


Whole School Progression of Knowledge – Computing – 2023-2025

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Computer Science (highlighted orange in the progression) – this covers programming (both block-based and text-based), including computational thinking using web-based software such as Scratch. Pupils across Key Stage 1 and 2 will write code to program physical and on-screen objects, interactive games and use text-based language, such as HTML and Python by the end of Key Stage 2.</p>							
Computer Science	<p>Knows how to operate simple equipment (30-50 months) Give explanations (Speaking 30-50 months)</p>	<ol style="list-style-type: none"> 1. Understand sequence and algorithms. 2. Sequence instructions (commands) to achieve an objective. 3. Use distances in commands. 4. Predict, write, execute and debug a simple program. 	<ol style="list-style-type: none"> 1. Create and debug simple programs by selecting code blocks, placing them in the correct sequence and executing a program. 2. Use logical reasoning to predict the behaviour of simple programs. 3. Simplify a program by using a loop. <ol style="list-style-type: none"> 1. Understand sequence and algorithms. 2. Sequence instructions (commands) to achieve an objective. 3. Predict, write, execute and debug a simple program. 	<ol style="list-style-type: none"> 1. Design, write and debug programs that accomplish specific goals. (Including outputs) 2. Use repetition in programs. 3. Work with various form of inputs; keyboard, mouse and touch screen. 4. Write programs to simulate physical systems. <ol style="list-style-type: none"> 1. Create a 3D place using various design tools. 2. Write a program to control using keyboard inputs. 3. Write a program with conditions (selection). 4. Write a program with variables 	<ol style="list-style-type: none"> 1. Use sequence, selection, and repetition in programs. 2. Work with variables and various forms of input and output. 3. Debug programs that accomplish goals. 4. Work with variables and conditions. 	<ol style="list-style-type: none"> 1. Program list variables that chooses randomly. 2. Program inputs, conditions and sensing for interaction, data variables for scoring and a game timer. 3. Program Inputs, outputs, loops, conditions, sensing and variables. <ol style="list-style-type: none"> 1. Change the variables of text-based commands. 2. Write text-based commands accurately. 3. Write text-based commands to program digital art. 4. Write text commands/functions to program keyboard inputs in a game. (Not compatible with iPad/tablet unless using physical keyboard) 5. Programming a Logo turtle to move and use pen. 6. Use co-ordinates in with a Logo turtle. 7. Print labels in Logo. 8. Program a loop (repetition) and shapes in Logo Turtle. 9. Program colours in Logo turtle. 10. Program variables in Logo turtle. 	<ol style="list-style-type: none"> 1. Program inputs, conditions, random variables for unpredictability, game timer. 2. Program inputs, conditions, sensing, random variables, operators for direction and data variables for scoring. 3. Use inputs, conditions, loops, sensing, costume changes and broadcasts. 4. Work with multiple sprites to send broadcast messages between them. <ol style="list-style-type: none"> 1. Understand why computers/electronics use binary. 2. Match a sequence of binary code to create digital art. 3. To convert binary code to denary numbers (decimal numbers) and visa versa. <ol style="list-style-type: none"> 1. Use the PRINT command for text. 2. Program a simple calculator in Python. 3. Program loops to repeat text. 4. Program interactive inputs.

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						<p>1. Understanding Bluetooth Technology as Input Device</p> <p>2. Write programs for the Sphero using movement and repetition (loops).</p> <p>3. Write a program to trace a maze/route with Sphero and De-bug.</p> <p>4. Write a program with outputs.</p> <p>5. Write a program with random variables</p> <p>1. Understand that computers use physical inputs and outputs and give examples.</p> <p>2. Program physical inputs and outputs (e.g program LED lights).</p> <p>3. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</p>	<p>5. Program a trivia chatbot using 'send message' functions (challenge)</p> <p>1. Add and align text and change colour.</p> <p>2. Program background colour.</p> <p>3. Add and align images.</p> <p>4. Add hyperlinks to other websites.</p> <p>5. Add an iframe (such as a Google Map) and adjust the height and width.</p> <p>1. Understand what virtual reality is and how it can be used to help people.</p> <p>2. Add, move and resize objects in a virtual reality environment.</p> <p>3. Animate objects for realism.</p> <p>4. Use code blocks to add movement (with grouping) and interactions (conditions).</p> <p>5. Create multiple scenes of VR environments.</p> <p>1. Understand how computers use information to learn by solving new problems and following new instructions.</p> <p>2. Understand and use examples of machine learning.</p> <p>3. Understand how artificial intelligence is used to perform tasks often only performed by humans.</p> <p>4. Discuss and show awareness of potential dangers of AI.</p>
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Information Technology (highlighted purple in the progression) – this covers the use of applications to create digital content, including document creation and editing, video making, digital art, graphic design, animation, 3D modelling and website building.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information technology	<p>Understanding the World; Children recognise that a range of technology is used in places such as home and schools (Early Learning)</p> <p>Communication and Language; Listening and Attention, Understanding, Speaking.</p> <p>Health and Self Care: Understands that equipment needs to be used safely (30-50 months).</p> <p>Mathematics: Count on and back to find an answer. (Early Learning)</p> <p>Interact with age appropriate computer software (40-60+ months)</p> <p>Explore how sounds can be changed (30-50 months)</p> <p>Explore different sounds of instruments (40-60 months)</p> <p>They select and use technology for a particular purpose (Early Learning Goals)</p> <p>Represent own ideas</p>	<ol style="list-style-type: none"> 1. Move cursor and left click to select. 2. Click and drag to move items. 3. Find letters on a keyboard and begin touch typing. <p>1. Change the colour of individual pixels to accurately re-create basic artwork.</p> <ol style="list-style-type: none"> 2. Make changes where required. 3. Change the colour of individual pixels to accurately re-create detailed artwork. <ol style="list-style-type: none"> 1. Change the colour and pattern of elements. 2. Position and rotate objects on a design. 3. Position objects in relation to each other. 4. Resize, rotate, flip and arrange objects behind/in front of each other. <ol style="list-style-type: none"> 1. Add, move and resize images. Add text and adjust size and placement. 2. Add, resize and place images on a page then add and position text to label and describe images. 	<ol style="list-style-type: none"> 1. Use lines and fill tools to make interesting patterns. 2. Add a variety of shapes (outlines and fill) and label them with text. 3. Re-create graphics using pixels with different colours. <ol style="list-style-type: none"> 1. Add a background and objects to a frame, including text. 2. Copy/clone a frame and move objects to create an animation. Plus flip an object. 3. Create screen-recording animation (optional, requires iPad). 4. Create stop-motion animation with photos (optional, requires iPad). <p>– Understand what data is and collect it as a tally.</p> <p>– Use software to label a pictogram and add data to each column.</p> <p>– Edit a table with correct titles and numbers.</p> <p>– Use software to</p>	<ol style="list-style-type: none"> 1. Add, resize and organise colour or picture backgrounds. 2. Add, resize, organise characters/object to different panels. 3. Add narration using text and direct speech using speech bubbles. <ol style="list-style-type: none"> 1. Add and edit backgrounds. 2. Add and edit characters, including changing posture, expression and clothing. 3. Add narration and speech bubbles, including formatting text. 4. Duplicate objects to match scenes. 5. Search for objects to use. <ol style="list-style-type: none"> 1. Use various lines and fill tools plus copy/paste and rotation to create pattern effects. 2. Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects. 3. Use stamps, copy/paste, layers and multiple frames to create animated 	<ol style="list-style-type: none"> 1. Create a stop-motion video by duplicating slides that include backgrounds and shapes. 2. Create animation using transition and animation effects (morph, motion paths, pulse etc), including taking and editing a screenshot. 3. Animate individual elements of objects. 4. Create animated GIF files by animating pixels. <ol style="list-style-type: none"> 1. Change appearance of cells in a spreadsheet (fill colour and border) then add and align text. 2. Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title. 3. Understand 3D spacial awareness. 2. Add 3D shapes, resize, adjust height, duplicate and use the different perspective. 3. Re-create different types of buildings using 3D shapes. 4. Create roads/paths by adjusting the height of 3D shapes. 5. Add windows and door shapes. <p>Add scene images.</p> <ol style="list-style-type: none"> 2. Add scripted voiceover 	<ol style="list-style-type: none"> 1. Adjust slide size to mimic a phone/tablet size. 2. Add text and images to a slide. 3. Add icons and text to use as navigation. 4. Duplicate slides to create multiple pages of the app. 5. Create hyperlinks to create navigation. <p>Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells.</p> <p>Use formulae to find totals, averages and maximum/minimum numbers.</p> <p>Find data and create a spreadsheet to suit it.</p> <p>Search a database for specific information.</p> <ol style="list-style-type: none"> 1. Add page colour and style. 2. Add, position and format text on different pages. 3. Add and position images. 4. Add audio, including hiding it behind an object. 5. Add hyperlinks to text and images. 6. Search for shapes. 7. Lock and arrange shapes (extension task). <ol style="list-style-type: none"> 1. Layer tracks using sounds and effects. 2. Create effective instrument tracks. 3. Edit tracks and effectively adjust volume and add effects. 	<ol style="list-style-type: none"> 1. Add, adjust and fill shapes. 2. Group shapes to improve accuracy and speed. 3. Add and customise gradient effects. 4. Adjust transparency/opacity for a purpose. 5. Use a colour picker correctly. 6. Accurately rotate shapes. <ol style="list-style-type: none"> 1. Understand how technology has changed over time. Combine text and images to present ideas. 2. Understand the impact (positive/negative) technological changes have on society. 3. Predict how technology will change in the future. <ol style="list-style-type: none"> 1. Take and crop a screenshot and understand ratios. 2. Adjust the colours, brightness, contrast and filters. 3. Add drawing and text layers. 4. Import new images as layers and resize/add effects. 5. Save finished image to use in other projects. <ol style="list-style-type: none"> 1. Add and format text within a website.

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	<p>through music (Early Learning Goals Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for a particular purpose. Knows how to operate simple equipment (30-50 months) Choose particular colours for a purpose (40-60 months) Communication and Language (Speaking) Writing (Early Learning Goals) Uses simple tools and techniques competently and appropriately (40-60+ months) Selects appropriate resources and adapts them where necessary (40-60+ months) Explores how colours can be changed (30-50 months) Chooses particularly colours to use for a purpose (40-60 months)</p>	<p>3. Use word banks to write sentences about images.</p> <ol style="list-style-type: none"> 1. Add, resize and organise colour or picture backgrounds. 2. Add, resize, organise characters/object to different panels. 3. Add narration using text and direct speech using speech bubbles. <ol style="list-style-type: none"> 1. Create a rhythm using a pattern of beats. 2. Create digital sounds using patterns and shapes. 3. Create a simple melody using patterns and adjust tempo. 	<p>create a bar chart/pie chart/line chart suitable for the data. – Interpret a pictogram/bar chart/line chart.</p> <ol style="list-style-type: none"> 1. Add a book cover with title, author, colour and image. 2. Add multiple pages based on a theme. 3. Add text on different pages. 4. Add images on different pages to match the theme/text. 5. Add voice recordings to match the text and theme. 	<p>GIF computer graphics.</p> <ol style="list-style-type: none"> 1. Create ascending and descending scales. 2. Add chords evenly across the scales. 3. Add arpeggios and melodies. 4. Add a steady and even rhythm. 5. Use sampled sounds to create an effective mix. 6. Build beats, melody (tones) and effects. <ol style="list-style-type: none"> 1. Copy and Paste text and images. 2. Find and replace words. 3. Format text for a purpose. 4. Add bullet points to make lists. 5. Experiment with keyboard shortcuts. <ol style="list-style-type: none"> 1. Understand and use 3D space on a grid. 2. Re-create or design familiar 3D models using cubes, such as tables and chairs. 3. Use chisel tool to improve and adapt models. 4. Colour individual blocks or whole models. <ol style="list-style-type: none"> 1. Understand what an infographic is and why we use them. 2. Search for and add suitable graphic elements. 3. Add and format 	<p>audio, adjust the volume and crop clips (including splitting a clip). 3. Add more clips and use transition effects. 4. Add titles. 5. Use elements such as shapes. 6. Add music background music and adjust the volume. 7. Export a project.</p> <ol style="list-style-type: none"> 1. Add page colour and style then position and format text. 2. Add and position images from camera/internet. 3. Add audio, including hiding it behind an object. 4. Add hyperlinks to text and images. 5. Add and format shapes. 6. Use hyperlinks for navigation. 	<p>4. Build a song using Live Loops.</p>	<ol style="list-style-type: none"> 2. Organise sections of web-pages and multiple page with relevant titles. 3. Add and edit images. 4. Include other features such as hyperlinks, buttons and files. 5. Evaluate other websites and provide constructive feedback. 6. Make necessary changes to the website based on feedback
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				<p>suitable titles and text.</p> <p>4. Label an image with arrows and text.</p> <p>1. Add and label objects within a branching database.</p> <p>2. Ask questions to sort (classify) objects.</p>			
<p>Digital Literacy (highlighted green in the progression) – covers skills to find, evaluate, utilise and share using technologies and the Internet. This includes important e-safety and internet research skills, as well as an understanding of computer networks in Key Stage 2.</p>							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy	<p>Explain the reasons for rules, know right from wrong and try to behave accordingly (Early Learning Goals)</p>	<p>1. Keep personal information private.</p> <p>2. Why do websites want personal information.</p> <p>3. Identify when and where to go for help when concerned.</p>	<p>1. Understand what makes a computer a computer.</p> <p>2. Understand computers store and follow instructions.</p> <p>3. Spot digital technology in school.</p> <p>4. Understand how different technology helps us.</p> <p>1. What are the dangers of sharing photos online?</p> <p>2. People online are not always who they say they are.</p> <p>3. Trusting information online.</p> <p>4. Using the Internet responsibly.</p> <p>5. Being respectful.</p> <p>1. Understand how a web-page displays information in different ways; text, images, videos and interactive elements.</p>	<p>Understand what to do if something upsets you online.</p> <p>Understand why and how people can be nasty online.</p> <p>Describe the term ‘sharing online’ and why we need to get permission to share photos and videos of other people.</p> <p>Understand why people pretend to be someone else online.</p> <p>Understand why we only talk to people we know in the real world, when online.</p> <p>Understand why we should not always trust what we read online and how to check</p> <p>Understand the importance of being kind in the real world and also online.</p>	<p>Use search technologies to find specific pieces of information.</p> <p>2. Understand features of an Internet Browser.</p> <p>3. Reference the correct source of information.</p> <p>4. Be discerning in evaluating digital content.</p> <p>5. Check the internet for fake news by cross-referencing facts.</p> <p>1. Understand what important parts of inside a computer or mobile device do to help with the performance (CPU, Fan, Hard Drive, RAM, Graphics Card).</p> <p>2. Understand that memory is measured in bytes and gigabytes.</p> <p>3. Use search filters on websites to find suitable information.</p> <p>Understand what to do if something upsets you online.</p>	<p>1. Understand Computer Networks, Internet and Cloud Computing and how they help us.</p> <p>2. What is email and how can we use it safely?</p> <p>3. Understand how and why we collaborate online (including blogging).</p> <p>1. Keep personal information private.</p> <p>2. Respect and protect again online bullies.</p> <p>3. Understand the consequences of sharing photo/videos online.</p> <p>4. Understand the term digital footprint.</p> <p>5. How can we check online content is trustworthy.</p> <p>6. How, where and who can we report concerns we have to.</p> <p>7. Use suitable usernames and passwords for online accounts.</p>	<p>1. Keep personal information private.</p> <p>2. Respect and protect against online bullies.</p> <p>3. Understand the consequences of sharing photo/videos online.</p> <p>4. Understand the term digital footprint.</p> <p>5. How can we check online content is trustworthy.</p> <p>6. How, where and who can we report concerns we have to.</p> <p>7. Use suitable usernames and passwords for online accounts.</p>

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			2. Use a web-page to answer questions.		Understand why and how people can be nasty online. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people. Understand why people pretend to be someone else online. Understand why we only talk to people we know in the real world, when online. Understand why we should not always trust what we read online and how to check Understand the importance of being kind in the real world and also online.		
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