# Computing Curriculum Map

| | Autumn Term | | Spring Term | | Summer Term | |
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| **EYFS** | Computing through continuous provision | **Using a computer**<br>Learning about the main parts of a computer and how to use the keyboard and mouse. Learning how to log in and out. | **All about instructions**<br>The children learn to receive and give instructions and understand the importance of precise instructions. | **Exploring hardware**<br>Tinkering and exploring with different computer hardware and learning to operate a camera. | **Programming Bee-Bots**<br>Children learn about directions, experiment with programming a Bee-Bot and tinker with hardware. | **Introduction to data**<br>Children sort and categorise data and are introduced to branching databases and pictograms. |
| **Key vocabulary** | | computer, computer safety, cursor, drag, drop, keyboard, left click, letters, lock, log in, log out, lowercase, monitor, mouse, numbers, password, personal, protects, right click, secure, security, stamp, type, uppercase | adjective, algorithm, debug, follow, give, instructions, predict, prediction, run, sequence, shuffle, skip, timer, two-part instructions | batteries, camera, capture, digital camera, digital clock, hard-drive, keyboard, lens, memory, mobile phones, monitor, motherboard, mouse, remote control, speaker, tablets, technology, tinker, USB stick, walkie-talkies. | algorithm, Bee-Bot, debug, directions, instructions, program, sequence | branch database, categorise, column, count, data, graph, in total, least popular, most popular, less, more, pattern, pictogram. |
| **Year 1** | **Improving mouse skills**<br>Learning how to login and navigate around a computer; developing mouse skills; learning how to drag, drop, click and control a cursor to create works of art. | **Algorithms unplugged**<br>Algorithms, decomposition and debugging are made relatable to familiar contexts, following directions, learning why instructions need to be specific. | **Rocket to the moon**<br>Developing keyboard and mouse skills through designing, building and testing. Creating a digital list of materials, using drawing software and recording data. | **Programming Bee-Bots**<br>Exploring programming commands and instructions through the use of a Bee-Bot**.** | **Digital imagery**<br>Taking and editing photos, searching for and adding images to a project. | **Introduction to data**<br>Learning what data is and the different ways it can be represented. Learning why data is useful and the ways it can be gathered and recorded. |

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| **Key vocabulary** | account, clipart, computer, duplicate, layers, tool | chunks, code, computer decompose, input, manageable order, organise, output, solution, specific, tasks, virtual assistant | annotate, cells, components, create, data, designing, digital content, digital image, document, e-document, edit, editing software, editing program, evaluate, folder, save, share, software, spreadsheet, table | Bee-Bot, demonstration, explore, filming, inputting, pause, predict, program, review, test, tinker, video | background, blurred, camera, crop, device, digital camera, download, edit, filter, image, import, internet, keyword, online, photograph, resize, save as, search engine, storage space, visual effects | bar chart, block graph, branching database, categorise, chart, compare, count, data, data collection, data record, data representation, pictogram, pie chart, process, sort, tally, values |
| **Online safety** | Learning: how to stay safe online and how to engage feelings and emotions when someone or something has upset us.<br>Key vocabulary: digital footprint, feelings, going online, personal information, pop-up, posting online, report, screen time, sharing online, stranger | | | | | |
| **Year 2** | **What is a computer?**<br>Exploring what a computer is by identifying how inputs and outputs work. How computers are used in the wider world to design their own computerised invention. | **Algorithms and debugging**<br>Developing an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops. | **Word processing**<br>Developing touch typing skills, learning keyboard shortcuts and simple editing tools. | **Introduction to block coding**<br>Exploring Microsoft MakeCode, planning and building a program. | **Stop Motion**<br>Learning how to create simple animations from storyboarding creative ideas. | **International Space Station**<br>Learning how data is collected, used and displayed and the scientific learning of the conditions needed for plants and humans, to survive. |
| **Key vocabulary** | battery, desktop, digital content, digital recorder, electricity, laptop, monitor, scanner, screen, system, technology, video | abstraction, artificial intelligence, key features, loop, unnecessary | back button, backspace, bold, copy, copyright, cut, forward button, highlight, italic, layout, navigate, paste, redo, space bar, text, text effects, touch typing, underline, undo, word processing | algorithm, bug, debug, programming, sequence, block coding, micro:bit, MakeCode | animation, animator, background, digital device, drawing, flipbook, frames, moving images, opinion skinning, still images, object, plane | astronaut, column, essential, experiment, Goldilocks zone, interactive map, input, row, satellite, space, spreadsheet, survival, temperature, thermometer. |
| **Online safety** | Learning: how to keep information safe and private online, who we should ask before sharing things online and how to give, or deny, permissions online.<br>Key vocabulary: accepting, consent, denying permission, fake, giving permission, offline, pop-up, pressure, reliable, source, trusted adult | | | | | |
| **Year 3** | **Networks**<br>Learning what a network and how devices communicate and share information. | **Scratch**<br>Exploring the programme Scratch to program an animation. | **Emailing**<br>Sending emails using Microsoft Office 365 and understanding what cyberbullying is. | **Journey inside a computer**<br>Assuming the role of computer parts and creating paper versions of computers to consolidate understanding of how a compute works. | **Video trailers**<br>Developing digital video skills to create trailers, with special effects and transitions. | **Comparison cards databases**<br>Learning about records, fields and data and sorting and filtering data. |

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| **Key vocabulary** | device, internet, network, router, server, the cloud, Wi-Fi | application, code, debug, decompose, program, Scratch | attachment, bcc (blind carbon copy), compose, cyberbullying, domain, download, email, account, emoji, inbox, reply, responsible digital citizen, spam, username, virus | CPU (central processing unit), disassemble, GPU (graphics processing unit), hard drive, HDD (hard disk drive), QR code, RAM (random access memory), ROM (read only memory), storage | clip, film editing software, graphics, sound effects, time code, trailer, transition, voiceover, cross blur, crossfade, cross zoom | Excel, fields, filter, interpret, PDF (portable document format), questionnaire |
| **Online safety** | Learning: the difference between fact, opinion and belief; and how to deal with upsetting online content. Knowing how to protect personal information online.<br>Key vocabulary: age restrictions, autocomplete, belief, charity, fact, fake news, opinion, social media platforms | | | | | |
| **Year 4** | **Collaborative learning**<br>Learning how to work collaboratively and exploring a range of collaborative tools, using Microsoft Office. | **Further coding with Scratch**<br>Revisiting the key features of Scratch and programming a game. | **Website design**<br>Learning how web pages and sites are created and how to embed media and links. | **HTML**<br>Learning about the markup language behind a webpage; becoming familiar with HTML tags, changing HTML and CSS code to alter images and 'remix' a live website. | **Computational thinking**<br>Solving problems effectively using the four areas of abstraction, algorithm design, decomposition and pattern recognition. | **Investigating weather**<br>Researching and storing data on spreadsheets and designing a weather station. |
| **Key vocabulary** | average, collaboration, contribution, edited, format, freeze, insert, multiple choice, numerical data, presentations, reviewing comments, slides, spreadsheets, suggestions, survey | conditional statement, coordinates, feature, negative number, orientation, position, script, sprite, stage, variable | assessment, audience, design, embed, hyperlinks, progress, web page, design view, Microsoft Sway, stack, storyline view, transform, web browser | CSS (cascading style sheets), end tag, hacker, heading, HTML (hyper text markup language), HTML tags, internet browser, start tag, URL (uniform resource locator), web page | computational thinking, debug, logical, pattern, recognition, relevant, remixing | climate zone, forecast, filming, heat sensor, lightning, measurement, presenter, rain, script, sensor data, solar panel, tornado, weather, weather forecast, wind speed |
| **Online safety** | Searching for information and making a judgement about the probable accuracy; recognising adverts and pop-ups; understanding that technology can be distracting.<br>Key vocabulary: accuracy, ad, advantage, advertisement, belief, bot, hashtag, implications, in-app purchases, influencer, recommendation, screen time, search results, snippets, sponsored, trustworthy | | | | | |
| **Year 5** | **Search engines**<br>Learning about how page rank works and how to identify inaccurate information. | **Programming: Music**<br>Building on programming and music skills to create different sounds, beats, and melodies by using nested loops to create rhythms and making a soundtrack. | **Mars Rover**<br>Learning about the Mars Rover, exploring how and why it transfers data including instructions, and how messages can be sent using binary code. | **BBC micro:bit**<br>Creating algorithms and programs that are used in the real world. Using the 'predict, test and evaluate' cycle to create and debug programs with specific aims. | **Stop motion animation**<br>Creating animations, storyboard ideas and decomposing a story into small parts before putting together to create the illusion of a moving image. | **Mars Rover 2**<br>Exploring how the Mars rover: moves, follows instructions, collects and sends data; understanding how computers work, what data is and how it is transferred. |

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| **Key vocabulary** | appropriate, credit, data leak, deceive, fair, inappropriate, incorrect, index, keywords, privacy, rank, real, TASK, web crawler | adapt, basic command, beat, code, pitch, soundtrack, tempo | 8-bit binary, addition, ASCII, binary code, Boolean, byte, CPU, data, data transmission, Hexadecimal, Mars Rover, radio signal, RAM signal, simulation | app, Bluetooth, conditional statement, Micro:bit, outputs, pairing, pedometer, polling, reset, sabotage, scoreboard, systematic, tinkering, USB | animator, character, flip book, fluid movement, frames, model, thaumatrope, zoetrope | 3D, binary image, CAD, compression, 'Fetch, decode, execute', ID card, JPEG, operating system, pixels, RGB, ROM, safe |
| **Online safety** | Learning about app permissions: the positive and negative aspects of online communication; that online information is not always factual; how to deal with online bullying and managing our health and wellbeing.<br>Key vocabulary: accurate, advice, bullying, communication, judgement, meme, mental health, mindfulness, positive/negative contribution, online, real world, strong password, support | | | | | |
| **Year 6** | **Bletchley Park and the history of computers**<br>Discovering the history of Bletchley Park, historical figures and the importance of code breaking and passwords. Designing a computer of the future and creating an audio advert for their designs. | **Exploring AI**<br>Exploring what AI is and how it generates text, images and code. Learning about creating and refining prompts to improve AI responses while also considering the ethical implications of AI and its potential to replace human roles. | **Big data**<br>Identifying how barcodes and QR codes work. Learning how infrared waves are used for the transmission of data while recognising the uses of RFID. | **Into to Python**<br>Using the programming language 'Python' to create designs and art. Leaning how to create loops and nested loops to make their code more efficient. | **Big data 2**<br>Further developing understanding of how networks and the Internet are able to share information. Learning how big data can be used to design smart buildings. | **Inventing a product**<br>Designing a product, pupils: evaluate, adapt and debug cod to make it suitable for their needs and designing products in CAD and creating a website and video. |
| **Key vocabulary** | acrostic code, brute force hacking, Caesar cipher, chip and PIN system, cipher, date shift cipher, Nth Letter Cipher, pigpen cipher, scrambled | AI, AI generated image, AI generated text, ethical, rebuttal | barcode, chip, contactless, encrypt, infrared, proximity, QR scanner, RFID, systems analyst, transmission | indentation, random, remix, shape | GPS, Internet of Things, revolution, SIM, Smart city, Smart school, threat | abstraction, advert, electronic, image rights, input, product, screenshot, selection, structure |
| **Online safety** | Learning to deal with issues online' about the impact and consequences of sharing information online; how to develop a positive online reputation; combating and dealing with online bullying and protective passwords.<br>Key vocabulary: anonymity, antivirus, biometrics, block, digital personality, financial information, malware, phishing, reliable source, scammers, screengrab, screenshot, software update, two-factor authentication | | | | | |