

Progression of **Skills and Knowledge** for
COMPUTING

Progression across key stages

Within the Teach Computing Curriculum, every year group learns through units within the same four themes, which combine the ten strands of the National Centre for Computing Education's taxonomy. These strands are: Algorithms, Computer networks, Computer systems, Creating media, Data and information, Design and development, Effective use of tools, Impact of technology, Programming and Safety and security. Whilst the strands are present at all phases, they are not always taught explicitly. This approach allows us to use the spiral curriculum approach to progress skills and concepts from one year group to another.

Teaching Order

The order in which to teach units within a school year is not prescribed, other than for the two 'Programming' units for each year group, which build on each other. It is recommended that the 'Programming' and 'Creating Media' units be revisited in two different terms within the school year, so that the concepts and skills can be revisited and consolidated. Teachers can choose the order in which they teach the units, based on the needs of the pupils and other topics or events that are happening throughout the school year, to make use of cross-curricular links wherever possible.

Online Safety

Unit overviews for each unit show the links between the content of the lessons and the national curriculum. These references show where aspects relating to online safety, or digital citizenship, are covered within the Teach Computing Curriculum. Not all objectives in the Education for a Connected World framework are covered in the Teach Computing Curriculum but are covered in our PSHE lessons (Jigsaw scheme of work), SMSC development and citizenship.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS						
	ELG: Listening, Attention and Understanding	ELG: Listening, Attention and Understanding	ELG: Self-Regulation	ELG: Self-Regulation	ELG: Managing self	ELG: Creating with Materials
	Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions	Make comments about what they have heard and ask questions to clarify their understanding	Give focused attention to what the teacher says, responding appropriately even when engaged in activity	Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge Explain the reasons for rules, know right from wrong and try to behave accordingly Develop their small motor skills so that they can use a range of tools competently, safely and confidently	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function (Bee-bots)
Year 1	Brilliant Birmingham		Frozen Worlds		Going on Safari	
Knowledge and Skills	Computing System and Networks	Computing System and Networks	Programming A	Data and Information	Creating Media	Programming B
	Technology around us Recognising technology in school and using it responsibly	Digital Painting Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally	Moving a robot Writing short algorithms and programs for floor robots, and predicting program outcomes	Grouping data Exploring object labels, then using them to sort and group objects by properties	Digital writing Using a computer to create and format text, before comparing to writing non-digitally	Programming Animations Designing and programming the movement of a character on screen to tell stories
Vocabulary	Technology, computer, mouse, trackpad, keyboard, screen, double-click, typing	Paint program, tool, paintbrush, erase, fill, undo, brush size, compare	Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, program, algorithm , route	Object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, least, fewest, the same, debug	Word processor, mouse, keyboard, keys, letters, type, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, select, font, redo, undo, format, compare	ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, START block, run, program, background, delete, reset, algorithm , predict, effect, change, value, instructions, delete, appropriate, design

Year 2	We live on an Island		What's going on down under?		Turrets and Tiaras	
Knowledge and Skills	Computing System and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
	Information technology around us Identifying IT and how its responsible use improves our world in school and beyond	Digital photography Capturing and changing digital photographs for different purposes	Robot algorithms Creating and debugging programs, and using logical reasoning to make predictions	Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer	Making music Using a computer as a tool to explore rhythms and melodies, before creating a musical composition	An Introduction to Quizzes Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz

Vocabulary	Information technology (IT), computer, barcode, scanner/scan	Device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing filter, format, lighting, filter	Instruction, sequence, clear, unambiguous, algorithm, program, sequence, order, prediction, artwork, design, route, mat, debugging, decomposition	More than, less than, most, least, organize, data, object, tally chart, votes, total, pictogram, enter, compare, count, explain, more common, least common, attribute, group, same, different, more than/less than, most popular, least popular, conclusion, block diagram, sharing	Music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, notes, instruments, create, pulse/beat, open, edit	Sequences, command, program, run, start, outcome, predict, blocks, code, sprite, algorithm, design, predict, actions, project, modify, change, build, match, compare, debug, features, evaluate
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Year 3	In the forest	Stone Age to Iron Age	Road Trip to Italy		Boudicca or Boudicea?	
Knowledge and Skills	Computing System and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
	Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	Stop-frame animation Capturing and editing digital still images to produce a stop-frame animation that tells a story	Sequencing sounds Creating sequences in a block-based programming language to make music	Branching databases Building and using branching databases to group objects using yes/no questions	Desktop publishing Creating documents by modifying text, images, and page layouts for a specified purpose	Events and actions in programs Writing algorithms and programs that use a range of events to trigger sequences of actions
Vocabulary	Digital device, input, process, output, connection, network, network switch, digital, non-digital, server, wireless access point, network cables, network sockets	Animation, flip book, stop-frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, programming blocks, event, task, design, run the code, sequence, order, note, chord, algorithm, bug, debug	Attribute, value, questions, table, objects, branching database, database, value, questions, objects, equal, even, separate, structure, compare, order, organize, selecting, information, decision tree	Text, images, advantages, disadvantages, communicate, font style, template, landscape, portrait, orientation, placeholder, layout, content, desktop publishing, copy, paste, purpose, benefits	Motion, event, sprite, algorithm, logic, resize, move, extension block, pen up, set up, pen, design, action, debugging, errors, set up, code, test, debug
Year 4	Along the Nile (Egypt)		Axes and Shields (Anglo Saxons)		Near and Far	

Knowledge and Skills	Computing System and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
	The internet Recognising the internet as a network of networks including the WWW, and why we should evaluate online content	Audio production Capturing and editing audio to produce a podcast, ensuring copyright is considered	Repetition in shapes Using a text-based programming language to explore count-controlled loops when drawing shapes	Data logging Recognising how and why data is collected over time, before using data loggers to carry out an investigation	Photo editing Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled	Repetition in games Using a block-based programming language to explore count-controlled and infinite loops when creating a game

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Vocabulary	Internet, network, router, network security, network 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, adverts	Audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, import, save, export, MP3, evaluate, feedback	Program, turtle, commands, code snippet, algorithm, design, debug, Logo, glossary, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure,	Data, table, layout, input device, sensor, data logger, logging, data point, interval, analyse, data set, import, export, logged, collection, review, conclusion	Image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, retouch, clone, select, copy, paste, combine, made up, real, composite, cut, alter, background, foreground, select, undo, font	Scratch, programming, sprite, blocks, code, loop, repeat, value, block, forever, infinite loop, count-controlled loop, costume, repetition, animate, costume, event block, duplicate, modify, design, algorithm, debug, refine, evaluate
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Year 5	Ghost from the past (Victorians)		Ghost from the past (Victorians)		Monstrous Mayans	
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	Computing System and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
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Knowledge and Skills	Systems and searching Recognising IT systems around us and how they allow us to search the internet	Video production Planning, capturing, and editing video to produce a short film	Selection in physical computing Exploring conditions and selection using a programmable microcontroller	Flat-file databases Using a database to order data and create charts to answer questions	Vector drawing Creating images in a drawing program by using layers and groups of objects	Selection in quizzes Exploring selection in programming to design and code an interactive quiz
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Vocabulary	System, connection, digital, input, process, output, search, search engine, refine, index, crawler, bot, order, ranking, link, algorithm, search engine optimization (SEO), web crawler, content creator, selection	Vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, ungroup, reuse, reflection,	Microcontroller, components, connection, infinite loop, output controller, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, input, output, action, selection, algorithm, condition, debug	Database, data, information, record, field, sort, order, group, search, criteria, graph, chart, axis, compare, filter, presentation	Video, audio, camera, talking head, panning, close up, video camera, microphone, lens, close up, mid-range, long shot, moving subject, side by side, high angle, low angle, normal angle, static camera, zoom, pan, tilt, storyboard, filming review, import, split, trim, clip, edit, reshoot, delete, trim, reorder, export, evaluate, share	Selection, condition, true, false, count-controlled loop, conditional statement, algorithm, program, debug, outcomes, question, answer, task, design, input, implement, test, run, design, setup
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Year 6	Magnificent Mountains		Groovy Greeks		The World at War (WW11)	
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Knowledge and Skills	Computing System and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
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	Communication and collaboration Identifying and exploring how data is transferred and information is shared online	Webpage creation Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation	Variables in games Exploring variables when designing and coding a game	Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data	3D modelling Planning, developing, and evaluating 3D computer models of physical objects	Sensing Designing and coding a project that captures inputs from a physical device
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Vocabulary	Communication, protocol, data, address, Internet Protocol (IP) address, Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix,	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,	Variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, test, debug, improve, evaluate, share	Data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, data, spreadsheet, input, output, calculate, operation, range,	2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, placeholder, hollow, 3D shapes, choose, combine, construct, evaluate, modify	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design,
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	collaboration, internet, public, private, one-way, two-way, one- to-one, one-to-many	subpage, implication, external link, embed		duplicate, sigma, propose, question, data set, organized formula, chart, evaluate, results, comparison, software, tools		task, algorithm, step counter, plan, create, code, test, debug
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