| **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. |
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|  | **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. |
| **C****o****m****p****u****t****e****r****s****y****s****t****e****m****s****a****n****d****N****e****t****w****o****r****k****s**  | To know that "log inand log out" means to begin and end aconnection with acomputer.To know that acomputer and mousecan be used to click,drag, fill and selectand also addbackgrounds, text,layers, shapes and clip art.To know thatpasswords areimportant forsecurity. | To know thedifference between a desktop and laptopcomputer.To know that peoplecontrol technology.To know some inputdevices that give acomputer aninstruction aboutwhat to do (output).To know thatcomputers oftenwork together.To know that touchtyping is the fastestway to type.To know that I canmake text a differentstyle, size and colour.To know that "copyand paste" is a quickway of duplicatingtext. | To understand what a network is and how a school network mightbe organised.To know that a server is central to a network and responds to requestsmade.To know how theinternet usesnetworks to sharefiles.To know that a routerconnects us to theinternet.To know what apacket is and why it isimportant forwebsite datatransfer.To understand thatemail stands for'electronic mail.'To know that anattachment is anextra file added to anemail.To understand thatemails should containappropriate content.To know the rolesthat inputs andoutputs play oncomputers.To know what someof the differentcomponents inside acomputer are e.g.CPU, RAM, harddrive, and how theywork together. | To understand thatsoftware can beused collaborativelyonline to work as ateam.To know what typeof comments andsuggestions on acollaborativedocument can behelpful.To know that youcan use images,text, transitions andanimation inpresentation slides. | To know howsearch engineswork.To understand thatanyone can create awebsite andtherefore weshould take steps tocheck the validity ofwebsites.To know that webcrawlers arecomputer programsthat crawl throughthe internet.To understand whatcopyright is. | To understand theimportance of havinga secure passwordand what "bruteforce hacking" is.To know that the firstcomputers werecreated at BletchleyPark to crack theEnigma code to helpthe war effort inWorld War 2.To know about someof the historicalfigures thatcontributed totechnologicaladvances incomputing.To understand whattechniques arerequired to create apresentation usingappropriatesoftware. |
| **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, wired, wireless, wireless access point | 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 chiper, technological advancements, trial and error |
| **C****r****e****a****t****I****n****g****m****e****d****I****a** | To understand thatholding the camerastill and consideringangles and light areimportant to takegood pictures.To know that you canedit, crop and filterphotographs.To know how tosearch safely forimages online. | To understand thatan animation is madeup of a sequence ofphotographs.To know that smallchanges in my frames will create asmoother lookinganimation.To understand whatsoftware createssimple animationsand some of itsfeatures e.g. onionskinning. | To know thatdifferent types ofcamera shots canmake my photos orvideos look moreeffective.To know that I canedit photos andvideos using filmediting software.To understand that I can add transitionsand text to my video. | To know that awebsite is acollection of pagesthat are allconnected.To know thatwebsites usuallyhave a homepageand subpages aswell as clickablelinks to new pages,called hyperlinks.To know thatwebsites should beinformative andinteractive. | To know thatdecomposition of anidea is importantwhen creatingstop-motionanimations.To understand thatstop motionanimation is ananimation filmed oneframe at a time using models, and with tiny changes between each photograph.To know that editingis an importantfeature of makingand improving a stopmotion animation. | To know that radioplays are plays wherethe audience can onlyhear the action sosound effects areimportant.To know that soundclips can be recorded using soundrecording software.To know that soundclips can be editedand trimmed. |
| **key vocab** | camera, crop, delete, download, drag and drop, editing software, image, import (software), photograph, resize, save as, search engine, sequence, smart device, storage space, visual effects. | 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 code, video, voiceover | 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 |
| **D****a****t****a****h****a****n****d****l****i****n****g** | To know how charts and pictograms can be created using a computer.To understand that abranching database is a way of classifying agroup of objects.To know that computers understand differenttypes of 'input'. | To know that you canwrite a program tocreate a musicalinstrument or tell ajoke.To understand whatsteps you need totake to create analgorithm.To know what data touse to answer certainquestions.To know thatcomputers can beused to monitorsupplies. | To know that adatabase is acollection of datastored in a logical,structured andorderly manner.To know thatcomputer databasescan be useful forsorting and filteringdata.To know thatdifferent visualrepresentations ofdata can be made ona computer. | To know that computerscan use different formsof input to sense theworld around them so that they can record andrespond to data (‘sensordata’).To know that a weathermachine is an automatedmachine that respond tosensor data.To understand thatweather forecasters usespecific language,expression andpre-prepared scripts tohelp create weatherforecast films. | To know that MarsRover is a motorvehicle that collectsdata from space bytaking photos andexamining samples ofrock.To know what numbersusing binary code looklike and be able toidentify how messagescan be sent in thisformat.To understand thatRAM is Random AccessMemory and acts asthe computer’sworking memory.To know what simpleoperations can be usedto calculate bitpatterns. | To know that datacontained withinbarcodes and QRcodes can be used bycomputers.To know that infraredwaves are a way oftransmitting data.To know that RadioFrequencyIdentification (RFID)is a more private wayof transmitting data.To know that data isoften encrypted sothat even if it isstolen it is not usefulto the thief.To know that datacan becomecorrupted within anetwork but this isless likely to happenif it is sent in‘packets’.I know that devicesor that are notupdated are mostvulnerable tohackers.To know thedifference betweenmobile 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****r****a****m****m****I****n****g** | To understand that an algorithm is when instructions are put in an exact order.To know that inputdevices getinformation into acomputer and thatoutput devices getinformation out of acomputer.To understand thatdecomposition meansbreaking a probleminto manageablechunks and that it isimportant incomputing.To know that we callerrors in an algorithm'bugs' and fixing these'debugging'.To understand thebasic functions of aBee-Bot.To know that you canuse a camera/tablet tomake simple videos.To know thatalgorithms move aBee-Bot accurately toa chosen destination. | To know that coding is writing in a special language so that a computer understands what to do.To understand whatmachine learning isand how it enablescomputers to makepredictions.To know that loops inprogramming arewhere you set acertain instruction(or instructions) to berepeated multipletimes.To know thatabstraction is theremoving ofunnecessary detail tohelp solve a problem.To understand thatthe character inScratchJr iscontrolled by theprogramming blocks.To know that you canwrite a program tocreate a musicalinstrument or tell ajoke. | To know that Scratchis a programminglanguage and some ofits basic functions.To understand how touse loops to improveprogramming.To understand howdecomposition isused in programming.To understand thatyou can remix andadapt existing code. | To understand that avariable is a value thatcan change(depending onconditions) and knowthat you can createthem in Scratch.To know what aconditional statementis in programming.To understand thatvariables can help you to create a quiz on Scratch.To know that combiningcomputationalthinking skills canhelp you to solve aproblem.To understand thatpattern recognitionmeans identifyingpatterns to helpthem work out howthe code works.To understand thatalgorithms can beused for a numberof purposes e.g.animation, gamesdesign etc. | To know that asoundtrack is musicfor a film/video andthat one way ofcomposing these ison programmingsoftware.To understand thatusing loops can makethe process of writingmusic simpler andmore effective.To know how toadapt their musicwhile performing.To know that aMicro:bit is aprogrammabledevice.To know thatMicro:bit uses a blockcoding languagesimilar to Scratch.To understand andrecognise codingstructures includingvariables.To know whattechniques to use tocreate a program fora specific purpose(includingdecomposition). | To know that thereare text-basedprogramminglanguages such asLogo and Python.To know that nestedloops are loops insideof loops.To understand theuse of randomnumbers and remixPython code. |
| **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 brock, 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 |