

## Computing progression of skills

Year 1 Progression of skills.										
Unit	Mouse and keyboard skills	Digital art	Design	Text and images	Comic creation	Music creation	Introduce programming	E -safety		
National curriculum objectives		<i>Use technology purposefully to create digital content.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<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> </ul>	<i>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.</i>		
Progression of skills	1. Move the mouse or trackpad and left click to select an object.	1. Change the colour of individual pixels to accurately re-create basic artwork.	1. Change the colour and pattern of elements.	1. Change the background colour of a page.	1. Add, resize and organise colour or picture backgrounds.	1. Create a rhythm using a pattern of beats.	1. Place instructions into the correct order (sequence) to make something work.	1. Understand what personal information is and why we keep personal information private.		

	2. Drag and drop with mouse or trackpad to move objects around the screen.	2. Make changes where required.	2. Position and rotate objects on a design.	2. Add, resize and position images (pictures) on a page.	2. Add, resize, organise characters/object to different panels.	2. Create digital sounds using patterns and shapes.	2. Use direction arrows to move an on-screen object (character/sprite) to achieve an objective.	2. Why do websites want personal information.		
	3. Find letters or numbers on a keyboard.	3. Change the colour of individual pixels to accurately recreate detailed artwork.	3. Position objects in relation to each other.	3. Type and position text on a page, if possible using capital letters and punctuation.	3. Add narration using text and direct speech using speech bubbles	3. Create a simple melody using patterns and adjust tempo.	3. Predict a route and sequence direction commands (algorithm) to achieve an objective. Correct the errors if necessary (debug).	3. Identify when and where to go for help when concerned.		
	4. Begin touch typing with home row keys		4. Resize, rotate, flip and arrange objects behind/in front of each other	4. Label pictures with text.			4. Predict a route and sequence distance commands to program an on-screen object to achieve an objective.			
				5. Use word-banks for writing sentences			5. Predict and sequence movement and pen			

				about pictures.			commands to program the drawing of different 2D shapes.			
							6. Sequence code blocks, including movements and execute (start program) blocks to write a program to achieve an objective.			

Year 2 Progression of skills

Unit	Recognise uses of IT	Digital art	Introduction to animation	Introduce data handling	E book creation	Develop programming	Programming with scratch	E -safety		
National curriculum objectives	<i>Recognise common uses of information technology beyond school.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</i>  <i>Create and debug simple</i>	<i>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</i>  <i>Create and debug simple</i>	<i>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.</i>		

						<p><i>programs.</i></p> <p><i>Use logical reasoning to predict the behaviour of simple programs.</i></p>	<p><i>programs.</i></p> <p><i>Use logical reasoning to predict the behaviour of simple programs.</i></p>			
Progression of skills	1. Understand what makes a computer a computer.	1. Use lines and fill tools to make interesting patterns.	1. Add a background and objects to a frame, including text.	1. Understand what data is and collect it as a tally.	1. Add a book cover with title, author, colour and image.	1. Create and debug simple programs by selecting code blocks, placing them in the correct sequence and executing a program.	1. Program movements.	1. What are the dangers of sharing photos online?		
	2. Understand computers store and follow instructions.	2. Add a variety of shapes (outlines and fill) and label them with text.	2. Copy/clone a frame and move objects to create an animation. Plus flip an object.	2. Use software to label a pictogram and add data to each column	2. Add multiple pages based on a theme.	2. Use logical reasoning to predict the behaviour of simple programs.	2. Program outputs for audio or text.	2. People online are not always who they say they are.		
	3. Spot digital technology in school.	3. Re-create graphics using pixels with different colours.	3. Create screen-recording animation (optional, requires iPad).	3. Edit a table with correct titles and numbers.	3. Add text on different pages.	3. Simplify a program by using a loop.	3. Find errors in a program.	3. Trusting information online.		
	4. Understand how different technology helps us.		4. Create stop-motion animation with photos (optional,	4. Use software to create a bar chart/pie chart/line	4. Add images on different pages to match the		4. Program inputs.	4. Using the Internet responsibly.		

			requires iPad).	chart suitable for the data.	theme/text.					
				5. Interpret a pictogram/bar chart/line chart.	5. Add voice recordings to match the text and theme.		5. Program selection/conditions (if one sprite hits another).	5. Being respectful		
Year 3 progression of skills										
Unit	Comic creations	Storyboards	Digital art	Programming in scratch	Music creation	Document editing and creation	3D design	Infographics	Branching database	E-safety
National curriculum objectives	<i>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.</i>	<i>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.</i>	<i>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.</i>	<i>Design, write and debug programs that accomplish specific goal, including simulating physical systems.</i>  <i>Use sequence and repetition in programs; work with various forms of input.</i>	<i>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.</i>	<i>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.</i>	<i>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.</i>	<i>Design and create content that accomplish given goals.</i>	<i>Collect, classify and present data.</i>	<i>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</i>
Progression of skills	1. Add, resize and organise colour or picture backgrounds.	1. Add and edit backgrounds.	1. Use various lines and fill tools plus copy/paste and rotation to create pattern	1. Design, write and debug programs that accomplish specific goals. (Including	1. Create ascending and descending scales.	1. Copy and Paste text and images.	1. Understand and use 3D space on a grid.	1. Understand what an infographic is and why we use them.	1. Add and label objects within a branching database.	1. Understand what to do if something upsets you online.

			effects.	outputs)						
	2. Add, resize, organise characters/objects to different panels.	2. Add and edit characters, including changing posture, expression and clothing.	2. Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects.	2. Use repetition in programs.	2. Add chords evenly across the scales.	2. Find and replace words.	2. Design cities/towns for a purpose and to a budget.	2. Search for and add suitable graphic elements.	2. Ask questions to sort (classify) objects.	2. Understand why and how people can be nasty online
	3. Add narration using text and direct speech using speech bubbles.	3. Add narration and speech bubbles, including formatting text.	3. Use stamps, copy/paste, layers and multiple frames to create animated GIF computer game graphics.	3. Work with various forms of inputs; keyboard, mouse and touch screen.	3. Add arpeggios and melodies.	3. Format text for a purpose.	3. Re-create or design familiar 3D models using cubes, such as tables and chairs.	3. Add and format suitable titles and text.		3. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people.
	4. Save comic with name and title.	4. Duplicate objects to match scenes		4. Write programs to simulate physical systems.	4. Add a steady and even rhythm	4. Add bullet points to make lists.	4. Use chisel tool to improve and adapt models	4. Label an image with arrows and text.		4. Understand why people pretend to be someone else online.

	5. Add audio recordings (optional).	5. Search for objects to use.			5. Use sampled sounds to create an effective mix.	5. Experiment with keyboard shortcuts.	5. Colour individual blocks or whole models			5. Understand why we only talk to people we know in the real world, when online
					6. Build beats, melody (tones) and effects.					6. Understand why we should not always trust what we read online and how to check
										7. Understand the importance of being kind in the real world and also online.
										8. Understand the importance of using avatars and how to make them.
Year 4 Progression of skills										
Unit	Graphic design	Animation	Programming in scratch	Internet research	Data handling	3D design	Video editing	Ebook creation	Inside a computer	E-safety
National curriculum objectives	<i>Select, use and combine a variety of software (including internet</i>	<i>Select, use and combine a variety of software (including internet</i>	<i>Design, write and debug programs that accomplish</i>	<i>Use search technologies effectively, appreciate how results are selected</i>	<i>Collecting, analysing, evaluating and presenting data and</i>	<i>Select, use and combine a variety of software (including internet</i>	<i>Select, use and combine a variety of software (including internet</i>	<i>Select, use and combine a variety of software (including internet</i>	<i>Use search technologies effectively, appreciate how results are selected</i>	<i>Use technology safely, respectfully and responsibly;</i>

	<p>services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.</p>	<p>services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.</p>	<p>specific goals.</p> <p>Use sequence, selection, and repetition in programs; work with various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>and ranked, and be discerning in evaluating digital content.</p>	<p>information.</p>	<p>services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.</p> <p>3D village</p> <p>Lego</p>	<p>services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.</p>	<p>services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.</p>	<p>and ranked, and be discerning in evaluating digital content.</p>	<p>recognise acceptable/u nacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>
Progression of skills	<p>1. Create an icon using different shapes and fill tools.</p>	<p>1. Create a stop-motion video by duplicating slides that include backgrounds and shapes.</p>	<p>1. Program inputs with loops, selection and sensing for interactions.</p>	<p>1. Use search technologies to find specific pieces of information.</p>	<p>1. Change appearance of cells in a spreadsheet (fill colour and border) then add and align text.</p>	<p>1. Understand 3D spacial awareness.</p> <p>1. Add, move, change colour and duplicate a brick.</p>	<p>1. Add scene images.</p>	<p>1. Choose a suitable page shape and add a title and subtitle.</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>1. Understand what to do if something upsets you online.</p>
	<p>2. Combine shapes and lines, then arrange them in</p>	<p>2. Create animation using transition and animation</p>	<p>2. Work with variables and various forms of input and</p>	<p>2. Understand features of an Internet</p>	<p>2. Find and add data to a spreadsheet, resize cells and use the</p>	<p>2. Add 3D shapes, resize, adjust height, duplicate and use the</p>	<p>2. Add scripted voiceover audio, adjust the volume</p>	<p>2. Change the background colour/textur</p>	<p>2. Understand that memory is measured in bytes and</p>	<p>2. Understand why and how people can be nasty online</p>



	front/behind each other.	effects (morph, motion paths, pulse etc), including taking and editing a screenshot.	output.	Browser.	software to create a suitable chart with a title.	different perspective.  2. Rotate bricks.	and crop clips (including splitting a clip).	e of a page.	gigabytes.	
	3. Combine shapes, colour and text to re-create an icon.	3. Animate individual elements of objects.	3. Debug programs that accomplish goals. (correcting errors)	3. Reference the correct source of information.		3. Re-create different types of buildings using 3D shapes.  3. Use sloping bricks and special bricks for a purpose.	3. Add more clips and use transition effects.	3. Add, resize and change the colour of a shape then copy and paste it.	3. Use search filters on websites to find suitable information.	3. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people.
	4. Change the colour, size and style of text to match an icon, then arrange images and use masking and opacity tools.	4. Create animated GIF files by animating pixels.	4. Use selection, data variables and operators.	4. Be discerning in evaluating digital content.		4. Create roads/paths by adjusting the height of 3D shapes  .4. Change the transparency of bricks.	4. Add titles.	4. Search for and add suitable images then resize and position them		4. Understand why people pretend to be someone else online.
			5. Program a virtual robot using Scratch	5. Check the internet for fake news by cross-referenc		5. Add windows and door shapes.	5. Use elements such as shapes.	5. Create another page with a background,		5. Understand why we only talk to people we know in

			blocks.	ing facts				image, shapes and text.		the real world, when online
							6. Add music background music and adjust the volume.	6. Add an audio recording of the page text, including hiding it behind an object.		6. Understand why we should not always trust what we read online and how to check.
							7. Export a project.	7. Use hyperlinks for navigation between the pages.		7. Understand the importance of being kind in the real world and also online.

Year 5 Progression of skills.

Unit	Programming in scratch	App design	Text based programming	Data handling	Computer networks and the internet.	Physical devices	Ebook creation	Music creation	Operating systems	E-safety
National curriculum objectives	<i>Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.  Use sequence, selection, and repetition in</i>	<i>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</i>	<i>Use sequence and repetition in programs; work with variables. Correct errors.</i>	<i>Select, use and combine a variety of software (including internet services). Collecting, analysing, evaluating and presenting data and information.</i>	<i>Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communicatio</i>	<i>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.  Use sequence, selection, and repetition in</i>	<i>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</i>	<i>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</i>	<i>Select, use and combine a variety of software on a range of digital devices to create content that accomplish given goals.</i>	<i>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content</i>

	<p>programs; work with variables and various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>accomplish given goals.</p>			<p>n and collaboration.</p>	<p>programs; work with variables and various forms of input and output.</p>	<p>accomplish given goals.</p>	<p>accomplish given goals.</p>		<p>and contact.</p>
Progression of skills	<p>1. Program inputs for control, selection (conditions) and sensing for interaction and data variables for scoring and a game timer.</p>	<p>1. Adjust slide size to mimic a phone/tablet size.</p>	<p>1. Change the variables of text-based commands.</p>	<p>1. Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells.</p>	<p>1. Understand Computer Networks, Internet and Cloud Computing and how they help us.</p>	<p>1. Understand that computers use physical inputs and outputs and give examples.</p>	<p>1. Add page colour and style.</p>	<p>1. Layer tracks using sounds and effects.</p>	<p>1. Understand the importance of an operating system and its key features.</p>	<p>1. Keep personal information private.</p>
	<p>2. Program distance sensing and movement.</p>	<p>2. Add text and images to a slide.</p>	<p>2. Write text-based commands accurately and use fill effects, stamps and functions.</p>	<p>2. Use formulae to find totals, averages and maximum/minimum numbers.</p>	<p>2. What is email and how can we use it safely?</p>	<p>2. Program physical inputs, outputs (e.g program LED lights) and random variables.</p>	<p>2. Add, position and format text on different pages.</p>	<p>2. Create effective instrument tracks.</p>	<p>2. Demonstrate important operating system skills (organising files etc), if possible, across multiple operating</p>	<p>2. Respect and protect again online bullies.</p>

									systems.	
	3. Program Inputs, outputs, loops, conditions, sensing and variables.	3. Add icons and text to use as navigation.	3. Write text-based commands to program digital art.	3. Find data and create a spreadsheet to suit it.	3. Understand how and why we collaborate online (including blogging).	3. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.	3. Add and position images.	3. Edit tracks and effectively adjust volume and add effects.		3. Understand the consequences of sharing photo/videos online.
	4. Program list variables that chooses randomly.	4. Duplicate slides to create multiple pages of the app.	4. Write text commands/functions to program keyboard inputs in a game. (Not compatible with iPad/tablet unless using physical keyboard)	4. Search a database for specific information.			4. Add audio, including hiding it behind an object.			4. Understand the term digital footprint.
		5. Create hyperlinks to create navigation.	5. Programming a Logo turtle to move and use pen.				5. Add hyperlinks to text and images.			5. How can we check online content is trustworthy.



			6. Use co-ordinates in with a Logo turtle.				6. Search for shapes.			6. How and where and who can we report concerns we have to.
			7. Print labels in Logo.				7. Lock and arrange shapes (extension task).			7. Understand the pitfalls of in-app purchases.
			8. Program a loop (repetition) and shapes in Logo Turtle.							
			9. Program colours in Logo turtle.							
			10. Program variables in Logo turtle.							

Year 6 Progression of skills.

Unit	Programming in scratch	Graphic design	Computers past, present and future.	Binary code	Python programming	Image editing	HTML	Web design	Data detectives	E-safety
National curriculum objectives	<i>Design, write and debug programs that</i>	<i>Design and create digital content to accomplish</i>	<i>Design and create digital content to accomplish</i>	<i>Understand how instructions are stored</i>	<i>Design, write and debug programs that</i>	<i>Select, use and combine a variety of software</i>	<i>Design, write and debug programs that</i>	<i>Select, use and combine a variety of software</i>	<i>Select, use and combine a variety of software</i>	<i>Use technology safely, respectfully</i>

	<p>accomplish specific goals; solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	goals.	goals.	and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.	<p>accomplish specific goals; solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection, and repetition in programs; work with variables.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	(including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.	accomplish specific goals; solve problems by decomposing them into smaller parts.	(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 internet services). Collecting, analysing, evaluating and presenting data and information.	and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
Progression of skills	1. Program keyboard/touch screen inputs, selection (conditions), loops and random variables for unpredictability (operators).	1. Add, adjust and fill shapes.	1. Show awareness of how computers and digital technology helps us today.	1. Understand why computers/electronics use binary.	1. Use the PRINT command for text.	1. Adjust the colours, brightness and contrast to improve a photo.	1. Add and align text and change colour.	1. Create a static homepage.	1. Use comprehension skills to find clues that match the column headings of a spreadsheet.	1. Keep personal information private.
	2. Program inputs,	2. Group shapes to	2. Understand how	2. Match a sequence of	2. Program a simple	2. Create a before and	2. Program background	2. Choose a suitable	2. Use spreadsheet	2. Respect and protect again

	selection, sensing, random variables, operators for direction and data variables for scoring.	improve accuracy and speed.	technology has changed over time and represent it as an interactive timeline.	binary code to create digital art.	calculator in Python.	after slide in presentation software.	colour.	theme for your website.	tools (filters and conditional formatting) to find the specific data to match the clues.	online bullies.
	3. Use inputs, selection, loops, sensing, costume changes and broadcasts.	3. Add and customise gradient effects.	3. Understand the impact (positive/negative) technological changes have on society.	3. To convert binary code to denary numbers (decimal numbers) and visa versa.	3. Program loops to repeat text.	3. Take and crop a screenshot.	3. Add and align images.	3. Change the site identity to a suitable title, tagline and website icon.		3. Understand the consequences of sharing photo/videos online.
	4. Work with multiple sprites to send broadcast messages between them.	4. Adjust transparency /opacity for a purpose.	4. Predict how technology will change in the future.		4. Program interactive inputs.	4. Add drawing and text layers.	4. Add hyperlinks to other websites.	4. Upload a suitable header and/or background image.		4. Understand the term digital footprint.
		5. Use a colour picker correctly.			5. Find errors in a program (debugging)	5. Import new images as layers and resize them to	5. Add an iframe (such as a Google Map) and adjust the	5. Adjust the website sidebar and add suitable		5. How can we check online content is trustworthy.



						fit.	height and width.	widgets.		
		6. Accurately rotate shapes.			6. Program a trivia chatbot using 'send message' functions (challenge)	6. Add colour elements to a black and white image using layers and eraser tools.		6. Add text and images to a page and edit them.		6. How and where and who can we report concerns we have to.
								7. Add multiple pages and edit the navigation, including sub-menus.		7. Use suitable usernames and passwords for online accounts.
								8. Provide constructive feedback for your classmates' websites.		8. Understand the pitfalls of in-app purchases.