



Computing Progression of Skills and Knowledge

EYFS:

Computer systems and networks:

- To be able to understand what a computer keyboard is and recognise some letters and numbers.
- To know that a mouse can be used to click, drag and create simple drawings.
- To know that to use a computer you need to log in to it and then log out at the end of your session.
- To know that different types of technology can be found at home and in school.
- To know that you can take simple photographs with a camera or iPad.
- To know that you must hold the camera still and ensure the subject is in the shot to take a photo.

Programming:

- To know that being able to follow and give simple instructions is important in computing.
- To understand that it is important for instructions to be in the right order.
- To understand why a set of instructions may have gone wrong.
- To know that you can program a Bee-Bot with some simple commands.
- To understand that debugging means how to fix some simple programming errors.
- To understand that an algorithm is a set of clear and precise instructions.

Data handling:

- To know that sorting objects into various categories can help you locate information.
- To know that using yes/no questions to find an answer is known as a branching database.
- To know that a pictogram is a way of showing information.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
G e n e r a l S k i l l s	Turn on and shutdown computing equipment safely. Move the cursor and click using a trackpad or mouse. Drag objects in a file from one location to another. Create, name and date digital work (following save protocols). Launch an application by doubling clicking it. Save and open files in their folder. Retrieve a piece of work to edit. Can print a piece of work.		Reinforce basic computer skills. Can securely log in to their personal domain and gmail. Use the Google/domain workspace. Store and retrieve work both in school and remotely using school usernames and passwords. Use and understand a range of computing vocabulary relevant for their Year group.			



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C o m p u t e r s y s t e m s a n d N e t w	<p>To know that "log in and log out" means to begin and end a connection with a computer.</p> <p>To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.</p> <p>To know that passwords are important for security.</p>	<p>To know the difference between a desktop and laptop computer.</p> <p>To know that people control technology.</p> <p>To know some input devices that give a computer an instruction about what to do (output).</p> <p>To know that computers often work together.</p> <p>To know that touch typing is the fastest way to type.</p> <p>To know that I can make text a different style, size and colour.</p> <p>To know that "copy and paste" is a quick way of duplicating text.</p>	<p>To understand what a network is and how a school network might be organised.</p> <p>To know that a server is central to a network and responds to requests made.</p> <p>To know how the internet uses networks to share files.</p> <p>To know that a router connects us to the internet.</p> <p>To know what a packet is and why it is important for website data transfer.</p> <p>To understand that email stands for 'electronic mail.'</p> <p>To know that an attachment is an extra file added to an email.</p> <p>To understand that emails should contain appropriate content.</p> <p>To know the roles</p>	<p>To understand that software can be used collaboratively online to work as a team.</p> <p>To know what type of comments and suggestions on a collaborative document can be helpful.</p> <p>To know that you can use images, text, transitions and animation in presentation slides.</p>	<p>To know how search engines work.</p> <p>To understand that anyone can create a website and therefore we should take steps to check the validity of websites.</p> <p>To know that web crawlers are computer programs that crawl through the internet.</p> <p>To understand what copyright is.</p>	<p>To understand the importance of having a secure password and what "brute force hacking" is.</p> <p>To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.</p> <p>To know about some of the historical figures that contributed to technological advances in computing.</p> <p>To understand what techniques are required to create a presentation using appropriate software.</p>
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o r k s			that inputs and outputs play on computers. To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.			
key vocab	account, clipart, computer, log on, log off, mouse, password, resize, screen (monitor), software, tool, username	battery, buttons, backspace, copyright, computer, desktop, delete, device, electricity, image, import, input, invention, keyboard, keyboard character, laptop, monitor, mouse, output, paste, redo, space bar, touch type, technology, undo, word processing, wire	account, algorithms, attachment, BCC, CC, computer, computer program, CPU, cyberbullying, cyberbully, domain, device, DSL, data, desktop, email, email account, emoji, file, GPU, hard disk drive HDD, internet, information, instructions, log off, log on, network, network maps, router, RAM, ROM, password, server, submarine cables, the cloud, spam, tablet device, trackpad, username, wifi,	collaborate, comment, e-document, edit, email, icon, insert (file), link, presentation software, presentation, reply, reviewing comments, reply, reviewing comments, share, spreadsheet, transition	algorithm, company logo, data leak, data privacy, fake news, inaccurate information, index, keywords (internet), network, online, page rank, search engine, TASK, web crawler, website, WWW	acrostic code, brute force hacking, caesar cipher, chip and pin system, cipher, date shift cipher, encrypt, invention, Nth letter cipher, password, pigpen cipher, technological advancements, trial and error



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			wired, wireless, wireless access point			
C r e a t i n g m e d i a	To understand that holding the camera still and considering angles and light are important to take good pictures. To know that you can edit, crop and filter photographs. To know how to search safely for images online.	To understand that an animation is made up of a sequence of photographs. To know that small changes in my frames will create a smoother looking animation. To understand what software creates simple animations and some of its features e.g. onion skinning.	To know that different types of camera shots can make my photos or videos look more effective. To know that I can edit photos and videos using film editing software. To understand that I can add transitions and text to my video.	To know that a website is a collection of pages that are all connected. To know that websites usually have a homepage and subpages as well as clickable links to new pages, called hyperlinks. To know that websites should be informative and interactive.	To know that decomposition of an idea is important when creating stop-motion animations. To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. To know that editing is an important feature of making and improving a stop motion animation.	To know that radio plays are plays where the audience can only hear the action so sound effects are important. To know that sound clips can be recorded using sound recording software. To know that sound clips can be edited and trimmed.
key vocab	camera, crop, delete, download, drag and drop, editing software, image, import (software), photograph, resize, save as, search engine, sequence, smart device,	animation, animator, contraption, decompose, design, device, download, film review, filming, import image, plan, sketch, software, stop motion, storyboard, upload	application, desktop, digital device, edit, film, film editing software, graphics, import, key events, laptop, plan, recording (media), sound effects, time	collaboration, content, create, design, edit, embed, feature, header, hyperlink, insert (file), online, plan, tab, web page, website, WWW	animation, animator, background, decompose, device, duplicate, editing, frame, illusion, stop motion, storyboard, upload	background noise, byte, computer, CPU, memory storage, mouse, operating system OS, radio play, RAM, ROM, sound effects, touch screen, trackpad



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	storage space, visual effects.		code, video, voiceover			
D a t a h a n d l i n g	<p>To know how charts and pictograms can be created using a computer.</p> <p>To understand that a branching database is a way of classifying a group of objects.</p> <p>To know that computers understand different types of 'input'.</p>	<p>To know that you can write a program to create a musical instrument or tell a joke.</p> <p>To understand what steps you need to take to create an algorithm.</p> <p>To know what data to use to answer certain questions.</p> <p>To know that computers can be used to monitor supplies.</p>	<p>To know that a database is a collection of data stored in a logical, structured and orderly manner.</p> <p>To know that computer databases can be useful for sorting and filtering data.</p> <p>To know that different visual representations of data can be made on a computer.</p>	<p>To know that computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data').</p> <p>To know that a weather machine is an automated machine that respond to sensor data.</p> <p>To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.</p>	<p>To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock.</p> <p>To know what numbers using binary code look like and be able to identify how messages can be sent in this format.</p> <p>To understand that RAM is Random Access Memory and acts as the computer's working memory.</p> <p>To know what simple operations can be used to calculate bit patterns.</p>	<p>To know that data contained within barcodes and QR codes can be used by computers.</p> <p>To know that infrared waves are a way of transmitting data.</p> <p>To know that Radio Frequency Identification (RFID) is a more private way of transmitting data.</p> <p>To know that data is often encrypted so that even if it is stolen it is not useful to the thief.</p> <p>To know that data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'.</p> <p>I know that devices</p>



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						or that are not updated are most vulnerable to hackers. To know the difference between mobile data and WiFi.
key vocab	branching database, categorise, chart, computer, data, information, label, pictogram, record, sort, table, text	approximate, astronaut, data, digital content, experiment, interactive map, international space station, interpret, laboratory, monitor, satellite, sensor, space, survival, thermometer	categorise, data, database, fields (data), filter (data), graphs and charts, information, record, sort, spreadsheet	algorithm, automated machine, calculate, climate, device, forecast, log data, predict, record, sensor, source, spreadsheet, temperature, weather	binary code, data, data transmission, discovery, distance, input, mars rover, moon, numerical data, output, planet, radio signal, scientist, sequence, signal, computer simulation, space (astronomy)	barcode, big data, bluetooth, boolean, brand, corrupt data, commuter, contactless, digital revolution, data, data privacy, encrypt, GPS, infrared waves, internet of things (IoT), NFC, QR code, radio waves, RFID, SIM, signal, systems or data analyst, computer simulation, smart school/city, transmission
P r o g	To understand that an algorithm is when instructions are put in an exact order. To know that input	To know that coding is writing in a special language so that a computer	To know that Scratch is a programming language and some of its basic functions.	To understand that a variable is a value that can change	To know that a soundtrack is music for a film/video and that one way of composing these is	To know that there are text-based programming languages such as Logo and Python.



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r a m m i n g	<p>devices get information into a computer and that output devices get information out of a computer.</p> <p>To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing.</p> <p>To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.</p> <p>To understand the basic functions of a Bee-Bot.</p> <p>To know that you can use a camera/tablet to make simple videos.</p> <p>To know that algorithms move a Bee-Bot accurately to a chosen destination.</p>	<p>understands what to do.</p> <p>To understand what machine learning is and how it enables computers to make predictions.</p> <p>To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times.</p> <p>To know that abstraction is the removing of unnecessary detail to help solve a problem.</p> <p>To understand that the character in ScratchJr is controlled by the programming blocks.</p> <p>To know that you can write a program to create a musical instrument or tell a joke.</p>	<p>To understand how to use loops to improve programming.</p> <p>To understand how decomposition is used in programming.</p> <p>To understand that you can remix and adapt existing code.</p>	<p>(depending on conditions) and know that you can create them in Scratch.</p> <p>To know what a conditional statement is in programming.</p> <p>To understand that variables can help you to create a quiz on Scratch.</p> <p>To know that combining computational thinking skills can help you to solve a problem.</p> <p>To understand that pattern recognition means identifying patterns to help them work out how the code works.</p> <p>To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.</p>	<p>on programming software.</p> <p>To understand that using loops can make the process of writing music simpler and more effective.</p> <p>To know how to adapt their music while performing.</p> <p>To know that a Micro:bit is a programmable device.</p> <p>To know that Micro:bit uses a block coding language similar to Scratch.</p> <p>To understand and recognise coding structures including variables.</p> <p>To know what techniques to use to create a program for a specific purpose (including decomposition).</p>	<p>To know that nested loops are loops inside of loops.</p> <p>To understand the use of random numbers and remix Python code.</p>
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Key vocab	algorithm, bug, bee-bot, computer, computer code, computer program, debug, decompose, device, explain, explore, input, instructions, predict, output, tinker, solution, video	abstraction, algorithm, animation, artificial intelligence, bug, code (computer), code (verb), correct, data, debug, decompose, error, icon, imitate, instructions, loop, key features, predict, repeat, unnecessary, scratch JR, sequence	animation, application, code, code block, debug, decompose, interface, loop, predict, program, remixing code, repetition code, review, sprite, tinker	abstraction, algorithm design, code (computer), code block, computational thinking, computer, conditional statement, decompose, direction, feature, icon, orientation, position, program verb, project (scratch), pattern recognition, problem, scratch, sprite, stage (scratch), sequence, tinker, variable	.hex file, .zip file, bluetooth, basic commands, bug, code blocks, code (verb), computer code, code block, debug, decompose, error, emulator, feature, live loop, loop, micro:bit, pedometer, pitch (music), predict, program language, rhythm, systematic, scratch, sprite, soundtrack, tinker, tempo, timbre, variable	algorithm, code (computer), computer command, decompose, import (software), indentation (programming), loop, nested loop, random numbers, remix, script libraries, variable
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