The Leys Primary School Subject Overview for Computing - 2025-26 becoming a computer scientist

	Computer Science
	Information Technology
	Digital Literacy

EYFS	**Communication and language** Listening, attention and understanding.	**Expressive arts.** Being imaginative and expressive.	**Literacy**	**Mathematics**	**PSED** Personal, social and emotional development, building relationships.	**Understanding the world.** People, culture and communities.
Key Skills	Being able to use technology as a way to communicate and discuss new information that is being presented to them. Understand that technology can help people communicate.	Using technology to create pieces of art. Exploring the ability to digitally alter their artwork either through adding more detail or changing the composition.	Understanding that speech can be displayed in different ways, for example in speech bubbles when presented digitally. Using technology to aid in the learning of graphemes.	Being able to solve mathematics problems that are being presented digitally, this could involve moving items about a board to solve a question.	Being able to share the technology that is available to them and use it in a constructive manner that benefits all. Understanding that their use of technology may upset someone if they are not being sensible with it.	Using technology to learn about the wider world. Understanding that there are resources available to them that will let them see many different parts of the world. Technology can be used to help celebrate different cultural events and festivals.
Key subject links					PSHE Online safety week	

Key Texts					The ABCs of Gaming	
SMSC and British Values	• enable students to develop their self-knowledge, self-esteem and self-confidence					
Global Goals and School values	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
The Leys Pathways	Explore & Solve					
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 1	1) introduction to Purple Mash	2) Creative computing	3) Data Explorers	4) Creating and following instructions	5) Coding	6) Technology around us
Key Skills	Logging in and out of Purple Mash Opening and using 2Dos Saving work in the Work area	Making digital art Making and sharing jigsaws Making a drag and drop game	Sorting and grouping quizzes Understanding what data is Representing data electronically	Following instructions Creating instructions Understanding simple algorithms	Using blocks to code Understanding objects, actions and events Planning and designing a program	Understanding what technology is Recognising technology in the local environment and wider world
Key People	**Teachers** *Why?* We use lots	**Tim Berners-Lee** – Inventor of the World Wide Web.	**Florence Nightingale** – Pioneered the use of data and graphs	**Ada Lovelace** – Known as the world's first	**Margaret Hamilton** – Led the team that developed software	**Steve Jobs** – Co-founder of Apple.

	of programs while we teach.	*Why?* The web is a platform for creativity, expression, and sharing—ideal to show how computing can be imaginative and useful.	to improve healthcare. *Why?* A familiar historical figure who used data to make a real-world impact. Great for cross-curricular links with History or Maths.	computer programmer. *Why?* She wrote early instructions (algorithms) for a computing machine—perfect for linking to the idea of giving and following precise instructions.	for the Apollo moon landings. *Why?* She wrote code that helped send astronauts to the moon—an inspiring figure to show the power of coding.	*Why?* His inventions brought technology into homes, schools, and everyday life—ideal for exploring tech children see around them.
Key subject links			Maths			PSHE
Key Vocabulary	login logout password Avatar menu burger menu icon Homepage alert folder filename scrolling scrollbar	digital art drag and drop arrow keys touchscreen gestures hotspot	group Criteria Sort Data Pictogram			
SMSC and British Values	• enable students to develop their self-knowledge, self-esteem and self-confidence					

	• enable students to acquire a broad general knowledge of and respect for public institutions and services in England					
Global Goals and School values						
The Leys Pathways	Explore, Understand & Solve					
Year 2	1) Spreadsheets	2) Presenting ideas	3) The internet	4) Route explorers	5) Coding	6) Questioning
Key Skills	Understanding cells and columns Inserting images with values Using totalling tools Creating graphs	Using and making mind maps Using mind maps as a presentation tool	Defining the World Wide Web Recognising browsers and websites Connecting to the internet	Considering direction and distance Creating commands Building an algorithm	Understanding algorithms Introducing sequencing Coding interaction between objects Using timers Debugging	Asking the right question to collect or present data Keeping a tally Using 2Count to present the data Using a branching database
Key People	**Dan Bricklin** – Co-creator of the first spreadsheet program, VisiCalc.	**David Attenborough** – Natural historian and presenter. *Why?* Although not	**Vint Cerf** – One of the "fathers of the internet." *Why?* He played a key role in	**Seymour Papert** – Creator of the LOGO programming language.	**Grace Hopper** – Computer scientist and U.S. Navy rear admiral.	**Alan Turing** – Mathematician and computing pioneer. *Why?* He developed

	Why? Known as the "father of the spreadsheet," his invention transformed how data is managed and analysed.	a computer scientist, his work is a brilliant example of how ideas and knowledge can be shared powerfully using digital media.	developing the protocols that became the foundation of the internet we use today.	*Why?* He believed children learn best by exploring through coding and created tools to help them do just that.	*Why?* She was a pioneer in developing computer programming languages and helped invent the first compiler, making coding more accessible. She's also known for popularising the term "debugging" after removing a moth from a computer!	the idea of machine intelligence and is famous for the "Turing Test," which asks whether a computer can think like a human—a perfect match for the theme of questioning and thinking logically.
Key subject links	Maths		PSHE			Maths
Key Vocabulary			Internet World Wide Web Browser Modem Router Wi-Fi Smart Device Website Webpage Home Page Link Search Engine Search Bar	Direction Command Instructions Route Algorithm Coding Computer bug Debugging		

			Keywords			
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Year 3	1) Email	2) Spreadsheets	3) Presentations	4) Route planners	5) Coding	6) Micro:bits
Key Skills	Compose and replying to emails Opening and sending attachments Using email safely	Creating graphs Understanding cell addresses Using formula bar Combining Calculate functions to analyse data.	Adding media Customising with animation and timings Designing an effective presentation	Writing commands using rotation Creating algorithms and writing code Planning routes Repetition in 2Go	Using flowcharts in 2Chart Using timers Introducing repetition Testing and debugging	Using LED display Sequencing and timing Understanding inputs and outputs Adding sound and gesture
Key People	**Ray Tomlinson** – Inventor of email.	**Ann Winblad** – Software entrepreneur and	**Mary Beard** – Historian and public speaker.	**Brian McClendon** – Co-creator of Google Earth.	**Reshma Saujani** – Founder of *Girls Who Code*.	**Eben Upton** – Creator of the Raspberry Pi.

	Why? He sent the first networked email in 1971 and introduced the use of the @ symbol—ideal for showing how communication has changed.	early supporter of spreadsheet technology. *Why?* A pioneer in software investment and development, she helped fund early spreadsheet programs and shows that women are key players in tech innovation.	*Why?* A modern role model known for bringing history to life through digital and live presentations. Links well to using tech to communicate clearly and confidently.	*Why?* Played a major role in creating digital map tools that millions use to plan routes today.	*Why?* A modern champion of getting children—especially girls—into coding. She's all about making tech accessible and exciting.	*Why?* Like the Micro:bit, the Raspberry Pi was designed to help children learn computing by experimenting and building. Inspires creativity with hardware and software.
Key subject links		Maths				
Key Vocabulary	Communication email Inbox compose address book Recipient Attachment trusted contact personal information Password email simulation			Command Route Algorithm Turtle object Rotation Angle Degrees Debug/Debugging Repeat		
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The Leys Pathways	Explore, communicate, understand & solve				
Year 4	1) Effective searching 2) Unpacking hardware and software 3) Sound stories	4) Logo	5) Coding	6) Micro:bit	7) Introduction to AI
Key Skills	1) Using a search engine Search rankings Reliable searching Search algorithms 2) Defining types of technology Knowing how systems work together Identifying hardware Understanding software	Using logo commands Writing commands in a sequence Refining code using repetition and procedures	Introducing selection Exploring design properties Introducing loops Coding number variables	Explore sensor inputs and the accelerometer Using variables, inputs and outputs Coding with election and loops	Explore how AI works Investigating the positive and negative impacts of AI Considering AI in the future

	3) Recording audio content Creating sound effects Post-production editing				
Key People	1) **Larry Page & Sergey Brin** – Founders of Google *Why?* They revolutionised how we search for information online. Great for introducing how search engines work and how to use them effectively. 2) **Charles Babbage** – Designed the first mechanical computer *Why?* Known as the "father of the computer," his Difference Engine helps children understand how hardware and software evolved from mechanical beginnings. 3) **Delia Derbyshire** – Electronic music pioneer *Why?* She created one of the first entirely electronic TV theme tunes (Doctor Who) and experimented with early sound tech—perfect for digital storytelling with sound.	**Seymour Papert** – Inventor of Logo programming *Why?* A must-have here! He believed in children learning by doing and created Logo so children could explore through coding.	**Katherine Johnson** – NASA mathematician and coder *Why?* She calculated critical flight paths for space missions and used early computer programming to do so. Her story links well with perseverance and the real-world impact of code.	**Limor Fried** – Founder of Adafruit and hardware engineer *Why?* A real-world hardware hero! She creates open-source electronics and inspires kids to make their own tech using microcontrollers like Micro:bit.	**Fei-Fei Li** – Leading AI researcher and advocate for ethical AI *Why?* She led major breakthroughs in teaching AI to "see" and works to make AI responsible and inclusive—perfect to start discussing how machines learn and think.

Key subject links	PSHE				
Key Vocabulary	2) Technology Manual Technology Electrical Technology Digital Technology Smart Technology Computer System Hardware Peripheral Component Input Output Storage Software Application (App) Program Process	Logo Logo Commands Pen Up Pen Down Muli-Line Mode Repeat Setps Setpc Procedure			
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The Leys Pathways	Explore, communicate, understand & solve					
Year 5	1) Word processing	2) spreadsheets	3) Databases	4) Micro:bit	5) Coding	6) game creator
Key Skills	Creating documents Using images Entering and editing text Using tables and templates.	Using formulae Exploring measurement conversion Carrying out numerical investigations Creating computational models	Understanding records and fields Creating collaborative database Searching databases Analysing data	Exploring sensor inputs and the accelerometer Using selection, variables, inputs and outputs Coding fo the Micro:Bit pins	Coding effectively by refining code Simulating a physical system Exploring decomposition and abstractions Using functions and variables	Exploring the features of a good game Designing and making sprites and the game world Evaluation the playability of games
Key People	**Richard Brodie** – Original developer of Microsoft Word *Why?* He helped create one of the world's most widely used word processing tools—great for connecting classroom use with real tech history.	**Dan Bricklin** – Inventor of the first spreadsheet (VisiCalc) *Why?* A great choice again here for showing how spreadsheets were created to solve real-life problems in finance and business.	**Safiya Noble** – Researcher focused on how data and algorithms affect society *Why?* Her work brings ethical thinking into data use and searching—ideal for upper KS2 discussions.	**Leah Buechley** – Creator of the LilyPad Arduino *Why?* Known for merging code with creativity and design—shows that coding hardware can also be expressive and artistic.	**Brendan Eich** – Creator of JavaScript *Why?* He invented one of the most widely used coding languages for websites and games—perfect link to Year 5's game and web development themes.	**Maddy Thorson** – Lead developer and designer of *Celeste* *Why?* Maddy created *Celeste*, a hugely successful and award-winning indie game known for its tight gameplay, beautiful design, and meaningful

						storytelling. She also champions **inclusivity** and **representation** in games, making her a powerful role model for young, diverse creators.
Key subject links	English					
Key Vocabulary			Data Database Group Field Filter Record Sort Database Design Edit Validation Condition Operator Query Linked Tables Multiple Tables			Game genre 2D Game 3D Game Game design Sprite Sprite Animation Playability Game environment Game feedback
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Year 6	1) Graphing	2) Spreadsheets	3) Micro:bit	4) Coding	5) Binary	6) Introduction to Python
Key Skills	Create a range of Graph types Incorporating multiple datasets Using graphs to solve a problem Exporting and importing files	Performing calculations Entering and using Formulae Presenting data Solving real life problems	Using the Micro:bit as a data logger Measuring, recording and analysing environmental data Collecting data and exporting to graphical software	Using functions Understanding flowcharts and control simulations Coding for user input	Examining how binary represents data in digital systems Counting in binary Converting from decimal to binary Exploring binary in relation to game states	Comparing block and text code views Coding for text output Working with different data types Coding repetition in python
Key People	**Florence Nightingale** – Statistician and	**Dan Bricklin** – Inventor of VisiCalc, the first	**Ayah Bdeir** – Creator of littleBits	**Grace Hopper** – Computer programmer and	**Claude Shannon** – "Father of Information Theory"	**Guido van Rossum** – Creator of the Python programming

	data visualisation pioneer *Why?* She used graphs (especially pie charts and bar charts) to present data and improve hospital conditions—an excellent real-world historical link between maths and computing.	spreadsheet program *Why?* A consistent, solid link for spreadsheet-related learning. His invention changed how people work with data.	*Why?* A brilliant female inventor who created modular electronics to make coding and engineering more playful and creative—very relatable for KS2.	Navy rear admiral *Why?* Invented one of the first compilers and helped develop COBOL—her legacy teaches children how coding can solve real problems.	*Why?* He developed the idea that all information (text, images, sound) could be represented using binary—an essential concept in computer science. Child-friendly link: "Claude showed us that computers speak in 1s and 0s!"	language *Why?* He created Python to be easy to learn and powerful—perfect for beginners, which is why schools and professionals around the world use it.
Key subject links					Maths	
Key Vocabulary	Chart Comparative Bar chart Data Dataset Dual Bar Chart Pie Chart Line Graph					
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