


	Concepts	Nursery 30-50 months	Reception Early Learning Goals	Phase 1 Key Stage 1 Year 1 & 2	Phase 2 Lower Key Stage 2 Year 3 & 4	Phase 3 Upper Key Stage 2 Year 5 & 6
Coding (Scratch unless specified)	Motion	<b>Units</b> <ul style="list-style-type: none"> <li>Control movements of technological toys</li> </ul>	<b>Activity 5, 16, 17 (Not scratch)</b> <ul style="list-style-type: none"> <li>Control motion of programmable toy – left, right, forward back</li> </ul>	<b>Units 1.1, 2.1, 2.2</b> <ul style="list-style-type: none"> <li>Control motion specifying the number of steps to travel, direction and turn</li> </ul>	<b>Units 3.1, 3.2, 4.1, 4.2</b> <ul style="list-style-type: none"> <li>Use specified screen coordinates to control movement</li> </ul>	<b>Units 5.1, 5.2, 5.3</b> <ul style="list-style-type: none"> <li>Set IF conditions for movements. Specify types of rotation giving the number of degrees</li> </ul>
	Looks		<b>Activity 5, 16, 17, 22 (Not scratch)</b> <ul style="list-style-type: none"> <li>Using tools to change appearance.</li> </ul>	<b>Units 1.3, 2.1, 2.2</b> <ul style="list-style-type: none"> <li>Add text strings, show and hide objects and change and features of an object</li> </ul>	<b>Units 3.1, 3.2, 4.1, 4.2</b> <ul style="list-style-type: none"> <li>Set the appearance of objects and create sequences of changes</li> </ul>	<b>Units 5.1, 5.2, 5.3</b> <ul style="list-style-type: none"> <li>Change the position of objects between screen layers (send to back, bring to front)</li> </ul>
	Sound	<b>Units</b> <ul style="list-style-type: none"> <li>Record sounds</li> </ul>	<b>Activity 1, 3, 7, 9, 11, 12, 13, 19, 23, 24 (not scratch)</b> <ul style="list-style-type: none"> <li>Record and playback sounds</li> </ul>	<b>Units 1.5, 2.1, 2.2</b> <ul style="list-style-type: none"> <li>Select sounds and control when they heard, their duration and volume</li> </ul>	<b>Units 3.1, 3.2, 3.3, 4.1, 4.2</b> <ul style="list-style-type: none"> <li>Create and edit sounds. Control when they are heard, their volume, duration and rests.</li> </ul>	<b>Units 5.1, 5.2, 5.3</b> <ul style="list-style-type: none"> <li>Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation.</li> </ul>
	Draw	<b>Units</b> <ul style="list-style-type: none"> <li>Control of drawing</li> </ul>	<b>Activity 2, 18, 22 (not scratch)</b> <ul style="list-style-type: none"> <li>Control when drawings appear.</li> </ul>	<b>Units 1.3, 2.1, 2.2</b> <ul style="list-style-type: none"> <li>Control when drawings appear and set the pen colour size and shape.</li> </ul>	<b>Units 3.1, 4.1, 4.2</b> <ul style="list-style-type: none"> <li>Control the shade of pens</li> </ul>	<b>Units 5.1, 5.2, 5.3</b> <ul style="list-style-type: none"> <li>Combine the use of pens with movement to create interesting effects</li> </ul>
	Events	<b>Units</b> <ul style="list-style-type: none"> <li>Follow instructions</li> </ul>	<b>Activity 10, 18, 21 (not scratch)</b> <ul style="list-style-type: none"> <li>Follow instructions to control events</li> </ul>	<b>Units 1.3, 2.1, 2.2</b> <ul style="list-style-type: none"> <li>Specify user inputs to control events</li> </ul>	<b>Units 3.1, 3.2, 4.1, 4.2</b> <ul style="list-style-type: none"> <li>Specify conditions to trigger events.</li> </ul>	<b>Units 5.1, 5.2, 5.3</b> <ul style="list-style-type: none"> <li>Set events to control other events by 'broadcasting' information as a trigger.</li> </ul>

Control	<p><b>Units</b></p> <ul style="list-style-type: none"> <li>✚ Carry out instructions</li> </ul>	<p><b>Activity 2, 5, 6, 7, 10, 11, 21 (not scratch)</b></p> <ul style="list-style-type: none"> <li>✚ Specify how to carry out instructions.</li> </ul>	<p><b>Units 1.3, 2.1, 2.2</b></p> <ul style="list-style-type: none"> <li>✚ Specify the nature of events</li> </ul>	<p><b>Units 3.1, 3.2, 4.1, 4.2</b></p> <ul style="list-style-type: none"> <li>✚ Use IF THEN conditions to control events or objects.</li> </ul>	<p><b>Units 5.1, 5.2, 5.3</b></p> <ul style="list-style-type: none"> <li>✚ Use IF THEN ELSE conditions to control events or objects.</li> </ul>
	<p><b>Units</b></p> <ul style="list-style-type: none"> <li>✚ Responding to questions</li> </ul>	<p><b>Units 17 (not scratch)</b></p> <ul style="list-style-type: none"> <li>✚ Responding to conditions and questions</li> </ul>	<p><b>Units 2.1, 2.2</b></p> <ul style="list-style-type: none"> <li>✚ Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?)</li> </ul>	<p><b>Units 3.1, 4.1, 4.2</b></p> <ul style="list-style-type: none"> <li>✚ Create conditions for actions by sensing proximity</li> </ul>	<p><b>Unit 5.1, 5.2, 5.3</b></p> <ul style="list-style-type: none"> <li>✚ Use a range of sensing tools.</li> </ul>
	Variables and lists	N/A	N/A	N/A	<p><b>Units 3.6, 4.1, 4.2</b></p> <ul style="list-style-type: none"> <li>✚ Use a variable to store a value.</li> </ul> <p><b>Units 3.1, 3.2, 4.1, 4.2</b></p> <ul style="list-style-type: none"> <li>✚ Use functions to define setting change.</li> </ul> <p><b>Units 3.1, 4.1, 4.2</b></p> <ul style="list-style-type: none"> <li>✚ Using the reporter operators to perform calculations</li> </ul> <p>0 + 0 0 – 0 0 x 0 0 / 0 To perform calculations</p>

	Operators	N/A	N/A	N/A	N/A	<p><b>Units 5.1, 5.2, 5.3</b></p> <ul style="list-style-type: none"> <li> Using the reporter operators to perform calculations</li> <li><math>0 + 0</math></li> <li><math>0 - 0</math></li> <li><math>0 \times 0</math></li> <li><math>0 / 0</math></li> <li>To perform calculations</li> <li>Pick random ( ) to ( )</li> <li>Join ( ) ( )</li> <li>Letter ( ) of ( )</li> <li>Length of ( )</li> <li>( ) Mod ( ) This reports the remainder after a division calculation</li> <li>Round ( )</li> <li>( ) of ( )</li> </ul>
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Connect	Units E-S	Activity E-S, 14, 15, 19,	Units E-S	Units 3.5, 4.5	Units 5.4, 5.5, 6.1, 6.3, 6.6, E-S
	<ul style="list-style-type: none"> <li>✚ Understand basic online safety</li> </ul>	<ul style="list-style-type: none"> <li>✚ Understand online risks</li> </ul>	<ul style="list-style-type: none"> <li>✚ Participate in class social media accounts</li> <li>✚ Understand online risks and the age rules for sites</li> </ul>	<ul style="list-style-type: none"> <li>✚ Contribute to blogs that are moderated by teachers</li> </ul> <p><b>Units 3.4, 3.5, 4.3, 4.4, 4.5, E-S</b></p> <ul style="list-style-type: none"> <li>✚ Give examples of the risks posed by online communicators</li> </ul> <p><b>Units 3.4, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4, 4.5, E-S</b></p> <ul style="list-style-type: none"> <li>✚ Understand the term copyright</li> </ul> <p><b>Units 3.5, 4.5, E-S</b></p> <ul style="list-style-type: none"> <li>✚ Understand that comments made online that are hurtful or offensive are the same as bullying</li> </ul> <p><b>Units 3.4, 3.5, 4.3, 4.4, 4.5, 4.6</b></p> <ul style="list-style-type: none"> <li>✚ To understand how online services work</li> </ul>	<ul style="list-style-type: none"> <li>✚ Collaborate with others online on sites approved and moderated by teachers.</li> </ul> <p><b>Units 5.2, 5.4, 5.5, 6.3, 6.6, E-S</b></p> <ul style="list-style-type: none"> <li>✚ Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems</li> </ul> <p><b>Units 5.4, 5.5, 6.1, 6.2, 6.3, 6.6, E-S</b></p> <ul style="list-style-type: none"> <li>✚ Understand and demonstrate knowledge that is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder.</li> </ul> <p><b>Units 5.5, E-S</b></p> <ul style="list-style-type: none"> <li>✚ Understand the effect of online comments and show responsibility and sensitivity when online.</li> </ul> <p><b>Units 5.4, 6.1, 6.6</b></p>

					<ul style="list-style-type: none"> <li>Understand how simple networks are set up and used.</li> </ul>
Communicate	<p><b>Unit</b></p> <ul style="list-style-type: none"> <li>Use a technological devices to communicate verbally</li> </ul>	<p><b>Activity 3, 11, 12, 13, 14, 15, 19,</b></p> <ul style="list-style-type: none"> <li>Use a range of technological devices to communicate images and messages.</li> </ul>	<p><b>Units 1.2, 2.5</b></p> <ul style="list-style-type: none"> <li>Use a range of applications and devices to communicate ideas work and messages.</li> </ul>	<p><b>Units 3.3, 3.4, 3.5, 3.6, 4.5</b></p> <ul style="list-style-type: none"> <li>Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally.</li> </ul>	<p><b>Units 5.4, 5.5, 6.3, 6.4, 6.5, 6.6</b></p> <ul style="list-style-type: none"> <li>Choose the most suitable applications and devices for the purposes of communication.</li> </ul> <p><b>Units 5.4, 5.5, 5.6, 6.3, 6.4, 6.6</b></p> <ul style="list-style-type: none"> <li>Use many of the advanced features in order to create high quality, professional or efficient communications</li> </ul>
Collect	<p><b>Unit</b></p> <ul style="list-style-type: none"> <li>Record information</li> </ul>	<p><b>Activity 4, 8, 15, 20</b></p> <ul style="list-style-type: none"> <li>Collect and record information in areas across the curriculum</li> </ul>	<p><b>Units 1.4, 1.6, 2.3, 2.4, 2.5, 2.6, E-S</b></p> <ul style="list-style-type: none"> <li>Use simple databases to record information in areas across the curriculum.</li> </ul>	<p><b>Units 3.6, 4.6</b></p> <ul style="list-style-type: none"> <li>Devise and construct databases using applications designed for this purpose is areas across the curriculum</li> </ul>	<p><b>Units 5.6, 6.3</b></p> <ul style="list-style-type: none"> <li>Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner.</li> </ul>

<b>National curriculum subject content</b>		<p>Knows that information can be retrieved from computers</p> <p>Knows how to operate simple equipment</p> <p>Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phonics.</p> <p>Show skill in making toys work by pressing parts or lifting flaps to effects such as sound, movements or new images.</p>	<p><b>Recognise that a range of technology is used in places such as homes and schools</b> <b>Select and use technology for particular purposes</b></p> <p>Complete a simple program on a computer</p> <p>Use ICT hardware to interact with age appropriate computer software</p>	<p><b>National Curriculum Aims</b></p> <ul style="list-style-type: none"> <li>✚ Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation</li> <li>✚ Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems</li> <li>✚ Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems</li> <li>✚ Are responsible, competent, confident and creative users of information and communication technology.</li> </ul>
		<p><b>Effective characteristics of effective coders and users of technology</b></p> <ul style="list-style-type: none"> <li>✚ Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.</li> <li>✚ The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.</li> <li>✚ An understanding of the connected nature of devices</li> <li>✚ The ability to communicate ideas well by using applications and devices throughout the curriculum</li> <li>✚ The ability to collect, organise and manipulate data effectively.</li> </ul> <p><b>Threshold Concepts</b></p> <ul style="list-style-type: none"> <li>✚ Code – This concept involves developing an understanding of instructions, logic and sequences</li> <li>✚ Connect – This concept involves developing an understanding of how to safely connect with others</li> <li>✚ Communicate – This concept involves using apps to communicate one’s ideas</li> <li>✚ Collect – This concept involves developing an understanding of databases and their uses</li> </ul>		