

## Computing Progression & Embedded Knowledge

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Nursery</b>	Systems and Networks - Technology Around Us	Systems and Networks - Operating Hardware	E-Safety	Programming – Moving a Robot	Creating Media – Digital Drawing	Systems and Networks - Operating Hardware
Vocabulary	<i>technology, classroom, electricity, lights, lightbulb, whiteboard, laptop, type, search, work, print, iPad, games, camera, photo, video, headphones, music, listen</i>	<i>technology, story phones, stories, skip, play, listen, hear, sound, button, hold, press, record</i>	<i>e-safety, hold, careful, safe, adult, grown up, device, check, ask</i>	<i>BeeBot, robot, press, button, move, forward, go</i>	<i>interactive whiteboard, draw, pen, picture, app, erase, choose, press, screen</i>	<i>talking tin, voice, speak, record, button, press, hold, play, listen</i>
Embedded knowledge	To name some technology around them in the classroom and explain what it is used for. (Lights, interactive whiteboard, laptop, iPads, headphones)	To know how to stop and start the story phones and skip the story.  To know how to operate sound buttons to hear recordings.	To use and handle equipment safely.  To know that they need to ask an adult before using a device.	To know how to program a BeeBot to go forwards. (Press forward and GO)	To know how to draw a picture on the IWB app and know how to erase it.	To know how to record their voice on a talking tin.
<b>Reception</b>	Systems and Networks - Technology Around Us	Systems and Networks - Operating Hardware & Software	E-Safety	Programming – Moving a Robot	Creating Media – Digital Drawing	Programming - Coding
Vocabulary	<i>Technology, home, house, world, electricity, power, plug, socket, TV, watch, films, programmes, washing machine, clean, wash, microwave, oven, cook, heat, mobile phones, call, text, tablets, internet, search, games, games console, traffic lights, cars, travel, safety, sat nav, aeroplane, engine, pilot, card machine, pay, card, walkie talkie, police, messages, emergency, x-ray machine, hospital, doctor</i>	<i>technology, iPad, app, choose, select, camera, photo, video, record, play, QR code, hover, scan, button, press</i>	<i>e-safety, safe, online, internet, strangers, private, adult, grown up, device, check, ask</i>	<i>BeeBot, robot, program, direction, path, follow, forwards, backwards, left, right, turn, press, button, move, go, clear</i>	<i>interactive whiteboard, draw, create, pen, picture, shape, outline, fill, app, erase, choose, change, colour, press, screen</i>	<i>iPad, code, coding, instruct, instruction, program, select, press, direction, turn</i>
Embedded knowledge	To name different technology in their home and explain what it is used	To know how to switch an iPad on and select an app.	To give reasons why we need to stay safe online.	To know how to program a BeeBot to go forwards, backwards, left and right.	To draw a picture on the IWB app and know how to create a shape and fill it.	To be able to complete a simple coding game on an iPad.

	<p>for. (TV, washing machine, microwave, oven, mobile phones, tablets, games consoles)</p> <p>To name some technology in the world around us and say who may use it. (traffic lights, cars, aeroplanes, card machines, walkie talkies, sat nav, x-ray machine)</p>	<p>To know how to take a picture on an iPad.</p> <p>To know how to record a video on an iPad.</p> <p>To know how to use a QR code with the iPads to access stories &amp; nursery rhymes.</p>	<p>To know that they need to ask an adult before using a device and to check anything they are unsure of.</p>	<p>To program a BeeBot to go along a path using different directions.</p>	<p>To know how to change the colour of the pen and erase it.</p>	
<b>KS1 Cycle A</b>		<b>Systems and Networks:</b> Technology around us	<b>Creating Media:</b> Making music		<b>Data and Information:</b> Pictograms	<b>Programming:</b> An introduction to quizzes
Vocabulary		<i>information technology (IT)</i> <i>computer</i> <i>barcode</i> <i>scanner/scan</i>	<i>music</i> <i>quiet</i> <i>loud</i> <i>feelings</i> <i>emotions</i> <i>pattern</i> <i>rhythm</i> <i>pulse</i> <i>pitch</i> <i>tempo</i> <i>notes</i> <i>create</i> <i>emotion</i> <i>beat</i> <i>instrument</i> <i>open</i> <i>edit</i>		<i>common</i> <i>popular</i> <i>organise</i> <i>data</i> <i>object</i> <i>tally</i> <i>chart</i> <i>votes</i> <i>total</i> <i>pictogram</i> <i>enter</i> <i>data</i> <i>compare</i> <i>attribute</i> <i>group</i> <i>conclusion</i> <i>block diagram</i> <i>sharing</i>	<i>sequence</i> <i>command</i> <i>program</i> <i>run</i> <i>start</i> <i>outcome</i> <i>predict</i> <i>blocks</i> <i>design</i> <i>actions</i> <i>sprite</i> <i>project</i> <i>modify</i> <i>change</i> <i>algorithm</i> <i>build</i> <i>match</i> <i>compare</i> <i>debug</i> <i>features</i> <i>decomposition</i> <i>code</i>

<p>Embedded knowledge</p>		<p>To recognise the uses and features of information technology</p> <p>To identify the uses of information technology in the school</p> <p>To identify information technology beyond school</p> <p>To explain how information technology helps us</p> <p>To explain how to use information technology safely</p> <p>To recognise that choices are made when using information technology</p>	<p>To say how music can make us feel</p> <p>To identify that there are patterns in music</p> <p>To experiment with sound using a computer</p> <p>To use a computer to create a musical pattern</p> <p>To create music for a purpose</p> <p>To review and refine our computer work</p>		<p>To recognise that we can count and compare objects using tally charts</p> <p>To recognise that objects can be represented as pictures</p> <p>To create a pictogram</p> <p>To select objects by attribute and make comparisons</p> <p>To recognise that people can be described by attributes</p> <p>To explain that we can present information using a computer</p>	<p>To explain that a sequence of commands has a start</p> <p>To explain that a sequence of commands has an outcome</p> <p>To create a program using a given design</p> <p>To change a given design</p> <p>To create a program using my own design</p> <p>To decide how my project can be improved</p>
<p><b>KS1 Cycle B</b></p>		<p><b>Computing Systems and Networks:</b> Connecting Computers</p>		<p><b>Programming:</b> Moving a robot</p>	<p><b>Data and Information:</b> Grouping Data</p>	<p><b>Creating Media:</b> Digital Writing</p>
<p>Vocabulary</p>		<p><i>technology</i> <i>computer</i> <i>mouse</i> <i>trackpad</i> <i>keyboard</i> <i>screen</i> <i>double-click</i> <i>typing</i></p>		<p><i>Bee-bot</i> <i>forwards</i> <i>backwards</i> <i>turn</i> <i>clear</i> <i>go</i> <i>commands</i> <i>instructions</i> <i>directions</i> <i>route</i> <i>plan</i> <i>algorithm</i> <i>program</i></p>	<p><i>object</i> <i>label</i> <i>group</i> <i>search</i> <i>image</i> <i>property</i> <i>colour</i> <i>size</i> <i>shape</i> <i>value</i> <i>data set</i></p>	<p><i>word processor</i> <i>keyboard</i> <i>keys</i> <i>letters</i> <i>type</i> <i>numbers</i> <i>space</i> <i>backspace</i> <i>text cursor</i> <i>capital letters</i> <i>toolbar</i> <i>bold</i> <i>italic</i> <i>underline</i></p>

						<i>mouse</i> <i>select</i> <i>font</i> <i>undo</i> <i>redo</i> <i>format</i> <i>compare</i> <i>typing</i> <i>writing</i>
Embedded knowledge		<p>To identify technology</p> <p>To identify a computer and its main parts</p> <p>To use a mouse in different ways</p> <p>To use a keyboard to type on a computer</p> <p>To use the keyboard to edit text</p> <p>To create rules for using technology responsibly</p>		<p>To explain what a given command will do</p> <p>To act out a given word</p> <p>To combine forwards and backwards commands to make a sequence</p> <p>To combine four direction commands to make sequences</p> <p>To plan a simple program</p> <p>To find more than one solution to a problem</p>	<p>To label objects</p> <p>To identify that objects can be counted</p> <p>To describe objects in different ways</p> <p>To count objects with the same properties</p> <p>To compare groups of objects</p> <p>To answer questions about groups of objects</p>	<p>To use a computer to write</p> <p>To add and remove text on a computer</p> <p>To identify that the look of text can be changed on a computer</p> <p>To make careful choices when changing text</p> <p>To explain why I used the tools that I chose</p> <p>To compare typing on a computer to writing on paper</p>
<b>Year 3</b>		<p><b>Computing Systems and Networks</b></p> <p>Connecting Computers</p>	<p><b>Programming</b></p> <p>Sequencing Sounds</p>		<p><b>Data and Information</b></p> <p>Branching Databases</p>	<p><b>Creating Media</b></p> <p>Stop Frame Animation</p>
Vocabulary		<i>digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets</i>	<i>Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug,</i>		<i>attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.</i>	<i>animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.</i>

			<i>debug, code.</i>			
Embedded knowledge		<ul style="list-style-type: none"> <li>-To explain how digital devices function</li> <li>-To identify input and output devices</li> <li>-To recognise how digital devices can change the way we work</li> <li>-To explain how a computer network can be used to share information</li> <li>-To explore how digital devices can be connected</li> <li>-To recognise the physical components of a network</li> </ul>	<ul style="list-style-type: none"> <li>-To explore a new programming environment</li> <li>-To identify that commands have an outcome</li> <li>-To explain that a program has a start</li> <li>-To recognise that a sequence of commands can have an order</li> <li>-To change the appearance of my project</li> <li>-To create a project from a task description</li> </ul>		<ul style="list-style-type: none"> <li>-To create questions with yes/no answers</li> <li>-To identify the attributes needed to collect data about an object</li> <li>-To create a branching database</li> <li>-To explain why it is helpful for a database to be well structured</li> <li>-To plan the structure of a branching database</li> <li>-To independently create an identification tool</li> </ul>	<ul style="list-style-type: none"> <li>-To explain that animation is a sequence of drawings or photographs</li> <li>-To relate animated movement with a sequence of images</li> <li>-To plan an animation</li> <li>-To identify the need to work consistently and carefully</li> <li>-To review and improve an animation</li> <li>-To evaluate the impact of adding other media to an animation</li> </ul>
<b>Year 4</b>	<b>Creating Media:</b> Photo Editing	<b>Systems and Networks:</b> Connecting Computers		<b>Data and Information:</b> Data Logging		<b>Programming B:</b> Repetition in Games

<p><i>Vocabulary</i></p>	<p><i>image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.</i></p>	<p><i>internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts</i></p>		<p><i>image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.</i></p>		<p><i>image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.</i></p>
<p>Embedded knowledge</p>	<ul style="list-style-type: none"> <li>-To explain that the composition of digital images can be changed</li> <li>-To explain that colours can be changed in digital images</li> <li>-To explain how cloning can be used in photo editing</li> <li>-To explain that images can be combined</li> </ul>	<ul style="list-style-type: none"> <li>-To describe how networks physically connect to other networks</li> <li>-To recognise how networked devices make up the internet</li> <li>-To outline how websites can be shared via the World Wide Web (WWW)</li> </ul>		<ul style="list-style-type: none"> <li>-To explain that data gathered over time can be used to answer questions</li> <li>-To use a digital device to collect data automatically</li> <li>-To explain that a data logger collects 'data points' from sensors over time</li> </ul>		<ul style="list-style-type: none"> <li>-To develop the use of count-controlled loops in a different programming environment</li> <li>-To explain that in programming there are infinite loops and count controlled loops</li> <li>-To develop a design that includes two or more loops which run at the same time</li> </ul>

	<ul style="list-style-type: none"> <li>-To combine images for a purpose</li> <li>-To evaluate how changes can improve an image</li> </ul>	<ul style="list-style-type: none"> <li>-To describe how content can be added and accessed on the World Wide Web (WWW)</li> <li>-To recognise how the content of the WWW is created by people</li> <li>-To evaluate the consequences of unreliable content</li> </ul>		<ul style="list-style-type: none"> <li>-To recognise how a computer can help us analyse data</li> <li>-To identify the data needed to answer questions</li> <li>-To use data from sensors to answer questions</li> </ul>		<ul style="list-style-type: none"> <li>-To modify an infinite loop in a given program</li> <li>-To design a project that includes repetition</li> <li>-To create a project that includes repetition</li> </ul>
<b>Year 5</b>	<b>Systems and Networks:</b> Sharing Information	<b>Creating Media:</b> Video Editing	<b>Data and Information:</b> Flat-file Databases	<b>Programming:</b> Selection in Quizzes		
<i>Vocabulary</i>	<ul style="list-style-type: none"> <li><i>system</i></li> <li><i>connection</i></li> <li><i>digital</i></li> <li><i>input</i></li> <li><i>process</i></li> <li><i>output</i></li> <li><i>search</i></li> <li><i>search engine</i></li> <li><i>refine</i></li> <li><i>index</i></li> <li><i>crawler</i></li> <li><i>bot</i></li> <li><i>ordering</i></li> <li><i>ranking</i></li> <li><i>links</i></li> <li><i>algorithm</i></li> <li><i>search engine optimisation (SEO)</i></li> </ul>	<ul style="list-style-type: none"> <li><i>vector</i></li> <li><i>drawing tool</i></li> <li><i>object</i></li> <li><i>toolbar</i></li> <li><i>vector drawing</i></li> <li><i>move</i></li> <li><i>resize</i></li> <li><i>colour</i></li> <li><i>rotate,</i></li> <li><i>duplicate/copy, zoom</i></li> <li><i>select</i></li> <li><i>align</i></li> <li><i>modify</i></li> <li><i>layers,</i></li> <li><i>order</i></li> <li><i>copy</i></li> <li><i>paste</i></li> <li><i>group</i></li> </ul>	<ul style="list-style-type: none"> <li><i>database</i></li> <li><i>data</i></li> <li><i>information</i></li> <li><i>record</i></li> <li><i>field</i></li> <li><i>sort</i></li> <li><i>order</i></li> <li><i>group</i></li> <li><i>search</i></li> <li><i>value</i></li> <li><i>criteria</i></li> <li><i>graph</i></li> <li><i>chart</i></li> <li><i>axis</i></li> <li><i>compare</i></li> <li><i>filter</i></li> <li><i>presentation.</i></li> </ul>	<ul style="list-style-type: none"> <li><i>selection</i></li> <li><i>condition</i></li> <li><i>true</i></li> <li><i>false, count-controlled loop</i></li> <li><i>outcomes, conditional</i></li> <li><i>statement</i></li> <li><i>algorithm</i></li> <li><i>program</i></li> <li><i>debug</i></li> <li><i>question</i></li> <li><i>answer</i></li> <li><i>task</i></li> <li><i>design</i></li> <li><i>input</i></li> <li><i>implement</i></li> <li><i>test</i></li> <li><i>run</i></li> <li><i>setup,</i></li> </ul>		

	<i>web crawler content creator selection searching</i>	<i>ungroup reuse reflection</i>		<i>operator</i>		
Embedded knowledge	<ul style="list-style-type: none"> <li>-To explain that computers can be connected together to form systems</li> <li>-To experiment with search engines</li> <li>-To describe how search engines select results</li> <li>-To explain how search results are ranked</li> <li>-To recognise why the order of results is important and to whom.</li> </ul>	<ul style="list-style-type: none"> <li>To explain what makes a video effective</li> <li>-To identify digital devices that can record video</li> <li>-To capture video using a range of techniques</li> <li>-To describe how search engines select results</li> <li>-To explain how search results are ranked</li> <li>-To recognise why the order of results is important, and to whom</li> </ul>	<ul style="list-style-type: none"> <li>-To control a simple circuit connected to a computer</li> <li>-To write a program that includes count-controlled loops</li> <li>-To explain that a loop can stop when a condition is met</li> <li>-To explain that a loop can be used to repeatedly check whether a condition has been met</li> <li>-To design a physical project that includes selection</li> <li>-To create a program that controls a physical computing project</li> </ul>	<ul style="list-style-type: none"> <li>-To explain how selection is used in computer programs</li> <li>-To relate that a conditional statement connects a condition to an outcome</li> <li>-To explain how selection directs the flow of a program</li> <li>-To design a program which uses selection</li> <li>-To create a program which uses selection</li> <li>-To evaluate my program</li> </ul>		
<b>Year 6</b>		<b>Systems and Networks:</b> Communication and Collaboration	<b>Programming:</b> Variables in Games		<b>Data and Information:</b> Introduction to Spreadsheets	<b>Creating Media:</b> Webpage Creation
Vocabulary		<i>communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private,</i>	<i>variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare</i>		<i>data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate,</i>	<i>website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink,</i>

		<i>oneway, two-way, one-to-one, one-to-many.</i>			<i>results, sum, comparison, software, tools.</i>	<i>subpage, evaluate, implication, external link, embed.</i>
Embedded knowledge		<p>To explain the importance of internet addresses</p> <p>To recognise how data is transferred across the internet</p> <p>To explain how sharing information online can help people to work together</p> <p>To evaluate different ways of working together online</p> <p>To recognise how we communicate using technology</p> <p>To evaluate different methods of online communication</p>	<p>To define a 'variable' as something that is changeable</p> <p>To explain why a variable is used in a program</p> <p>To choose how to improve a game by using variables</p> <p>To design a project that builds on a given example</p> <p>To use my design to create a project</p> <p>To evaluate my project</p>		<p>To create a data set in a spreadsheet</p> <p>To build a data set in a spreadsheet</p> <p>To explain that formulas can be used to produce calculated data</p> <p>To apply formulas to data</p> <p>To create a spreadsheet to plan an event</p> <p>To choose suitable ways to present data</p>	<p>To review an existing website and consider its structure</p> <p>To plan the features of a web page</p> <p>To consider the ownership and use of images (copyright)</p> <p>To recognise the need to preview pages</p> <p>To outline the need for a navigation path</p> <p>To recognise the implications of linking to content owned by other people</p>