Curriculum overview for parents and carers

Computing

Summary of key Computing learning for Reception to Year 6.

Long-term plan: Computing

Overview (All year groups)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety
EYFS: Reception	**Coming soon!** Set up continuous provision in your classroom:	Computing systems and networks 1: Using a computer	Programming 1: All about instructions	Computing systems and networks 2: Exploring hardware	Programming 2: Programming Bee-Bots	Data handling: Introduction to data	
Year 1	Computing systems and networks: Improving mouse skills	Programming 1: Commands unplugged	Skills showcase: Rocket to the moon	Programming 2: Bee-Bots	Creating media: Digital imagery	Data handling: Introduction to data	Online safety: Year 1
Year 2	Computing systems and networks 1: What is a computer?	Programming 1: Algorithms and debugging	Computing systems and networks 2: Word processing	Option 1: Programming 2: MakeCode	Creating media: Stop motion: Using tablets	Data handling: International Space Station	Online safety: Year 2
Year 3	Computing systems and networks 1: Networks	Programming: Scratch	Microsoft Office 365: Computing systems and networks 2: Emailing	Computing systems and networks 3: Journey inside a computer	Video trailers – Option 1: Using devices other than iPads	Data handling: Comparison cards databases	Online safety: Year 3
Year 4	Google: Computing systems and networks: Collaborative learning	Programming 1: Further coding with Scratch	Google: Creating media: Website design	Skills showcase: HTML	Programming 2: Computational thinking	Data handling: Investigating weather	Online safety: Year 4
Year 5	Computing systems and networks: Search engines	Programming 1: Music	Data handling: Mars Rover 1	Programming 2: BBC micro:bit	Stop-motion animation – Option 1: Using Stop Motion Studio	Skills showcase: Mars Rover 2	Online safety: Year 5
Year 6	Computing systems and networks: Bletchley Park and the history of computers	Computing systems and networks: Exploring AI	Data handling 1: Big Data 1	Programming: Exploring Python	Data handling 2: Big Data 2	Skills showcase: Inventing a product	Online safety: Year 6

Long-term plan: Computing

Overview - EYFS

EYFS:
Reception

Autumn 1	Set up continuous provision in your classroom:	**Autumn 2**	Computing systems and networks 1: Using a computer 5 lessons Investigating the main parts of a computer and learning how the keyboard and mouse are used to control it. Pupils also practise how to log in, log out and navigate simple digital tasks independently.
Spring 1	Programming 1: All about instructions 5 lessons Developing an understanding of how to receive and give instructions while learning why instructions need to be clear and precise.	**Spring 2**	Computing systems and networks 2: Exploring hardware 5 lessons Investigating different computer hardware parts and learning how to operate a camera.
Summer 1	Programming 2: Programming Bee-Bots 5 lessons Exploring simple programming by experimenting with a Bee-Bot or Blue-Bot and investigating how hardware responds to commands.	**Summer 2**	Data handling: Introduction to data 5 lessons Learning how to sort and categorise data and an introduction to branching databases and pictograms.

Long-term plan: Computing

Overview - Key stage 1

Year 1

Autumn 1	Computing systems and networks: Improving mouse skills 6 lessons Developing an understanding of how to log in and navigate around a computer while building mouse control skills, including clicking, dragging and dropping. Pupils apply these skills to create digital artwork inspired by Kandinsky and produce their own self-portraits.	**Autumn 2**	Programming 1: Commands unplugged 6 lessons Exploring commands and instructions through a range of unplugged games and activities while developing an understanding of key programming vocabulary. Pupils apply their learning by following and creating simple instructions to predict and control outcomes.
Spring 1	Skills showcase: Rocket to the moon 6 lessons Developing keyboard and mouse skills through designing, building and testing digital projects using a range of software tools. Pupils create a digital list of materials, use drawing software to produce designs and record data to support and evaluate their work.	**Spring 2**	Programming 2: Bee-Bots 6 lessons Exploring commands, instructions and errors through programming a Bee-Bot and learning how sequences control movement. Pupils practise debugging and apply logical thinking to predict, test and improve simple programs.
Summer 1	Creating media: Digital imagery 8 lessons Developing creativity and imagination through planning a miniature adventure story and capturing it using photography techniques. Pupils enhance photographs using editing tools, combine images from different	**Summer 2**	Data handling: Introduction to data 6 lessons Exploring what data is, how it can be represented and why it is useful in everyday life and computing. Pupils investigate different ways data can be gathered and recorded by humans and computers before applying

	sources and apply their skills to create a high-quality photo collage showcase.		their understanding to organise and interpret information.
Online safety	<u>Online safety: Year 1</u> 6 lessons Exploring online safety, including how to stay safe online, manage emotions when something causes upset and understand responsibilities as a digital user. Pupils investigate how online actions create a digital footprint and apply their understanding to make safe and responsible choices online.		

Long-term plan: Computing

Overview - Key stage 1

Year 2

Autumn 1	Computing systems and networks 1: What is a computer? 6 lessons Exploring what a computer is by identifying different inputs and outputs and understanding how computers process information. Pupils investigate how computers are used in the wider world before designing their own computerised invention.	**Autumn 2**	Programming 1: Algorithms and debugging 6 lessons 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.
Spring 1	Computing systems and networks 2: Word processing 6 lessons Developing word processing skills by learning touch typing, using keyboard shortcuts and exploring how to stay safe online. Pupils apply formatting and editing tools, including bold, italics and font colour, before importing images to create and improve their own digital documents.	**Spring 2**	Option 1: Programming 2: MakeCode 6 lessons Exploring how to use 'MakeCode' by investigating what different programming blocks do and how they control outcomes. Pupils apply their understanding by planning, building and testing their own program.
Summer 1	Creating media: Stop motion: Using tablets 6 lessons Creating simple animations, storyboarding creative ideas and	**Summer 2**	Data handling: International Space Station 6 lessons Exploring how astronauts survive on the International Space Station, including how data is collected, used and displayed through sensor

	decomposing a story into small action steps.		systems and monitoring equipment. Pupils also consider habitable planets, how people live and work in space and how space exploration can benefit life on Earth.
Online safety	<u>Online safety: Year 2</u> 5 lessons Investigating online safety, including what happens to information posted online, how to keep personal information private and how permission is given or denied in online spaces. Pupils apply their understanding by identifying safe online behaviours and making responsible choices about sharing information online.		

Long-term plan: Computing

Overview - Lower key stage 2

Year 3

Autumn 1	Computing systems and networks 1: Networks 6 lessons Developing an understanding of computer networks by learning how devices communicate and share information. Pupils investigate network components and explore real-world examples to apply their understanding of how information is transferred between connected devices.	**Autumn 2**	Programming: Scratch 6 lessons Investigating programming through Scratch by creating animations and learning key coding concepts. Pupils apply their understanding by testing, debugging and evaluating their work to improve and refine digital projects.
Spring 1	Microsoft Office 365: Computing systems and networks 2: Emailing 6 lessons Learning how to send emails with attachments and understanding the importance of using them safely and responsibly. Pupils also reflect on the content of digital communications and recognise the importance of making responsible decisions as digital citizens.	**Spring 2**	Computing systems and networks 3: Journey inside a computer 6 lessons Exploring how computers work by role-playing different computer parts and creating paper models of computer systems. Pupils also investigate similarities and differences between devices to develop their understanding of computer functions and components.
Summer 1	Video trailers – Option 1: Using devices other than iPads 6 lessons Developing digital video skills through creating trailers that use special effects, transitions and editing techniques. Pupils apply their	**Summer 2**	Data handling: Comparison cards databases 8 lessons Exploring the concepts of sorting and filtering by learning about records, fields and data. Pupils apply their understanding by sorting and filtering

	understanding by planning, producing and refining video content for a book trailer.		data to plan a holiday.
Online safety	<u>Online safety: Year 3</u> 6 lessons Further exploring online safety, including the difference between beliefs, opinions and facts, privacy settings, protecting personal information and responding to upsetting online content. Pupils identify safe online behaviours and learn how to make responsible choices when using social media and digital platforms.		

Long-term plan: Computing

Overview - Lower key stage 2

Year 4

Autumn 1	Google: Computing systems and networks: Collaborative learning 6 lessons Developing collaborative working skills through using online software to create and share digital content. Pupils apply their understanding by contributing to shared documents, creating presentations and forms and using shared spreadsheets to organise and explore data.	**Autumn 2**	Programming 1: Further coding with Scratch 6 lessons Designing and programming a game using variables, sensors and 'if' statements to control outcomes and interactions. Pupils debug and evaluate their projects to improve functionality, refine gameplay and develop more effective game designs.
Spring 1	Google: Creating media: Website design 6 lessons Exploring the features of Google Sites and learning how websites are planned, created and organised for different audiences and purposes. Pupils collaborate to design web pages, create their own websites and evaluate how effectively their content communicates information.	**Spring 2**	Skills showcase: HTML 6 lessons Investigating how websites are created by exploring HTML and CSS code and learning how markup language controls the layout and appearance of web pages. Pupils edit text, images and page design before remixing and adapting a live website using their coding skills.
Summer 1	Programming 2: Computational thinking 6 lessons Developing computational thinking skills through decomposition, pattern recognition, abstraction and algorithm design to solve problems. Pupils apply these approaches by creating and evaluating a Scratch project,	**Summer 2**	Data handling: Investigating weather 6 lessons Investigating how weather data is gathered, recorded and used to create forecasts through researching and using spreadsheets to organise information. Pupils design a weather station, collect and present data,

	reflecting on how computational thinking improves digital solutions and programming outcomes.		and create their own weather forecast using tablets or digital cameras.
Online safety	<u>Online safety: Year 4</u> 6 lessons Developing online research skills by learning how to search for information and judge its probable accuracy. Pupils identify adverts and pop-ups, investigate how technology can be distracting and make informed choices about using digital content safely and effectively.		

Long-term plan: Computing

Overview - Upper key stage 2

Year 5

Autumn 1	Computing systems and networks: Search engines 6 lessons Investigating how search engines work and developing effective searching skills to find relevant and accurate information online. Pupils evaluate the reliability of online content, explore how web crawlers organise information and apply their understanding by creating an informative poster.	**Autumn 2**	Programming 1: Music 6 lessons Developing programming and music skills through creating digital sounds, beats and melodies using coding techniques. Pupils apply their understanding by using nested loops to create rhythms and compose a soundtrack with layered musical patterns.
Spring 1	Data handling: Mars Rover 1 6 lessons Exploring how the Mars Rover collects, stores and transmits data back to Earth using binary code and computer systems. Pupils investigate computer architecture, learn how binary represents different types of data and apply their understanding to read and interpret binary numbers and text.	**Spring 2**	Programming 2: BBC micro:bit 6 lessons Investigating how to program the BBC micro:bit by creating interactive projects using sensors, variables and conditional statements. Pupils experiment with variables, apply conditional statements and develop an understanding of how coding brings digital devices to life.
Summer 1	Stop-motion animation – Option 1: Using Stop Motion Studio 6 lessons Developing an understanding of animation by exploring stop-motion	**Summer 2**	Skills showcase: Mars Rover 2 6 lessons Investigating how computers represent and process digital images through pixels, binary code and image compression. Pupils apply their

	techniques and how moving images are created. Pupils plan, create and edit their own stop-motion project, applying digital skills to produce a finished animation.		understanding by creating pixel artwork, experimenting with 3D design tools and designing a functional Mars Rover tyre using Tinkercad.
Online safety	Online safety: Year 5 6 lessons Investigating online communication, personal privacy and the impact technology can have on health and wellbeing. Pupils explore how apps access information, develop strategies to stay safe online and learn how to manage their online reputation and address bullying.		

Long-term plan: Computing

Overview - Upper key stage 2

Year 6

Autumn 1	Computing systems and networks: Bletchley Park and the history of computers 6 lessons Investigating secret codes, secure passwords and the history of computers to understand how technology and cybersecurity have developed over time. Pupils research past computers before designing a computer of the future and creating an audio advert to present their ideas.	**Autumn 2**	Computing systems and networks: Exploring AI 6 lessons Exploring what AI is and how it generates text, images and code. Pupils learn about creating and refining prompts to improve AI responses while also considering the ethical implications of AI and its potential to replace human roles.
Spring 1	Data handling 1: Big Data 1 6 lessons Exploring how data is transmitted and used in everyday technology through barcodes, QR codes, infrared communication and RFID systems. Pupils investigate real-world applications of digital data before collecting, analysing and evaluating transport and tracking information.	**Spring 2**	Programming: Exploring Python 6 lessons Exploring text-based programming with Python, pupils learn how syntax and nested loops control program outcomes and develop their ability to identify and fix syntax and logic errors through careful debugging.
Summer 1	Data handling 2: Big Data 2 6 lessons Investigating how data is transferred, collected and used in connected technologies, including the Internet of Things and smart systems. Pupils	**Summer 2**	Skills showcase: Inventing a product 6 lessons Designing an electronic product using coding, debugging and computer-aided design to understand how digital technologies support product

	explore how data can improve everyday life, then design and present ideas for transforming a school into a smart school.		development. Pupils also create a website and video advert to present and promote their product ideas.
Online safety	<u>Online safety: Year 6</u> 7 lessons Examining online safety and wellbeing, including how online interactions, sharing content and digital behaviour can affect emotions and reputation. Pupils learn how to manage passwords, report online bullying and make responsible decisions about what they click and share.		