How is the Computing scheme of work organised?

National Curriculum guidance

DL Digital Literacy   **IT** Information Technology   **CS** Computer Science

Kapow Primary scheme of work

Kapow Primary key areas

Computing systems and networks   Programming   Creating media   Data handling   Online safety
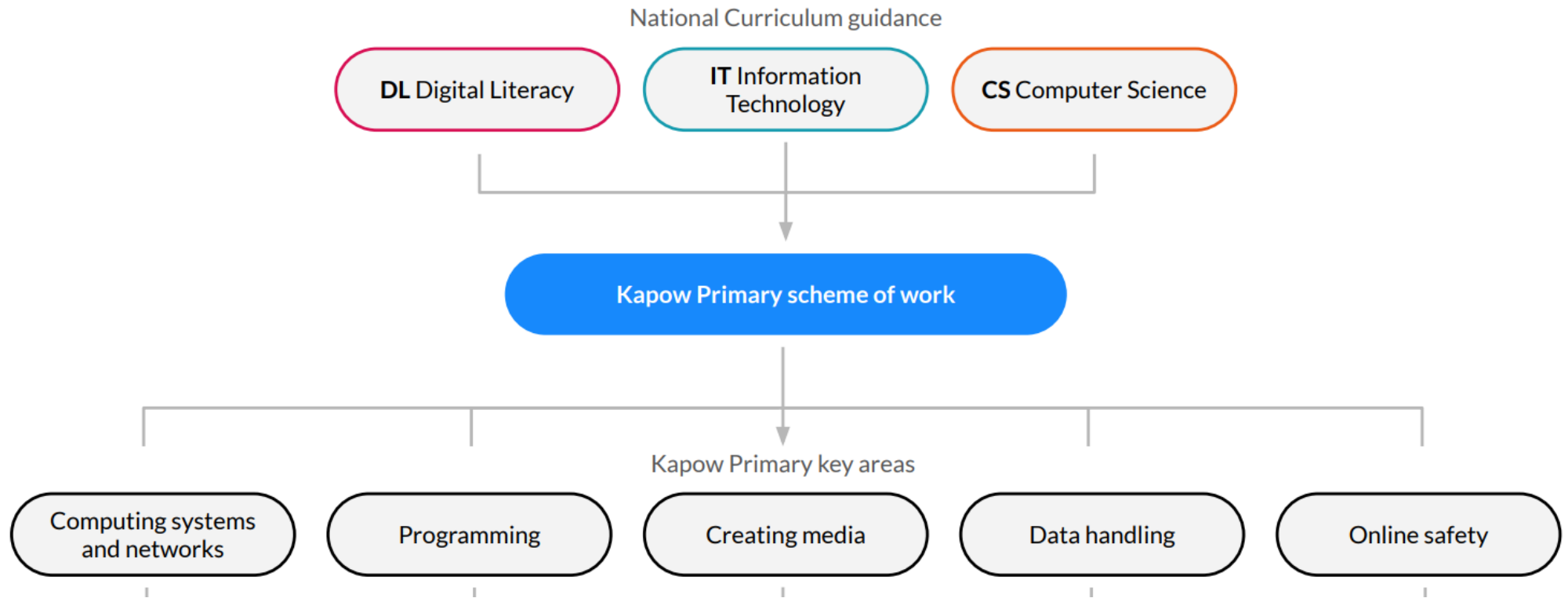
Computing Curriculum Map

	Online Safety	Computing Systems and Networks	Programming	Creating Media	Data Handling	Skills Showcase
Reception		**Computing systems and networks** **Exploring Hardware** Tinkering and exploring with different computer hardware and learning to operate a camera **Computing systems and networks** **Using a Computer** Learning about the main parts of a computer and how to use the keyboard and mouse. Logging in and out	**Programming 1** **All about Instructions** The children learn to receive and give instructions and understand the importance of precise instructions **Programming 2** **Programming Bee-Bots** Children learn about directions, experiment with programming a Bee-bot/Blue-bot and tinker with hardware		**Data Handling** **Introduction to Data** Children sort and categorise data and are introduced to branching databases and pictograms	

	Online Safety	Computing Systems and Networks	Programming	Creating Media	Data Handling	Skills Showcase
1	**Online safety** Learning about online safety, including using useful tips to stay safe when online; how to manage feelings and emotions when someone or something has upset us online; learning about the responsibility we have as online users; exploring the idea of a 'digital footprint'	**Computing systems and networks** **Improving mouse skills** 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.	**Programming 1** **Algorithms unplugged** Algorithms, decomposition and debugging are made relatable to familiar contexts, such as dressing up and making a sandwich, while learning why instructions need to be very specific **Programming 2** **Bee-Bot** Developing early programming skills using either the Bee:Bot or virtual Bee:Bot.	**Creating Media** **Digital Imagery** Using creativity and imagination to plan a miniature adventure story and capture it using developing photography skills. Learn to enhance photos using a range of editing tools as well as searching for and adding other images to a project, resulting in a high-quality photo collage showcase.	**Data Handing** **Introduction to Data** Learn what data is and the different ways that it can be represented and developing an understanding of why data is useful, how it can be used and ways in which it can be gathered and recorded both by humans and computers	

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2	**Online safety** Learning about online safety, including: what happens to information posted online; how to keep things private online; who we should ask before sharing online; describing different ways to ask for, give, or deny permission online	**Computing systems and networks** **Part 1: Computers and Word Processing** This unit explores exactly what a computer is by identifying and learning how inputs and outputs work. **Computing systems and networks** **Part 2: Word Processing** Learning about word processing. Introduce important keyboard shortcuts, as well as simple editing tools within a word processor including: bold, italics, underline and font colour as well as how to import images.	**Programming 1** **Algorithms and Debugging** Unplugged and plugged-in lessons that develop an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops **Programming 2** **Scratch Junior** Explore what 'blocks' do, using the app 'ScratchJr,' by carrying out an informative cycle of predict > test > review, programme a familiar story and an animation of an animal, make their own musical instrument by creating buttons and recording sounds and follow an algorithm to record a joke	**Creating Media** **Stop Motion** Storyboarding and simple animation creation using either tablet devices or devices with cameras	**Data Handing** **International Space Station** Using the International Space Station (ISS) (fascinating real-world setting) to teach how data is collected, used and displayed as well as the scientific learning of the conditions needed for plants and animals, including humans, to survive.	

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3	**Online safety** Learning about online safety: 'fake news', privacy settings, ways to deal with upsetting online content, protecting our personal information on social media	**Computing systems and networks** **Networks** Introduction to the concept of networks, learning how devices communicate. From identifying components, learn how information is shared and deepen this understanding by exploring examples of real-world networks **Computing systems and networks** **Journey Inside a Computer** Assuming the role of computer parts and creating paper versions of computers helps to consolidate an understanding of how a computer works, as well as identifying similarities and differences between various models	**Programming 1** **Scratch** Building on the use of the 'ScratchJr' application in Year 2, progress to using the more advanced computer-based application called 'Scratch', learning to use repetition or 'loops' and building upon skills to program; an animation, a story and a game	**Creating Media** **Video Trailers / Presentations and Sountracks** Developing filming and editing video skills through the storyboarding and creation of book trailers.	**Data Handing** **Comparison Cards Databases** Using the theme of a 'Comparison cards game' (based on the popular game, Top Trumps), to understand what a database is by learning the meanings of records, fields and data. Further exploration will lead to the development of the ideas of sorting and filtering.	**Skills Showcase** Lego Wedo

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4	**Online safety** Learning how to navigate the internet in an informed, safe and respectful way	**Computing systems and networks** **Collaborative Learning** Working collaboratively in a responsible and considerate way as well as looking at a range of collaborative tools.	**Programming 1** **Computational Thinking** Plugged and unplugged activities to develop the four areas of computational thinking	**Creating Media** **Website Design** Children develop their research, word processing, and collaborative working skills whilst learning how web pages and web sites are created, exploring how to change layouts, embed images and videos and link between pages.	**Data Handing** **Investigating Weather** Researching and storing data using spreadsheets; designing a weather station that gathers and records data; learning how weather forecasts are made and using green screen technology to present a weather forecast.	**Skills Showcase** **HTML** Editing the HTML and CSS of a web page to change the layout of a website and the text and images

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5	**Online safety** Learning more about online dangers and safety, focusing on protection, communication, reputation, bullying and mental health.	**Computing systems and networks** **Search Engines** Using keywords and phrases, identifying inaccurate information, learning page rank works as well.	**Programming 1** **Scratch: Music** Applying programming skills to create sounds and melodies leading to a battle of the bands performance **Programming 2** **Micro-bit** Clipping blocks together in a program and predicting what will happen while making connections with previously used programming interfaces. Children create animations, recognise inputs/outputs, choose appropriate blocks, and break programs down into smaller steps.	**Creating Media** **Stop Motion Animation** Storyboarding ideas, taking photographs and editing to create a video animation	**Data Handing and** **Mars Rover 1** Identifying some of the types of data that the Mars Rover collects and explaining how the Mars Rover transmits the data back to Earth. Children will read binary numbers, and understand binary addition as well as identifying input, processing and output on the Mars Rovers.	**Skills Showcase** **Mars Rover 2** Learning about pixels and binary, creating a pixel picture and saving a JPEG as a bitmap to understand the transfer of image data. Children will learn about the 'fetch, decode, execute' cycle and its real-world applications while beginning to use 3D design tools.

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6	**Online safety** Learning how to navigate the internet in an informed, safe and respectful way	**Computing systems and networks** **Bletchley Park** Discovering the history of Bletchley Park, historical figures, and computer science. Children learn about code-breaking and password hacking as well as decoding messages. Children present information about historical figures.	**Programming 1** **Introduction to Python** Using the programming language of Python	**Creating Media** **History of Computers** Children write, record and edit radio plays set during WWII, look back in time at how computers have evolved and design a computer of the future.	**Data Handing** **Big Data 1** Understanding about the use of big data including barcodes, QR codes, infrared, and RFID technologies. Children will create and scan their own QR codes, manipulate real-time data in spreadsheets, and present their findings. They also analyse transport data to understand its usefulness to commuters. **Data Handing** **Big Data 2** Understanding data usage through the use of mobile data vs WiFi, the Internet of Things, and big data. Identifying high/low data activities and preparing presentations on using Big Data/IoT to improve school efficiency while respecting privacy.	**Skills Showcase** **Inventing a Product** Designing a new electronic product and using CAD software to design appropriate housing for it. Developing skills in website design, video editing, and persuasive language to promote their product. Evaluating and adapting existing code, debugging programs, and searching for accurate information online.