Computing long term overview

Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety (ongoing throughout the year)
EYFS		**Computing systems and networks – using a computer** Learning about the main parts of a computer and how to use the keyboard and mouse. Learning how to log in and out	**Programming 1: All about instructions** The children learn to receive and give instructions and understand the importance of precise instructions.	**Computing systems and networks – Exploring hardware** Tinkering and exploring with different computer hardware and learning to operate a camera.	**Programming 2: Programming Bee-Bot** Children learn about directions, experiment with programming a Bee-bot/Blue-bot and tinker with hardware.	**Data handling** **To** sort and categorise data and are introduced to branching databases and pictograms.	
Year 1	**Computing systems and networks: improving mouse skills** Exploring what a computer is by identifying how inputs and outputs work and how computers are used in the wider world to design their own computerised invention.	**Programming 1: Algorithms unplugged** Algorithms, decomposition and debugging are made relatable to familiar contexts, following directions, learning why instructions need to be specific.	**Skills showcase** Developing keyboard and mouse skills through designing, building and testing. Creating a digital list of materials, using drawing software and recording data.	**Programming 2: Bee-Bot** Introducing programming through the use of a Bee-Bot and exploring its functions.	**Creating media: Digital imagery** Learning how to stay safe online and how to manage feelings and emotions when someone or something has upset us.	**Data handling: Introduction to data** 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.	Learning how to stay safe online and how to manage feelings and emotions when someone or something has upset us.
Year 2	**Computing systems and networks 1: What is a computer?** Exploring what a computer is by identifying how inputs and outputs work and how computers are used in the wider world to design their own computerised invention.	**Programming 1: Algorithms and debugging** Developing an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops.	**Computing systems and networks 2: Word processing** Developing touch typing skills, learning keyboard shortcuts and simple editing tools.	**Programming 2: ScratchJr** Exploring what 'blocks' do' by carrying out an informative cycle of predict > test > review. Programming a familiar story and make a musical instrument.	**Creating media: Stop motion** Learning how to create simple animations from storyboarding creative ideas.	**Data handling: International Space Station** Learning how data is collected, used and displayed and the scientific learning of the conditions needed for plants and humans, to survive.	Learning how to keep information safe and private online; who we should ask before sharing things online and how to give, or deny permission online.

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Year 3	**Computing systems and networks 1: Networks and the internet** Learning what a network and how devices communicate and share information.	**Programming: Scratch** Exploring the programme Scratch, following the predict > test > review cycle. Learning about 'loops' and programming an animation, story and game.	**Computing systems and networks 2: Emailing** Sending emails with attachments and understanding what cyberbullying is.	**Computing systems and networks 3: Journey inside a computer** Assuming the role of computer parts and creating paper versions of computers to consolidate understanding of how a computer works.	**Creating media: Video trailers** Developing dig	**Data handling: Comparisons cards databases** Learning about records, fields and data and sorting and filtering data	Learning: the difference between fact, opinion and belief; and how to deal with upsetting online content. Knowing how to protect personal information online.
Year 4	**Computing systems and networks: Collaborative learning** Learning how to work collaboratively and exploring a range of collaborative tools.	**Programming 1: Further coding with Scatch** Revisiting the key features and beginning to use 'variables' in code scripts.	**Creating media: Website design** Learning how web pages and sites are created and how to embed media and links.	**Skills showcase: HTML** Learning about the mark-up language behind a webpage; becoming familiar with HTML tags, changing HTML and CSS code to alter images and 'remix' a live website.	**Programming 2: Computational thinking** Solving problems effectively using the four areas of abstraction, algorithm design, decomposition and pattern recognition.	**Data handling: investigating weather** Researching and storing data on spreadsheets and designing a weather station	Searching for information and making a judgement about the probable accuracy; recognising adverts and pop-ups; understanding that technology can be distracting.

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Year 5	**Computing systems and networks: Search engines** Learning about how page rank works and how to identify inaccurate information	**Programming 1: Music** Building-on programming and music skills to create different sounds, beats and melodies which are put to the test with a Battle of the Bands performance!	**Data handling: Mars Rover 1** Learning about the Mars Rover, exploring how and why it transfers data including instructions, and how messages can be sent using binary code	**Programming 2: Micro:bit** 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.	**Creating media: Stop motion animation** Creating animations, storyboard ideas and decomposing a story into small parts before putting together to create the illusion of a moving image.	**Skills showcase: Mars Rover 2** Exploring how the Mars rover: moves, follows instructions, collects and sends data; understanding how computers work, what data is and how it is transferred.	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.
Year 6	**Computing systems and networks: Bletchley Park** Discovering the history of Bletchley and learning about code breaking and password hacking. Demonstrating digital literacy skills by creating presentations.	**Programming: Intro to Python** Using the programming language 'Python' to create designs and art. Learning how to create loops and nested loops to make their code more efficient.	**Data handling 1: Big Data 1** Identifying how barcodes and QR codes work. Learning how infrared waves are used for the transmission of data while recognising the uses of RFID.	**Creating media: History of computers** Writing, recording and editing radio plays set during WWII, learning about how computers have evolved.	**Data handling 2: Big Data 2** 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.	**Skills showcase: Inventing a product** lessons) Designing a product, pupils: evaluate, adapt and debug code to make it suitable for their needs and designing products in CAD and creating a website and video.	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.