

Concept	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing Systems and Networks	<ul style="list-style-type: none"> <li>-To identify technology</li> <li>-To identify a computer and its main parts</li> <li>-To use a mouse in different ways</li> <li>-To use a keyboard to type on a computer</li> <li>-To use the keyboard to edit text</li> <li>-To create rules for using technology responsibly</li> </ul>	<ul style="list-style-type: none"> <li>-To recognise the uses and features of information technology</li> <li>-To identify the uses of information technology in the school</li> <li>-To identify information technology beyond school</li> <li>-To explain how information technology helps us</li> <li>-To explain how to use information technology safely</li> <li>-To recognise that choices are made when using information technology</li> </ul>	<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 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> <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 explain that computers can be connected together to form systems</li> <li>-To recognise the role of computer systems in our lives</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 the importance of internet addresses</li> <li>-To recognise how data is transferred across the internet</li> <li>-To explain how sharing information online can help people to work together</li> <li>-To evaluate different ways of working together online</li> <li>-To recognise how we communicate using technology</li> <li>-To evaluate different methods of online communication</li> </ul>
National Curriculum Links (see key below)	1.4, 1.5, 1.6	1.4, 1.5, 1.6	2.2, 2.4, 2.6	2.4, 2.5, 2.6, 2.7	2.1, 2.2, 2.4,2.6	2.4, 2.6, 2.7
Vocab	technology, computer, mouse, trackpad,	Information technology (IT), computer,	digital device, input, process, output, program,	internet, network, router, security, switch, server,	system, connection, digital, input, process,	communication, protocol, data, address, Internet

	keyboard, screen, double-click, typing.	barcode, scanner/scan	digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	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	storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.	Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many.
Creating Media A	<ul style="list-style-type: none"> <li>-To describe what different freehand tools do</li> <li>-To use the shape tool and the line tools</li> <li>-To make careful choices when painting a digital picture</li> <li>-To explain why I chose the tools I used</li> <li>-To use a computer on my own to paint a picture</li> <li>-To compare painting a picture</li> </ul>	<ul style="list-style-type: none"> <li>-To use a digital device to take a photograph</li> <li>-To make choices when taking a photograph</li> <li>-To describe what makes a good photograph</li> <li>-To decide how photographs can be improved</li> <li>-To use tools to change an image</li> <li>-To recognise that photos can be changed</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</li> </ul>	<ul style="list-style-type: none"> <li>-To identify that sound can be recorded</li> <li>-To explain that audio recordings can be edited</li> <li>-To recognise the different parts of creating a podcast project</li> <li>-To apply audio editing skills independently</li> <li>-To combine audio to enhance my podcast project</li> <li>-To evaluate the effective use of audio</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 create a storyboard</li> <li>-To identify that video can be improved through reshooting and editing</li> <li>-To consider the impact of the choices made when</li> </ul>	<ul style="list-style-type: none"> <li>-To review an existing website and consider its structure</li> <li>-To plan the features of a web page</li> <li>-To consider the ownership and use of images (copyright)</li> <li>-To recognise the need to preview pages</li> <li>-To outline the need for a navigation path</li> <li>-To recognise the implications of</li> </ul>

	on a computer and on paper		other media to an animation		making and sharing a video	linking to content owned by other people
National Curriculum Links	1.4	1.4, 1.5, 1.6	2.6, 2.7	2.5, 2.6, 2.7	2.5, 2.6, 2.7	2.5, 2.6, 2.7
Vocabulary	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting	animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.	audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.	video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.	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, subpage, evaluate, implication, external link, embed.
Programming A	-To explain what a given command will do -To act out a given word -To combine forwards and backwards	-To describe a series of instructions as a sequence -To explain what happens when we change the order of instructions	-To explore a new programming environment -To identify that commands have an outcome -To explain that a program has a start	-To identify that accuracy in programming is important -To create a program in a text-based language -To explain what 'repeat' means	-To control a simple circuit connected to a computer -To write a program that includes count-controlled loops	-To define a 'variable' as something that is changeable -To explain why a variable is used in a program

	<p>commands to make a sequence</p> <p>-To combine four directions</p> <p>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 use logical reasoning to predict the outcome of a program</p> <p>-To explain that programming projects can have code and artwork</p> <p>-To design an algorithm</p> <p>-To create and debug a program that I have written</p>	<p>-To recognise that a sequence of commands can have an order</p> <p>-To change the appearance of my project</p> <p>-To create a project from a task description</p>	<p>-To modify a count-controlled loop to produce a given outcome</p> <p>-To decompose a task into small steps</p> <p>-To create a program that uses count-controlled loops to produce a given outcome</p>	<p>-To explain that a loop can stop when a condition is met</p> <p>-To explain that a loop can be used to repeatedly check whether a condition has been met</p> <p>-To design a physical project that includes selection</p> <p>-To create a program that controls a physical computing project</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>
National Curriculum Links	1.1, 1.2, 1.3, 1.5	1.1, 1.2, 1.3, 1.4	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6
Vocabulary	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	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, debug, code.	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output,	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare

					selection, action, debug, circuit, power, cell, buzzer	
Data and information	<ul style="list-style-type: none"> <li>-To label objects</li> <li>-To identify that objects can be counted</li> <li>-To describe objects in different ways</li> <li>-To count objects with the same properties</li> <li>-To compare groups of objects</li> <li>-To answer questions about groups of objects</li> </ul>	<ul style="list-style-type: none"> <li>-To recognise that we can count and compare objects using tally charts</li> <li>-To recognise that objects can be represented as pictures</li> <li>-To create a pictogram</li> <li>-To select objects by attribute and make comparisons</li> <li>-To recognise that people can be described by attributes</li> <li>-To explain that we can present information using a computer</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 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> <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 use a form to record information</li> <li>-To compare paper and computer-based databases</li> <li>-To outline how you can answer questions by grouping and then sorting data</li> <li>-To explain that tools can be used to select specific data</li> <li>-To explain that computer programs can be used to compare data visually</li> <li>-To use a real-world database to answer questions</li> </ul>	<ul style="list-style-type: none"> <li>-To create a data set in a spreadsheet</li> <li>-To build a data set in a spreadsheet</li> <li>-To explain that formulas can be used to produce calculated data</li> <li>-To apply formulas to data</li> <li>-To create a spreadsheet to plan an event</li> <li>-To choose suitable ways to present data</li> </ul>
National Curriculum Links	1.4, 1.6	1.4, 1.6	2.6	2.2, 2.6	2.5, 2.6	2.6
Vocabulary	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most,	more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total,	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure,	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import,	database, data, information, record, field, sort, order, group, search, value, criteria, graph,	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula,

	fewest, least, the same	pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	compare, order, organise, selecting, information, decision tree.	export, logged, collection, review, conclusion.	chart, axis, compare, filter, presentation. microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled I	calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.
Creating Media B	<ul style="list-style-type: none"> <li>-To use a computer to write</li> <li>-To add and remove text on a computer</li> <li>-To identify that the look of text can be changed on a computer</li> <li>-To make careful choices when changing text</li> <li>-To explain why I used the tools that I chose</li> <li>-To compare typing on a computer to writing on paper</li> </ul>	<ul style="list-style-type: none"> <li>-To say how music can make us feel</li> <li>-To identify that there are patterns in music</li> <li>-To experiment with sound using a computer</li> <li>-To use a computer to create a musical pattern</li> <li>-To create music for a purpose</li> <li>-To review and refine our computer work</li> </ul>	<ul style="list-style-type: none"> <li>-To recognise how text and images convey information</li> <li>-To recognise that text and layout can be edited</li> <li>-To choose appropriate page settings</li> <li>-To add content to a desktop publishing publication</li> <li>-To consider how different layouts can suit different purposes</li> <li>-To consider the benefits of desktop publishing</li> </ul>	<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> <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 identify that drawing tools can be used to produce different outcomes</li> <li>-To create a vector drawing by combining shapes</li> <li>-To use tools to achieve a desired effect</li> <li>-To recognise that vector drawings consist of layers</li> <li>-To group objects to make them easier to work with</li> <li>-To apply what I have learned about vector drawings</li> </ul>	<ul style="list-style-type: none"> <li>-To recognise that you can work in three dimensions on a computer</li> <li>-To identify that digital 3D objects can be modified</li> <li>-To recognise that objects can be combined in a 3D model</li> <li>-To create a 3D model for a given purpose</li> <li>-To plan my own 3D model</li> <li>-To create my own digital 3D model</li> </ul>
National Curriculum Links	1.4, 1.6	1. 4	2.5, 2.6	2.6, 2.7	2.6	2.6, 2.7

Vocabulary	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit	text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits	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.	vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.
Programming B	<ul style="list-style-type: none"> <li>-To choose a command for a given purpose</li> <li>-To show that a series of commands can be joined together</li> <li>-To identify the effect of changing a value</li> <li>-To explain that each sprite has its own instructions</li> <li>-To design the parts of a project</li> </ul>	<ul style="list-style-type: none"> <li>-To explain that a sequence of commands has a start</li> <li>-To explain that a sequence of commands has an outcome</li> <li>-To create a program using a given design</li> <li>-To change a given design</li> <li>-To create a program using my own design</li> </ul>	<ul style="list-style-type: none"> <li>-To explain how a sprite moves in an existing project</li> <li>-To create a program to move a sprite in four directions</li> <li>-To adapt a program to a new context</li> <li>-To develop my program by adding features</li> <li>-To identify and fix bugs in a program</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 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> </ul>	<ul style="list-style-type: none"> <li>-To create a program to run on a controllable device</li> <li>-To explain that selection can control the flow of a program</li> <li>-To update a variable with a user input</li> <li>-To use a conditional statement to compare a variable to a value</li> </ul>

	-To use my algorithm to create a program	-To decide how my project can be improved	-To design and create a maze-based challenge	-To modify an infinite loop in a given program -To design a project that includes repetition -To create a project that includes repetition	-To create a program which uses selection -To evaluate my program	-To design a project that uses inputs and outputs on a controllable device -To develop a program to use inputs and outputs on a controllable device
National Curriculum Links	1.1, 1.2, 1.3, 1.4	1.1, 1.2, 1.3	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6
Vocabulary	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.	Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.



National Curriculum Links			
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions	1.1	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	2.1
create and debug simple programs	1.2	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	2.2
use logical reasoning to predict the behaviour of simple programs	1.3	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	2.3
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	1.4	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	2.4
recognise common uses of information technology beyond school	1.5	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	2.5
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.	1.6	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,	2.6

		evaluating and presenting data and information	
		Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	2.7