Curriculum Overview - Computing

		24-25	25-26
CRADLEY CE PRIMARY SCHOOL			
Class 1		See EYFS document	
Class 2	**Computing systems and networks: Improving mouse skills** Knowing how to log in 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 1: Algorithms unplugged** Using an unplugged approach so that 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. **Skills showcase: Rocket to the moon** Developing keyboard and mouse skills through designing, building and testing individual rockets by creating a digital list of materials, using drawing software and recording data. **Programming 2: Bee-Bot** Developing early programming skills using either the Bee:Bot or virtual Bee:Bot. **Data handling: Introduction to data**		**Computing systems and networks 1: What is a computer?** Exploring what a computer is by identifying and learning how inputs and outputs work. Understanding how computers are used in the wider world, children 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 through a range of unplugged and plugged-in activities. **Computing systems and networks 2: Word processing** Learning about word processing and how to stay safe online as well developing touch typing skills. Introducing 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 2** Exploring block coding using either MakeCode to plan and build a program or Scratch Jr to follow and create an algorithm.

	Learning what data is and the different ways that it can be represented as well as 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. **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. **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'.	**Creating media: Stop motion** Storyboarding and simple animation creation using either tablet devices or devices with cameras. **Data handling: International Space Station** Learning how astronauts survive on the ISS, including identifying necessary items, designing sensor displays and exploring habitable planets. Children gain an understanding of living in space and how space exploration can benefit life on Earth. **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.
Class 3	**Computing systems and networks 1: 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 ***New* Programming: Scratch** Using loops to program an animation, a story and a game in Scratch, this unit provides new lessons, teacher skills videos and pupil videos that support confident coding in the classroom. **Computing systems and networks 2: Emailing** Learning how to send and edit emails, add attachments and how to be a responsible digital citizen by thinking about the contents of what is sent. **Computing systems and networks 3: Journey inside a**	**Computing systems and networks: Collaborative learning** Working collaboratively in a responsible and considerate way as well as looking at a range of collaborative tools. ***New* Programming 1: Further coding with Scratch** Creating a simple script in Scratch, using decomposition and understanding what variables are, this unit provides new lessons, teacher skills videos and pupil videos that support confident coding in the classroom. **Creating media: Website design** Developing 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. **Skills showcase: HTML**

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. **Creating media: Video trailers (Previously called 'Digital literacy')** Developing filming and editing video skills through the storyboarding and creation of book trailers. **Data handling: Comparison cards databases** By learning about records, fields and data, the children further explore the concepts of sorting and filtering. **Online safety:** Learning about online safety: 'fake news', privacy settings, ways to deal with upsetting online content, protecting our personal information on social media.	Editing the HTML of a web page to change the layout of a website and the text and images. **Programming 2: Computational thinking** Developing the four areas of computational thinking through a range of plugged and unplugged activities. **Data handling: Investigating weather** Researching and storing data using spreadsheets, designing a weather station which gathers and records data and learning how weather forecasts are made. Children use tablets or digital cameras to present a weather forecast. **Online safety:** Learning how to navigate the internet in an informed, safe and respectful way.	
Class 4	**Computing systems and networks: Search engines** Understanding how search engines work and developing searching skills to find relevant and accurate information online. **Programming 1: Music: Scratch** Applying programming skills to create sounds and melodies leading to a battle of the bands performance. **Data handling: 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. **Programming 2: Micro:bit** Clipping blocks together in a program and predicting what will	***NEW* Computing systems and networks: Bletchley Park and the history of computers** Exploring code-breaking at Bletchley Park, historical figures in computing, the evolution of computers, designing a computer of the future and creating an audio advert, this unit combines lessons from archived content while retaining the progression and skills previously covered in two separate units. ***NEW* Computing systems and networks: Exploring AI** Exploring what AI is and how it generates text, images and code, as well as 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. **Programming: Intro to Python**

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.

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.

Online safety:
Learning about potential online dangers and safety.

Learning the fundamentals of the programming language of Python, they will test, change and explain what their program does. Children use loops and explain what repeats do and what the parts of the loop do while recognising that computers choose random numbers and decompose the program into an algorithm.

Data handling 1: 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 handling 2: 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.

Online safety
Learning how to navigate the internet in an informed, safe and respectful way.