

bThe Leys Primary School Subject Overview for Computing - 2024-25 becoming a computer scientist

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	z & Solve		
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	1. Online Safety & Exploring Purple Mash To log in safely. To learn how to find saved work in the Online Work area and find teacher comments. To learn how to search Purple Mash to find resources. To become familiar with the icons and types of resources available	2. Pictograms To understand that data can be represented in picture format. To contribute to a class pictogram. To use a pictogram to record the results of an experiment 3. Lego Builders To compare the effects of adhering strictly to instructions to	4. Animated Story Books To introduce e-books and the 2Create a Story tool. To add animation to a story. To add sound to a story, including voice recording and music the children have composed. To work on a more complex story, including adding backgrounds and	5. Coding To understand what instructions are and predict what might happen when they are followed. To use code to make a computer program. To understand what objects and actions are. To understand what an event is. To use an event to control an object. To begin to	6. Spreadsheets To know what a spreadsheet program looks like. To locate 2Calculate in Purple Mash. To enter data into spreadsheet cells. To use 2Calculate image tools to add clipart to cells. To use 2Calculate control tools: lock, move cell, speak and count.	7. Technology Outside of School To walk around the local community and find examples of where technology is used. To record examples of technology outside school.

	in the Topics section. To start to add pictures and text to work. To explore the Tools and Games section of Purple Mash. To learn how to open, save and print. To understand the importance of logging out.	completing tasks without complete instructions. To follow and create simple instructions on the computer. To consider how the order of instructions affects the result.	copying and pasting pages. To share e-books on a class display board.	understand how code executes when a program is run. To understand what backgrounds and objects are. To plan and make a computer program.		
Key Skills	1. Can recognise a username and password, and use these to log in to a device or website. Knows that buttons/icons can represent different functions e.g. record, pause, play. Can create a text-based document, adding	2. Can create graphs and pictograms. 3. Understand that devices respond to commands. Follow instructions and create precise instructions for others to follow.	4. Can create a text-based document, adding basic effects to sections of text.	5. Understand that devices respond to commands. Creates scenes and backgrounds. Creates characters on which commands can be run. Constructs algorithms that cause characters to perform actions. Uses collision detection to prevent characters	6. Can use ICT to begin to organise items. Use tools to begin to create simple formulae.	7. Knowing the names of different types of technology. Understanding what counts as technology.

	basic effects to sections of text. Explore e-safety by: Understanding why having an avatar is better than using a real picture.			from colliding.		
Key People				Grace Hopper		
Key subject links	PSHE Online safety week Maths	STEAM week Maths	English - story writing	STEAM week	Maths	STEAM week
Key Vocabulary	1. Username, password, login, open, save, print, avatar	2. Data, pictogram 3. Instructions, code, algorithm, bug, debug	4. Animation, font, sound effects, copy, paste	5. Code blocks, code design, background, character, input, when clicked	6. Spreadsheet, cell, row, column, count tool	7. Technology
SMSC and British Values		s to develop their so s to acquire a broad	_			and services in

Global Goals and School values		9 INDUSTRY, INNOVATION AND INFRASTRUCTURE							
The Leys Pathways		Explore, Und	erstand & Solve						
Year 2	1. Coding To understand what an algorithm is. To create a computer program using an algorithm. To create a program using a given design. To understand the collision detection event. To understand that algorithms follow a sequence. To design an algorithm that follows a timed sequence. To understand that different objects have	3. Spreadsheets To use 2Calculate image, lock, move cell, speak and count tools to make a counting machine. To learn how to copy and paste in 2Calculate. To use the totalling tools. To use a spreadsheet for money calculations. To use the 2Calculate equals tool to check calculations. To use 2Calculate to collect data and produce a graph.	4. Effective Searching To understand the terminology associated with searching. To gain a better understanding of searching on the Internet. To create a leaflet to help someone search for information on the Internet.	Fictures To learn the functions of the 2Paint a Picture tool. To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir). To recreate Pointillist art and look at the work of pointillist artists such as Seurat. To learn about the work of Piet Mondrian and recreate the style using the lines template. To learn about the	6. Making Music To make music digitally using 25equence. To explore, edit and combine sounds using 25equence. To edit and refine composed music. To think about how music can be used to express feelings and create tunes which depict feelings. To upload a sound from a bank of sounds into the Sounds section. To record and upload environmental sounds into Purple Mash.				

different To use these sounds work of William properties. Morris and recreate to create tunes in To understand the style using the 25equence. what different patterns template. events do in code. To explore 7. Presenting Ideas To understand the surrealism and To explore how a eCollage. function of story can be buttons in a presented in different ways. program. To understand and To make a quiz debug simple about a story or class topic. programs. To make a fact file 2. Online Safety on a non-fiction To know how to topic. To make a refine searches using the Search presentation to the tool. class To use digital technology to share work on Purple Mash to communicate and connect with others locally. To have some knowledge and understanding about sharing more globally on the Internet.

	To introduce Email as a communication tool using 2Respond simulations. To understand how we should talk to others in an online situation. To open and send simple online communications in the form of email. To understand that information put online leaves a digital footprint or trail. To identify the steps that can be taken to keep personal data and hardware secure.				
Key Skills	1 Can create, edit and refine sequences of instructions for a variety of programmable devices.	3. Use the copy and paste functions. Use the count and total tools to begin to write simple formulae across several cells. Create a graph.	4. Can understand and talk about how the internet can be used to answer specific questions. Knows that the internet contains a	5. Can use the computer to create basic images.	6. Can explore sound and music in ICT using keyboards, and on-screen music software. 7. Can use word

Can continue to	large amount of	processing software
develop an	information and	and using editing
understanding of	recognises the need	tools.
how a computer	to use search tools	Can create basic
processes	and search engines	presentations.
instructions and	to begin to find	Can use skills and
commands.	information.	techniques to
Can understand		organise, reorganise
that devices or on		and communicate
screen turtles are		ideas for a specific
controlled by		purpose in different
sequences of		contexts.
instructions or		
actions.		
2. Has discussed		
e-safety in class		
and is aware of		
how to keep		
themselves safe		
by: understanding		
how we should talk		
to others in an		
online situation		
understanding		
what counts as		
personal		
information and		
how this		
information leaves		
a trail online.		

	Understands that messages can be sent electronically over distances. Understand that email can be used to send messages electronically and people can reply to emails.					
Key People	Bill Gates					
Key subject links	PSHE Online safety week	STEAM week Maths		STEAM week History & Geography - using the internet to search for	Art - artist study	STEAM week Music
Key Vocabulary	1. Algorithm, Object, Repeat, Timer, Bug, Debug, Turtle 2. Network, Internet, Sharing, Personal Information, Digital Footprint, Cyber Bullying,	3. Copy and Paste, Lock Tool, Equals Tool,		5. Internet, Search Engine, Search	5. Palette, Template, Brush, Pen Thickness Tool, Fill Tool, Undo Tool, Redo Tool	6. Composition, Instrument, Sound Effect (SFX), Tempo, Volume. 7. Presentation, Mind Map, Node, Quiz

	Email, Instant Message							
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		9 INDUSTRY, INNOVATION AND INFRASTRUCTURE						
The Leys Pathways			Explore, unde	erstand & Solve				
Year 3	1. Coding Use If commands to make my programme decide by itself what should happen. Create variables and use them in my algorithms Learning Plan and create a program that	2. Online Safety create appropriate messages for a class blog find a search engine website and search for information explain whether you should trust facts that you find on the internet and how you can help	3. Spreadsheets 4. Touch typing 3.Enter data into a spreadsheet and generate graphs 3.Use the 'more than', 'less than' and 'equals' tools to compare numbers and complete calculations 3.Give a cell	5. Email Open and read emails Decide whether the contents of an email are safe or not Write respectful, safe emails and attach files to an email	6. Simulations Think about different kinds of simulations Explore a simulation and understand how it shows a real-life situation Analyse a simulation and understand the rules that make it work	7. Graphing Enter data into a spreadsheet Generate graphs using the data entered		

	simulates a real situation	yourself to get true facts understand what different PEGI symbols mean explain why ignoring PEGI symbols is bad	reference such as A2 or C9 4. Sit correctly at a computer 4. Know which hand to use to reach which keys on the keyboard 4. Type using more than one finger on each hand		Evaluate how closely a simulation matches real-life	
Key Skills	Can create, edit and refine more complex sequences of instructions for a variety of programmable devices. Can develop my understanding of how computers and technology works and how computers	Has discussed e-safety in class and is aware of how to keep themselves safe by knowing how to create a strong password to protect information considering the truth of the content	3. Can create graphs and charts. 3. Can use the Move Cell tool to move values around on a spreadsheet 3. Can use the Chart Control Tools to generate graphs and charts	Children understand what an email is and how to communicate using one. Children know what to do if they receive an email that makes them upset or scared. Children know what information they		Can generate graphs and charts from a premade database. Can select the appropriate graph form for the data being represented

	process instructions. Can use a range of increasingly complex simulations to represent real-life situations. Uses a range of increasingly complex simulations to represent real-life situations.	of websites knowing the meaning of age restriction symbols on digital media and devices Can use desktop publishing tools effectively by creating a blog to communicate with a wider audience	3. Can activate Advance Mode 3. Can begin to try to build formulae in Advance Mode 4. Can type with increasing speed and accuracy	can send in an email.		
Key People	Markus "Notch" Persson		Dan Bricklin	Ray Tomlinson		
Key subject links		PSHE Online safety week				
Key Vocabulary	If Command Code Design Variable Selection Simulation Controls	Username Password Concept map Search Web page Website Reliable PEGI Rating	3. Copy and Paste 3. Delete key 3. Advance mode 3. Equals tool 3. Move cell tool 3. <,>,= Symbols 4. Posture 4. Top row keys	Communication Email Compose Send Attachment Password CC Formatting	Simulation	Spreadsheet Graph Bar Chart Block Graph Line Graph Pie Chart

			4. Home row keys 4. Bottom row keys 4. Space bar					
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Global Goals and School values		9 INDUSTRY, INNOVATION AND INFRASTRUCTURE						
The Leys Pathways			Explore, communicat	e, understand & solve				
Year 4	1. Coding create a flowchart that shows the decisions and actions a computer can take in a programme that I am designing. Use If/Else commands, Repeat commands, Timer	2. Online safety React to phishing emails in the right way (using simulation). Explain why installing apps and downloading files can be dangerous. Put facts that I	3. Spreadsheets Create spreadsheets that use formulae to calculate. Activate standard formatting such as currency formatting, decimal formatting or fraction formatting in some cells on the	4. Writing for different audiences Change the size and style of the text being typed. Understand when it is appropriate to use certain fonts and styles.	 5. Logo 6. Animation 5. Write algorithms that will operate in Logo. 5. Write algorithms in Logo that use the repeat command to create shapes. 6. Create a 	7. Hardware investigations Know the names of the different parts that make up a computer. Know the functions of different parts that make up a computer.		

	commands and Variables to have a computer respond to input and decide for itself what the output should be. Decompose a real-life situation into steps and abstract away unnecessary details to plan a simulation.	have found online in my own words and leave signs in my work to show when I have found information online.	spreadsheet. Generate line graphs from existing data in a spreadsheet.		computer-generated animations using existing pre-prepared pictures. 6. Add sound effects to animations. 6. Set an animation against a background. 6. Create a stop-motion animation film	
Key Skills	1. Understands how computers and technology works and how computers process instructions and commands. 1. Can use templates on a computer to create a game, which can be controlled by	2. Knows how emails work and can send an email. 2. Can share and exchange ideas using e-mail and electronic communicationinside the school environment. 2. Understand that information needs to be appropriate	3. Can use spreadsheets to create graphs and present data in different ways 3. Understand standard maths symbols such as <, >, =, +, -, * and / 3. Refer to cells by their cell reference e.g. A1, C5 or D9 3. Create formulae	4. Be able to identify the bold, italic and underlining tools in a variety of programs. 4. Be able to activate these tools when we know that the writing needs to be bold, italic or underlined. 4. Be able to	5. To understand how computers process commands, needing clear and specific instructions as the computer will follow instructions literally. 5. Understand how to write an algorithm in Logo that involves multiple steps, that	To be able to understand the purpose of a range of different technologies and how these all fit together both physically and through software to make a computer run. To know how to handle and safely

	external inputs, changing parameters and algorithms and investigating the effect this has on the response.	for the audience.	to perform calculations (Such as adding two cells)	highlight text and activate the tools if we decide later that some text needs to be bold, italic or underlined 4. Able to change the size and style of text to help a reader's understanding	archives a set task (such as making a square and a triangle at separate ends of the sheet without connecting the two (using the command PU and PD)). 6. To create a basic stop-motion animation. 6. To apply the effects to the images that are being used in the animation. 6. To record a basic video and be able to edit, and apply basic effects and transitions to this video. In order to share this video.	work with a range of different computer components.
Key People	Linus Torvalds		Dan Bricklin		6. Walt Disney (early career)	
Key subject links		PSHE Online safety week	Science / Maths - Plotting information and creating graphs.	English - Lesser spotted animals write up,		

Key Vocabulary	Flowchart If/Else Command Variable Repeat Command Decompose Abstract	Phishing Identity Theft Computer Virus Software Malware Plagiarism	Advance Mode Formula Formula Wizard Timer Tool Spin Tool Random Tool	Font Bold Italics Underline	5. LOGO 5. SETPC 5. PU 5. PD 5. FD 5. BK 5. RT 5. LT 5. Repeat 6. Animation 6. Frame 6. Background 6. Onion Skinning 6. Stop Motion	Motherboard Central Processing Unit (CPU) Random Access Memory (RAM) Graphics and network cards
SMSC and British Values		•	elf-knowledge, self- I general knowledge			and services in
Global Goals and School values	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE					
The Leys Pathways	Explore, communicate, understand & solve					
Year 5	1. Coding Create a flowchart	2. Online Safety3. Spreadsheets	4. Database		5. 3D Modelling	6. Using Google Sites to create a

that explains how		Search a multi-field database for	Choose the best	website to record
a real life situation	2. React to	information	template 3D shape	something that
works	inappropriate things		to create a 3D	interests them
	that I find on the		model	
With the help of	internet in a way	Add data to an existing multi-field		Create a concept
2Code, write a	that keeps me safe	database	Add and move points	map
programme that			to change the shape	
simulates a real	2. Set passwords	Create a multi-field database from scratch	of a 3D model	Familiarise them
life situation	for online accounts			with what can be
	and documents that		Draw and colour	accomplished using
	keep my information		designs onto a net	google sites
	secure		to alter the	(showing digibooks
			appearance of the	for both classes and
	2. Search the internet to find out		3D model	clubs)
	about a topic and		Print and construct	Researching a topic
	make sure that the		a 3D model	that interests them
	information I have		a 30 moder	and creating a
	found is reliable			skeleton of a site
	Touris is remaine			with the heading
	2. Put information			and rough
	into my own words,			information that
	and then add			they will need to
	references to show			find to complete.
	where I got the			
	information from			Spend time doing
				effective research
	3. Use formulae to			to populate their
	make the			site with
	spreadsheet			information.
	perform maths			

		calculations Use formulae to make the spreadsheet tally how many times letters or numbers appear 3. Use variables in formulae to make a spreadsheet self-updating so that if the input is changed, the output answer is also changed 3. Explore how the functions of a spreadsheet can help us in a real-life situation			Work collaboratively and share their work with others (through Google Classroom) To publish their work for others to read and look at (through Google Classroom)
Key Skills	Breaking a problem down into steps that can be addressed in sequence. Creating and editing flowcharts	2. Knowing how to maintain secure passwords.2. Reviewing sources of support when using technology and children's	Using and searching databases to find information Entering data into a premade database Creating a multi-field database from the ground up	Using software to model 3D objects.	Effective planning and research to create a website that others can view Working collaboratively on a project

to show	the respo	onsibility to one		Understand how to
sequenc	ce of steps. anoth	ner in their		share their work
	online	e behaviour.		safely and securely
Designi	ng			(making sure that
algorith	nms to 2. Ta	lking about the		they have selected
address	s the diffe	erent forms of		to only share within
differe	nt steps of infor	mation (text,		the organisation)
a proble	em. image	es, sound,		
	multi	modal) and		
Creatin	g under	rstanding some		
		nore useful		
involve	•	others.		
•		gnises that the		
		rnet may		
		ain material		
statem		is irrelevant,		
		ed, implausible		
Testing		nappropriate.		
debugg	_			
		nderstanding		
		ssues of		
		right and how		
expecto		apply to		
	•	mation on the		
	inter	net.		
	2.11	10 formulas +s		
		se formulae to		
		orm a variety of lations and		
		r functions		
	orner	Tunctions		

		3. Create variables to make a spreadsheet self-updating			
Key People	Maddy Thorson (video game creator (celest))				
Key subject links		PSHE Online safety week		Design Technology - Design a product in 3D rather than by drawing multiple views	
Key Vocabulary	Simulate Decomposition Algorithm Input Output Object If/Else	2. SMART Rules 2. Encryption 2. Plagiarism 2. Reference 2. Quote 2. Bibliography 2. Citation 3. Advance Mode 3. Formula 3. Formula Wizard 3. Average 3. Equals Tool	Database Field Record Find Sort, Group, Arrange Statistics and Reports Table Collaborative	Computer-Aided Design (CAD) 2D 3D Points Template Net 3D Printing	Sharing with organisation Connection Collaboratively
SMSC and British Values	· enable student	s to develop their s	elf-knowledge, self-esteem and self-co	onfidence	

	• enable students to acquire a broad general knowledge of and respect for public institutions and services in England					
Global Goals and School values	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE					
The Leys Pathways			Explore, communica	te, understand & solve		
Year 6	1. Coding Use functions to reduce the amount of coding needed to complete a programme or streamline the code of an existing programme Create algorithms that will allow users to put in more complicated input and have the computer work with it Combine all of my coding skills to	2. Online safety 3. Spreadsheets 2. Explain what personal information is and give examples of situations where it is safe and appropriate to share this information 2. Respond to cyberbullying appropriately and communicate in a way that keeps me safe from being accused of being a cyberbully 2. Explain how	4. Blogging Plan and collaboratively create a blog about a topic Update a previously created blog Comment on blog posts	5. Text Adventures Plan a multi-stage text-based adventure game Create a multi-stage text-based adventure game Plan a map-based adventure game Create a map-based adventure game	6. Networks Know the different types of networks, including LAN, WAN and the Internet Understand how networks work and why they are useful	7. Quizzing Answer quizzes created using google forms Create quizzes using google forms for others to answer Do research to find information that can be turned into quiz questions

	create a text-based adventure game	spending a long time on activities that mean using a device can be bad for me 3. Use formulae to perform mathematical calculations such as finding a percentage increase or decrease 3. Use formulae to automatically count items on a spreadsheet 3. Use spreadsheet operations to help solve real-life problems				
Key Skills	Knowing how computers process instructions and commands, including the use of coding languages.	2. Identifying secure sites by looking for privacy seals of approval. 2. Identifying the benefits and risks of giving personal	Using forms of communication to share information or ideas. Using collaborative tools to produce a joint piece.	knowledge of how computers process instructions and commands, including the use of coding languages. Using assisted	Knowing that the internet contains a large amount of information and recognises the need to use search tools and search engines to begin to find	Using forms of communication to share information or ideas. Using collaborative tools to produce a joint piece.

	Using assisted programming software to create more complex software which interacts with external controllers, and elements on screen, creating algorithms and using logic and calculations. Controlling an on screen icon using text based programing, including writing complex written algorithms which involve sensors. Understanding that ICT allows for complex situations to be modelled.	information. 2. Having a clear idea of appropriate online behaviour. 2. Understanding the importance of balancing game and screen time with other parts of their lives. 3. Knowing that ICT allows changes to be made easily once a spreadsheet is set up. 3. Using spreadsheets to create graphs and present data in different ways.	Creating/editing a website.	programming software to create more complex software which interacts with external controllers, and elements on screen, creating algorithms and using logic and calculations. Controlling an on screen icon using text based programing, including writing complex written algorithms which involve sensors. Understanding that ICT allows for complex situations to be modelled.	information. Mapping a network	Knowing that the internet contains a large amount of information and recognises the need to use search tools and search engines to begin to find information.
Key People	Ada Lovelace		Alex Stringer (Alexknowsitall7)			

			Blogged about her family's travels around the world.			
Key subject links		PSHE Online safety week				
Key Vocabulary	Event Function Input Variable Debug	2. SMART Rules 2. PEGI Rating 2. Screen Time 2. Digital Footprint 2. Phishing 3. Advance Mode 3. Formula 3. Formula Wizard 3. Average	Blog Blog Page Blog Post	Concept Map Text Based Adventure Function Sprite Debug	Network Local Area Network (LAN) Wide Area Network (WAN) Internet	Quiz Concept Map Database
SMSC and British Values		•	elf-knowledge, self- I general knowledge			and services in
Global Goals and School values			9 INDUST	RY, INNOVATION RASTRUCTURE		
The Leys Pathways			Explore, communicat	e, understand & solve		