Coleridge Primary School

COMPUTING

CREATIVE, CARING, RESILIENT

Whole School Curriculum Map

	In the Early Years (Nursery and Reception), computing activities are available through continuous provision and adult interactions, both outside and inside, and within PE sessions.			
	Area 1	**Area 2**	**Area 3**	**Area 4**
EYFS	**Photography and Videography** Children will use the cameras on the iPads to take photos and videos. These can be used during seasonal walks, documenting changes in ourselves over the year, number and shape hunts, and various other photography projects and activities throughout the year.	**Exploring and Communicating Interests** Children will use iPads and computers on a daily basis to research facts about their interests. Children will also help to print information and visuals based around their interests, with adult support. They will also use a listening station to access music and stories.	**Exploring and Tinkering with Computing Equipment** Children will learn about the main parts of a computer. They will have access every day to keyboards, computer mice, old laptops, calculators and shop-tills that they can use in their play for different roles, such as working from home, café, office.	**Programming** Children learn to receive and give instructions, and understand the importance of being precise through activities in PE sessions and guided sessions, inside and outside. Children will also experiment with programming Bee-Bots.
	Safe and Healthy Use of Technology Throughout the school year, staff will model and discuss with children the importance of safe and healthy use of computer technology in a respectful way.			

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	Unit 1	Unit 2	Unit 3	Unit 4
YEAR 1	**Online Safety** **Using the Internet Safely** Children will learn what the internet is and how to use it safely, and will know what to do when someone says something unkind online.	**Online Safety** **Online Emotions** Children will discover which devices connect to the internet, find out top tips for staying safe online, and discuss how using the internet can affect our emotions.	**Online Safety** **Always be kind and considerate** Children will recap the top four tips for staying safe on the internet, learn about the responsibility we each have as an online user, and discuss what to do if something upsets us online.	**Online Safety** **Posting and sharing online** Children will explore what is meant by the term '*digital footprint*', and learn how we can ensure that the things we share and post online do not negatively impact us.
	Data Handling **Introduction to Data** Children will learn what data is and the different ways that it can be represented, both with and without a computer, before developing an understanding of why data is useful, how it can be used, and the ways in which it can be gathered and recorded by humans and computers.	**Computing Systems and Networks** **Improving Mouse Skills** Using computers more purposefully is introduced: 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 inspired by Kandinsky and self-portraits.	**Programming** **Algorithms Unplugged** This unplugged unit requires no computers so that algorithms, decomposition and debugging are made relatable to familiar contexts, such as dressing up, following directions or making a sandwich, while learning why instructions need to be specific and unambiguous.	**Programming** **Bee-Bots** Programming is introduced through the use of a Bee-Bot; exploring its functions, creating a video to explain its capabilities, undertaking an unplugged activity, creating a world for a Bee-Bot to explore, and programming Bee-Bots to tell a story.

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	Unit 1	Unit 2	Unit 3	Unit 4
YEAR 2	**Online Safety** **What happens when I post online?** Children will learn how information posted online lasts for a long time and who to talk to if information has been put online without consent or if it is incorrect.	**Online Safety** **How do I keep my things safe online?** Children will learn how passwords can be used to protect information, accounts and devices; give examples of what is meant by 'private' and 'keeping things private'; and explain some rules for keeping personal information private (e.g. creating and protecting passwords).	**Online Safety** **Who should I ask?** Children will learn that they should speak to a responsible adult before sharing things about themselves or others online. **Online Safety** **It's my choice** Children will learn that we have a right to say 'no' or 'I will have to ask someone' if someone wants to share something about us online.	**Online Safety** **Is it true?** Children will learn that not everything we read, see, or hear online is true, and will learn strategies that can be adopted to check if something online is true or not.
	Computing Systems and Networks **What is a computer?** When picturing a computer, thoughts are often of a screen, mouse and keyboard. This unit explores exactly what a computer is by identifying and learning how inputs and outputs work, how computers are used in the wider world and designing their own computerised invention.	**Creating Media** **Stop Motion Animation** Children will learn how to create simple animations, storyboarding creative ideas and then decomposing a story into small parts of action, to be captured using stop motion animation software on tablets.	**Programming** **Algorithms and Debugging** This combination of 'unplugged' and 'plugged-in' activities develop an understanding of what algorithms are, how to program them, and how they can be developed to be more efficient.	**Data Handling** **International Space Station** Children will use the International Space Station (ISS) to provide a fascinating, real-world setting for learning 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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	Unit 1	Unit 2	Unit 3	Unit 4
YEAR 3	**Online Safety** **Beliefs, opinions and facts on the internet** Children will learn about 'fake news' and that we should not believe everything we come across on the internet by identifying the difference between fact, opinion and belief.	**Online Safety** **When being online makes me upset** Children will learn that sometimes online content can cause us to feel upset and that there are ways to deal with upsetting online content, including showing it to a trusted adult and speaking to an organisation.	**Online Safety** **Sharing of information** Children will learn that sometimes upsetting incidents online occur because people's 'privacy settings' are not secure enough. They will discover which devices share our personal information.	**Online Safety** **Rules of social media platforms** Children will learn that we should try to avoid sharing very personal information with people we do not know, or have this information accessible to strangers. They will discover how we can protect ourselves and our personal information on social media platforms.
	Computing Systems and Networks **Networks and the internet** Children will be introduced to the concept of networks, learning how devices communicate. From identifying components, they will learn how information is shared and deepen this understanding by exploring examples of real-world networks. We will also explore the internet and learn how data is transferred worldwide and how we can interact with different websites.	**Programming** **Scratch** Children will use the computer-based application called 'Scratch' to carry out an informative cycle of predict > test > review, learn to use repetition or 'loops' and build upon skills to program an animation, a story, and a game.	**Computing Systems and Networks** **Journey inside a computer** Knowing how computers work allows for a better understanding of how to achieve a desired result. Children will assume the role of computer parts and create paper versions of computers to help consolidate an understanding of how a computer works, as well as to identify the similarities and differences between various models.	**Creating Media** **Video Trailers** Children create a book trailer, writing a storyboard and using their digital devices to take videos and add transitions between shots, before showing their trailers to the class.

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	Unit 1	Unit 2	Unit 3	Unit 4
YEAR 4	**Online Safety** **What happens when I search online?** Children will learn to search for information and make judgements about the accuracy of the results. **How do companies encourage us to buy online?** Children will look at some of the methods used to encourage people to buy things online.	**Online Safety** **Fact, opinion or belief?** Children will learn that, just because we see or read something online, it does not mean that it is true. **What is a bot?** Children will discover that technology can be designed to act like, or impersonate, living things (e.g. bots) and will learn to describe what the benefits and risks of this might be.	**Online Safety** **What is my #TechTimetable like?** Children will learn to recognise the positive and negative distractions of technology and explore their own use of technology.	**Online Safety** **How can I be safe and respectful online?** Children will learn a range of strategies for being safe and respectful online, including how to respect the thoughts and beliefs of others and recognise healthy and unhealthy online behaviours.
	Skills Showcase **HTML** Children will learn about the markup language behind a webpage, becoming familiar with HTML tags, changing HTML and CSS code to alter images, and 'remix' a website's text and images to create a fake news story.	**Programming** **Further Coding with Scratch** Children will explore the coding program Scratch further by revisiting its key features and be introduced to the crucial concept and execution of using 'variables' in code scripts.	**Programming** **Computational Thinking** 'Computational Thinking' refers to the four skill areas needed to solve problems effectively: abstraction, algorithm design, decomposition and pattern recognition. Children will explore and apply these skills in a range of 'plugged' and 'unplugged' activities, before being challenged to complete an independent programming challenge.	**Computing Systems and Networks** **Collaborative Learning** Children will learn about how to work collaboratively in a responsible and considerate way, as well as looking at a range of collaborative tools including Google Docs, Slides, Forms and Sheets. They also develop their understanding of the benefits of working together and how the Internet provides opportunities to do this even when people are not physically in the same location.

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	Unit 1	Unit 2	Unit 3	Unit 4
YEAR 5	**Online Safety** **Online Protection** Children will learn how applications (apps) can access our personal information and how to alter application permissions to limit the sharing of our information with others online.	**Online Safety** **Online communication** Children will learn about the positive and negative aspects of online communication, and how to use technology safely, respectfully and responsibly.	**Online Safety** **Online reputation** Children will learn that online information about someone is often not always factually true. **Online bullying** Children will learn the differences between online and offline bullying, and what to do if they ever experience bullying online.	**Online Safety** **Online health** Children will learn how technology can affect our health and wellbeing, and come up with ways to replace bad online habits with good online habits.
	Computing Systems and Networks **Search Engines** To learn independently, children need to be able to find relevant and accurate information quickly. This topic teaches children how to use key words and phrases, to identify inaccurate information, how 'pagerank' works, as well as how to credit their sources appropriately.	**Programming** **Music** Children will further develop their coding and music skills to different sounds, beats and melodies, which are put to the test with a live Battle of the Bands performance!	**Data Handling** **Mars Rover** Children will learn about the automated motor vehicle, Mars Rover. They will explore how and why the Mars Rover transfers data; learn how messages can be sent using binary code; simulate the experience of programming the Mars Rover; calculate binary addition and represent binary as text.	**Creating Media** **Stop Motion Animation** Children will deepen their knowledge and skills with regard to creating animations. They will storyboard their ideas and decompose the story into small parts of action to be captured using Stop Motion Studio.

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	Unit 1	Unit 2	Unit 3	Unit 4
YEAR 6	**Online Safety** **Life online** Children will learn to understand the positive and negative effects of the internet and explore the different ways to overcome negative feelings which can occur as a result of being online.	**Online Safety** **Sharing Online** Children will learn about the positive and negative impact and consequences of sharing online and privacy settings. **Creating a positive online reputation** Children will learn how to create a positive online reputation, knowing that a 'digital personality' is developed by online activity and behaviour and that we could use anonymity and frequently update privacy settings to prevent people from accessing information about us.	**Online Safety** **Capturing Evidence** Children will learn what online bullying is, the different ways it can be reported, and why we should capture online bullying content as evidence. **Password Protection** Children will learn how to manage passwords safely, knowing what to do if someone hacks an account or finds a password, and understand what makes a strong password.	**Online Safety** **Think before you click** Children will learn how to: identify potential scams and reduce the risk of falling for one; identify 'phishing' emails and malware, and update computer software to keep devices safer.
	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. Options for schools that use Google or Microsoft.	**Programming** **Intro to Python** Using the programming language 'Python', which is used in business and industry, children will create designs, Islamic art and Mondrian-inspired art. They will learn how to create loops, and nested loops, to make their code more efficient, while becoming more familiar with this text-based programming language.	**Computing Systems and Networks** **Bletchley Park** Bletchley Park is considered the home of modern computing. In this unit, children will discover the history of Bletchley and learn about code breaking and password hacking. They will have the opportunity to demonstrate some of their digital literacy skills by creating presentations about historical figures.	**Data Handling** **Big Data** 'Big Data' describes the ways that companies and organisations use data in their work. Children will identify how barcodes and QR codes work. They will learn how infrared waves are used for the transmission of data, while recognising the uses of RFID, as well as gathering, analysing and evaluating data collected from RFID data collection points.