Computing

Knowledge, Skills and Vocabulary

Progression Grid

Computing

Progression Overviews
Section 1 - Knowledge and Skills / Section 2 - Vocabulary

Section 1 - Knowledge and Skills

Year R	Computing Systems and Networks	Creating Media	Programming A	Computing Systems and Networks	Creating Media	Programming B
	What is technology?	*Using an iPad*	*Computing unplugged*	*Accessing the Internet*	*Digital painting & Digital writing*	*Moving a robot*
	To recognise that a range of technology is used around school	To show an interest in technology and how it works	To follow simple oral algorithms	To identify devices I could use to access information on the internet	To identify the monitor, mouse and keyboard on a desktop computer	To understand what a command is
	To recognise that a range of technology is used at home	To select and use the camera to take a photo	To spot simple patterns	To use the internet as a way of finding information online	To use the mouse to draw a picture.	To move a device forwards, backwards, left and right
	To know that information can be retrieved from computers	To select and use the microphone to record	To sequence simple familiar tasks	To access the internet using a device e.g. iPad, Computer	To become familiar with the letters on a keyboard and use it to type simple words.	To combine four direction commands to make a sequence
Year 1	Computing Systems and Networks	Creating Media	Programming A	Data & Information	Creating Media	Programming B
	Technology Around Us	*Digital Writing*	*Moving a robot*	*Grouping Data*	*Digital Painting*	*Animation*
	To identify technology	To use a computer to write	To explain what a given command will do	To label objects	To describe what different freehand tools do	To choose a command for a given purpose
	To identify a computer and its main parts	To add and remove text on a computer	To act out a given word	To identify that objects can be counted	To use the shape tool and the line tools	To show that a series of commands can be joined together
	To use a mouse in different ways	To identify that the look of text can be changed on a computer1	To combine forwards and backwards commands to make a sequence	To describe objects in different ways	To make careful choices when painting a digital picture	To identify the effect of changing a value
	To use a keyboard to type	To make careful choices when changing text	To combine four direction commands to make sequences	To count objects with the same properties	To explain why I chose the tools I used	To explain that each sprite has its own instructions
	To use the keyboard to edit text	To explain why I used the tools that I chose	To plan a simple program	To compare groups of objects	To use a computer on my own to paint a picture	To design the parts of a project
	To create rules for using technology responsibly	To compare writing on a computer with writing on paper	To find more than one solution to a problem	To answer questions about groups of objects	To compare painting a picture on a computer and on paper	To use my algorithm to create a program

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Year 2	Computing Systems and Networks	Creating Media	Programming A	Data & Information	Creating Media	Programming B
	Information Technology Around Us	*Digital Photography*	*Robot Algorithms*	*Pictograms*	*Making Music*	*Programming Quizzes*
	To recognise the uses and features of information technology	To know what devices can be used to take photographs	To describe a series of instructions as a sequence	To recognise that we can count and compare objects using tally charts	To say how music can make us feel	To explain that a sequence of commands has a start
	To identify information technology in the home	To use a digital device to take a photograph	To explain what happens when we change the order of instructions	To recognise that objects can be represented as pictures	To identify that there are patterns in music	To explain that a sequence of commands has an outcome
	To identify information technology beyond school	To describe what makes a good photograph	To use logical reasoning to predict the outcome of a program (series of commands)	To create a pictogram	To describe how music can be used in different ways	To create a program using a given design
	To explain how Information technology benefits us	To decide how photographs can be improved	To explain that programming projects can have code and artwork	To select objects by attribute and make comparisons	To show how music is made from a series of notes	To change a given design
	To show how to use information technology safely	To use tools to change an image	To design an algorithm	To recognise that people can be described by attributes	To create music for a purpose	To create a program using my own design
	To recognise that choices are made when using information technology	To recognise that images can be changed	To create and debug a program that I have written	To explain that we can present information using a computer	To review and refine our computer work	To decide how my project can be improved
Year 3	Computing Systems and Networks	Creating Media	Programming A	Data & Information	Creating Media	Programming B
	Connecting Computers	*Stop Frame Animation*	*Sequencing Sounds*	*Branching Databases*	*Desktop Publishing*	*Events and Actions in programs*
	To explain how digital devices function	To explain that animation is a sequence of drawings or photographs	To explore a new programming environment	To create questions with yes/no answers	To recognise how text and images convey information	To explain how a sprite moves in an existing project
	To identify input and output devices	To relate animated movement with a sequence of images	I can identify that each sprite is controlled by the commands I choose	To identify the object attributes needed to collect relevant data	To recognise that text and layout can be edited	To create a program to move a sprite in four directions
	To recognise how digital devices can change the way we work	To plan an animation	To explain that a program has a start	To create a branching database	To choose appropriate page settings	To adapt a program to a new context
	To explain how a computer network can be used to share information	To identify the need to work consistently and carefully	To recognise that a sequence of commands can have an order	To identify objects using a branching database	To add content to a desktop publishing publication	To develop my program by adding features
	To explore how digital devices can be connected	To review and improve an animation	To change the appearance of my project	To explain why it is helpful for a database to be well structured	To consider how different layouts can suit different purposes	To identify and fix bugs in a program

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Year 4	To recognise the physical components of a network	To evaluate the impact of adding other media to an animation	To create a project from a task description	To compare the information shown in a pictogram with a branching database	To consider the benefits of desktop publishing	To design and create a maze-based challenge
	Computing Systems and Networks	**Creating Media**	**Programming A**	**Data & Information**	**Creating Media**	**Programming B**
	The Internet	*Audio Editing*	*Repetition in Shapes*	*Data Logging*	*Photo Editing*	*Repetition in Games*
	To describe how networks physically connect to other networks	To identify that sound can be digitally recorded:	To identify that accuracy in programming is important	To explain that data gathered over time can be used to answer questions	To explain that digital images can be changed	To develop the use of count-controlled loops in a different programming environment
	To recognise how networked devices make up the internet	To use a digital device to record sound:	To create a program in a text-based language	To use a digital device to collect data automatically	To change the composition of an image	To explain that in programming there are infinite loops and count controlled loops
	To outline how websites can be shared via the World Wide Web	To explain that a digital recording is stored as a file:	To explain what 'repeat' means	To explain that a data logger collects 'data points' from sensors over time	To describe how images can be changed for different uses	To develop a design which includes two or more loops which run at the same time
	To describe how content can be added and accessed on the World Wide Web	To explain that audio can be changed through editing:	To modify a count controlled loop to produce a given outcome	To use data collected over a long duration to find information	To make good choices when selecting different tools	To modify an infinite loop in a given program
	To recognise how the content of the WWW is created by people	To show that different types of audio can be combined and played together:	To decompose a program into parts	To identify the data needed to answer questions	To recognise that not all images are real	To design a project that includes repetition
	To evaluate the consequences of unreliable content	To evaluate editing choices made:	To create a program that uses count controlled loops to produce a given outcome	To use collected data to answer questions	To evaluate how changes can improve an image	To create a project that includes repetition
Year 5	**Computing Systems and Networks**	**Creating Media**	**Programming A**	**Data & Information**	**Creating Media**	**Programming B**
	Sharing Information	*Video Editing*	*Selection in Physical Computing*	*Flat-file Databases*	*Vector Drawing*	*Selection in Quizzes*
	To explain that computers can be connected together to form systems	To recognise video as moving pictures, which can include audio	To control a simple circuit connected to a computer	To use a form to record information	To identify that drawing tools can be used to produce different outcomes	To explain how selection is used in computer programs
	To recognise the role of computer systems in our lives	To identify digital devices that can record video	To write a program that includes count controlled loops	To compare paper and computer-based databases	To create a vector drawing by combining shapes	To relate that a conditional statement connects a condition to an outcome
	To recognise how information is transferred over the internet	To capture video using a digital device	To explain that a loop can stop when a condition is met, eg number of times	To outline how grouping and then sorting data allows us to answer questions	To use tools to achieve a desired effect	To explain how selection directs the flow of a program
	To explain how sharing information online lets people in different places work together	To recognise the features of an effective video	To conclude that a loop can be used to repeatedly check whether a condition has been	To explain that tools can be used to select specific data	To recognise that vector drawings consist of layers	To design a program which uses selection

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	To contribute to a shared project online	To identify that video can be improved through reshooting and editing	To design a physical project that includes selection	To explain that computer programs can be used to compare data visually	To group objects to make them easier to work with	To create a program which uses selection
	To evaluate different ways of working together online	To consider the impact of the choices made when making and sharing a video	To create a controllable system that includes selection	To apply my knowledge of a database to ask and answer real-world questions	To evaluate my vector drawing	To evaluate my program
Year 6	Computing Systems and Networks	Creating Media	Programming A	Data & Information	Creating Media	Programming B
	Internet Communication	*Webpage Creation*	*Variable in Games*	*Introduction to Spreadsheets*	*3D Modelling*	*Sensing*
	To identify how to use a search engine	To review an existing website and consider its structure	To define a 'variable' as something that is changeable	To identify questions which can be answered using data	To use a computer to create and manipulate three dimensional (3D) digital objects	To create a program to run on a controllable device
	To describe how search engines select results	To plan the features of a web page	To explain why a variable is used in a program	To explain that objects can be described using data	To compare working digitally with 2D and 3D graphics	To explain that selection can control the flow of a program
	To explain how search results are ranked	To consider the ownership and use of images (copyright)	To choose how to improve a game by using variables	To explain that formula can be used to produce calculated data	To construct a digital 3D model of a physical object	To update a variable with a user input
	To recognise why the order of results is important, and to whom	To recognise the need to preview pages	To design a project that builds on a given example	To apply formulas to data, including duplicating	To identify that physical objects can be broken down into a collection of 3D shapes	To use an conditional statement to compare a variable to a value
	To recognise how we communicate using technology	To outline the need for a navigation path	To use my design to create a project	To create a spreadsheet to plan an event	To design a digital model by combining 3D objects	To design a project that uses inputs and outputs on a controllable device
	To evaluate different methods of online communication	To recognise the implications of linking to content owned by other people	To evaluate my project	To choose suitable ways to present data	To develop and improve a digital 3D model	To develop a program to use inputs and outputs on a controllable device

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Section 2 - Vocabulary

	COMPUTING SYSTEMS AND NETWORKS	CREATING MEDIA	PROGRAMMING A	COMPUTING SYSTEMS AND NETWORKS / DATA AND INFORMATION	CREATING MEDIA	PROGRAMMING B
Year R	COMPUTING SYSTEMS AND NETWORKS What is technology? Technology, computer	CREATING MEDIA Using an iPad Camera, photo, microphone	PROGRAMMING A Computing unplugged Algorithm, pattern, sequence	COMPUTING SYSTEMS AND NETWORKS Accessing the Internet Device, internet, information	CREATING MEDIA Digital painting & Digital writing Monitor, mouse, keyboard,	PROGRAMMING B Moving a robot Command, direction, sequence
Year 1	COMPUTING SYSTEMS AND NETWORKS Technology around us Technology, computer, mouse, trackpad, keyboard, screen, click, drag, input device, shift, spacebar	CREATING MEDIA Digital writing Word processor, keyboard, keys, letters, Microsoft Word, letters, numbers, space, backspace, text cursor, toolbar, bold, italic, underline, undo, font, toolbar	PROGRAMMING A Moving a robot Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, route, program	DATA AND INFORMATION Grouping data Object, label, group, search, image, colour, shape, property, value, data set, less, most, fewest, the same	CREATING MEDIA Digital Painting Paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian, primary colours, shape tools, line tool, fill tool, undo tool, feelings, colour, brush style, George Seurat, Pointillism, prefer, dislike, like	PROGRAMMING B Introduction to animation ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, start, program, background, delete, reset, algorithm, predict, effect, change, value, block, instructions, appropriate, design
Year 2	COMPUTING SYSTEMS AND NETWORKS Information technology around us Information technology (IT), computer, barcode, scanner/scan	CREATING MEDIA Digital photography Device, camera, photograph, capture, image, digital, landscape, portrait, horizontal, vertical, field of view, narrow, wide, format, framing, focal point, subject, matter, flash, focus, background, foreground, editing, filter, changed, real	PROGRAMMING A Robot algorithms Instruction, sequence, clear, unambiguous, algorithm, program, order, commands, prediction, artwork, design, route, mat, debugging	DATA AND INFORMATION Pictograms More than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, data, tally chart, compare, count, explain, attribute, group, same, different, most popular, least popular	CREATING MEDIA Making music Music, planets, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, notes, instrument, create, open, edit	PROGRAMMING B Introduction to quizzes Sequence, command, program, run, program, start, predict, blocks, actions, sprite, modify, match, debug, features, evaluate
Year 3	COMPUTING SYSTEMS AND NETWORKS Connecting Computers Digital device, input, output, process, program, connection, network, network switch, server, wireless access point (WAP)	CREATING MEDIA Stop frame animation Animation, flip book, stop frame, animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, delete, frame, media, import, transition	PROGRAMMING A Sequence in music Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, event, task, design, code, run the code, order, note, chord, algorithm, bug, debug	DATA AND INFORMATION Branching databases Attribute, value, questions, table, objects, branching databases, objects, equal, even, separate, order, organise, selecting, pictogram, information, decision tree, questions	CREATING MEDIA Desktop publishing Text, images, advantages, disadvantages, communicate, font, style, template, desktop publishing, copy, paste, layout, purpose, benefits	PROGRAMMING B Events and actions Motion, event, sprite, algorithm, logic, move, resize, algorithm, extension block, pen up, set up, design, action, debugging, errors, setup, test

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	COMPUTING SYSTEMS AND NETWORKS	CREATING MEDIA	PROGRAMMING A	DATA AND INFORMATION	CREATING MEDIA	PROGRAMMING B
Year 4	**The internet** Internet, network, router, network security, network switch, wireless access point (WAP), router, website, web page, web address, router, routing, route tracing, browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, accurate, honest, adverts	**Audio editing** Audio, record, playback, microphone, speaker, headphones, input, output, start, stop, podcast, save, file, selection, edit, mixing, time shift, export, MP3, evaluate, feedback	**Repetition in shapes** Program, turtle, commands, code, snippet, algorithm, design, debug, logo commands, pattern, repeat, repetition, count-controlled loop, value, decompose, procedure	**Data logging** Data, table (layout), input device, sensor, data logger, logging, data point, interval, analyse, import, export, logged, collection, analyse, review, conclusion	**Photo editing** Image, edit, arrange, select, digital, crop, undo, save, search, copyright, composition, save, pixels, rotate, flip, adjustments, effects, colours, hue/saturation, sepia, version, illustrator, clone, recolour, magic wand, sharpen, brighten, fake, real, composite, background, foreground, retouch, paste, alter, publication, elements, original, font style, border, layer	**Repetition in games** Scratch, programming, sprite, blocks, code, loop, repeat, value, forever, infinite loop, count-controlled loop, animate, costume, event block, duplicate, modify, debug, refine, evaluate, algorithm
Year 5	**Sharing information** System, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration	**Video editing** Video, audio, recording, storyboard, script, soundtrack, dialogue, capture, zoom, storage, digital, tape, AV (audiovisual), videographer, video techniques, zoom, pan, tilt, angle, YouTuber, content, camera, colour, export, trim/clip, titles, end credits, timeline, transitions, soundtrack, retake/reshoot, special effects, constructive feedback	**Selection in physical computing** Microcontroller, crumble controller, components, LED, Sparkle, crocodile clips, connect, battery box, program, repetition, infinite loop, count-controlled loop, condition, true, false, input, action, selection, motor, switch, algorithm, debug, evaluate	**Flat-file databases** Database, data, information, record, field, sort, order, group, search, criteria, value, graph, chart, axis, compare, filter, presentation	**Vector drawing** Vector, drawing tools, shapes, object, icons, toolbar, move, resize, colour, rotate, duplicate/copy, zoom, select, alignment grid, handles, consistency, modify, layers, front, back, copy, paste, group, ungroup, reuse, improvement, evaluate, alternatives	**Selection in quizzes** Selection, condition, true, false, count-controlled loop, outcomes, conditional statement – the linking together of a condition and outcomes, algorithm, program, debug, implement, question, answer, task, input, outcomes, test, run, setup, share, evaluate, constructive
Year 6	**Communication** Search, search engine, refine. index, crawler, bot, optimisation, links, web crawlers, content creator, ranking, communication, internet, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround	**Web page creation** Website, web page, browser, media, Hypertext Markup Language (HTML), layout, header, media, purpose, copyright, fair use, evaluate, preview, device, breadcrumb, trail, navigation, hyperlink, subpage, implication, external link, embed	**Variables in games** Variable, change, name, value, set, design, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share	**Spreadsheets** Spreadsheet, data, data heading, data set, cells, columns and rows, data item, format, common attribute, formula, calculation, call reference, sigma, graph, evaluate, results, comparisons, questions, software, tools, data, propose	**3D modelling** 2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, modify, evaluate, improve	**Sensing** Micro-bit, input, process, output, flashing, USB, selection, condition, if… then… else, variable, random, navigation, design, task, step counter, plan, create, code, test, debug