</li> <li>• Know how to convert a simple story with 2 or 3 levels of decision making into a logical design.</li> <li>• Know how to use the functionality of 2Create a Story Adventure mode to create, test and debug using</li> </ul>	<p>Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way</p>	<p>COMPUTER SCIENCE</p>	<p>Text-based adventure Concept map Debub Sprite Function</p>



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		<p>plans.</p> <ul style="list-style-type: none"> <li>• Know the difference between a map-based game and a sequential story-based game.</li> <li>• Know how to use written plans to code a map-based adventure using 2Code.</li> <li>• Know how to recall existing knowledge to support coding a map-based adventure game. For example, using functions, two-way selection (IF/ELSE statements) and repetition.</li> </ul>	<p>using their knowledge of possible coding structures and applying skills from previous programs.</p> <p>Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.</p>		
		<p><b>CODING</b></p> <ul style="list-style-type: none"> <li>• Know how to implement a game which includes timers and a score.</li> <li>• Know what the launch command is.</li> <li>• Build on knowledge of functions.</li> <li>• Know how to use multiple functions in own program.</li> <li>• Know how to arrange code in multiple tabs.</li> <li>• Know how to develop creativity when coding to generate novel effects.</li> <li>• Know the different options of generating user input in 2Code.</li> <li>• Know how to attribute variables to user input.</li> <li>• Know the need to code for all possibilities when using user inputs.</li> <li>• Know how 2Code can be used to make a text-based adventure game.</li> <li>• Know with improving understanding of how they can alter existing programs to reflect their own ideas.</li> <li>• Building on existing knowledge of debugging, children know how to debug more effectively.</li> </ul>	<p>Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other.</p> <p>Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.</p>	<p>COMPUTER SCIENCE</p>	<p>Button Called Command Co-ordinates Action Alert Algorithm Background Debug Decomposition Developer Nested Object Predict Procedure Prompt Properties Repeat Run Scene A Selection Simulation String Tab Timer</p>



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User Input  
Variable  
Event  
Flowchart  
Function  
Get Input  
If/Else  
A conditional  
command.  
Launch  
Command  
Number  
Variable