

St Michael's C.E Primary School

Computing Curriculum 2025-2026

Computing at St Michael's is the process of using computer technology to complete a meaningful project that will inspire pupils and develop a curiosity for learning.

Intent - At St Michael's, Computing aims to equip pupils with the knowledge, understanding and skills to use and manipulate computers in an ever changing digital world.

A Computer Technician is resilient to problem solving and uses a computational thinking to resolve issues.

St Michael's
C.E. Primary School

Spirituality Across the Curriculum

Our definition of spirituality at St Michael's CE Primary School:

To talk about spirituality is to talk about something which is beyond words.

Spirituality is linked to big questions about the meaning and purpose of life; it includes ideas relating to oneself, others, the natural world and the transcendent.

We refer to this as:

The stillness of the mind

The settling of the soul

The uplifting of the spirit

Being at one in the world and finding meaning and purpose in life.

For some, but not all, this will be experienced, expressed or explained through faith or belief.

When discussing this with our pupils, we refer to spirituality as:

The way WOWS, OWS and Nows shape me into the person that I am and will become.

Spiritual development contains many facets and it is concerned with a number of areas of an individual's life. Therefore, when developing spirituality in pupils and adults, we, in line with our distinctively Christian vision and our school's definition for spirituality, look at four key areas: self, others, transcendence (beyond), and nature.



Spirituality Opportunities

Self

Opportunities

- Have students create personal blogs or digital journals where they reflect on their spiritual journey and personal growth.
- Encourage students to design digital work that represent their goals, values, and spiritual aspirations.
- Use coding to create simple mindfulness apps or websites that guide users through meditation and relaxation exercises.

Potential Question Prompts

- How does coding or designing make you feel? Does it connect to a bigger purpose or goal in your life?
- What message or story would you want to share with the world through a game, app, or website?
- What can you do to make sure your relationship with technology is healthy and balanced?
- How do you feel when you're trying to solve a problem in coding? Does it teach you anything about patience or persistence?
- How can technology help you understand yourself better? Can you think of any apps or tools that help you reflect on your emotions or thoughts?
- Have you used any tools, like journaling apps, to keep track of your personal growth? How does this make you feel about your own journey?

Others

Opportunities

- Engage students in creating digital solutions for community issues, such as developing apps that connect volunteers with local charities or creating websites that raise awareness about social causes.
- Use technology to connect with students from different countries and cultures, fostering intercultural understanding and empathy.
- Organise projects where students create digital stories or multimedia presentations on themes of compassion, kindness, and community.

Potential Question Prompts

- Do you think technology should be used to help others and make the world a better place? What are some examples of how it can do that?
- Consider the importance of online behaviour and how it affects others. How can you ensure your actions online reflect kindness and respect?
- Think about how technology can address social issues. What ideas do you have for using computing to make a difference in the world?
- Reflect on how computing allows us to communicate globally. What have you learned about other cultures through technology?
- Consider the importance of online safety. What steps can you take to ensure that you and your peers are safe while exploring the digital world?
- Think about how understanding others' feelings can shape your online behaviour. How can you show empathy in your digital communications?
- Reflect on how technology can strengthen or weaken connections. What are some positive and negative impacts you've noticed in your own life?



Transcendence

Opportunities

- Creating or engaging with technology solutions that focus on environmental sustainability
- Participating in global, collaborative digital art projects (such as those using blockchain technology or digital NFTs).
- Use virtual reality or 3D modelling to create virtual tours of sacred sites from various religions, allowing students to explore these places and their spiritual significance.
- Develop interactive digital versions of sacred texts that include annotations, multimedia elements, and discussion forums to deepen understanding and reflection.
- Encourage students to use digital tools to create art or music inspired by spiritual themes, exploring how technology can enhance spiritual expression.

Potential Question Prompts

- How has using technology helped you experience a sense of awe or wonder about the universe or nature?
- How does creating or interacting with digital art or music make you feel about the beauty of the world or the universe?
- When working on collaborative coding or open-source projects, do you feel like you're part of a larger community or purpose? How does that shape your sense of contribution?
- In what ways can technology be designed to help people slow down, reflect, and feel more connected to themselves and others?
- How can technology help deepen our connection with nature, even when we're not physically present in it?

Nature

Opportunities

- Apps that encourage users to take and share nature photography or create digital art.
- Apps and games that offer puzzles or quizzes about animals, plants, or ecosystems
- Interactive e-books or apps that tell stories about the environment, animals, and nature conservation can spark children's imagination
- Simple digital cameras or apps that encourage children to take pictures of plants, animals, and landscapes help them develop a deeper appreciation of their surroundings.
- Art apps can encourage children to draw and paint scenes from nature.

Potential Question Prompts

- Reflect on ways that computing can be used to monitor environmental changes or protect wildlife. What technologies have you learned about that help us care for nature?
- Consider how experiences in nature might influence your ideas for projects or designs in computing. What aspects of nature do you find most inspiring when creating something with technology?
- Think about how digital platforms can be used to share information about climate change or conservation. What message would you want to communicate to others about protecting our planet?
- Reflect on how the natural world demonstrates balance and interconnectedness. How can we apply these lessons to ensure that technology works in harmony with nature rather than against it?
- Consider ways you can leverage technology to encourage recycling, energy conservation, or other sustainable behaviours. What projects could you initiate to inspire others to be more environmentally friendly?
- Reflect on how computing can enhance our understanding of natural phenomena. What technologies, such as apps or simulations, have helped you learn more about the environment and its wonders?

St Michael's CE Primary Computing Curriculum 2025-2026



St Michael's
C.E. Primary School

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Computing Knowledge and Skills - See Nursery Curriculum for more detailed information					
Reception	Computing Knowledge and Skills - See Reception Curriculum for more detailed information					
Year 1	Improving Mouse Skills	Algorithms Unplugged	Online Safety	Digital Imagery	Online Safety	Bee-Bot
Year 2	What is a computer?	Algorithms and Debugging	Online Safety	International Space Station	Online Safety	Introduction to block coding
Year 3	Networks	Journey inside a computer	Online Safety	Video trailers	Online Safety	Programming Scratch
Year 4	Investigating weather	Further coding with scratch	Online Safety	Collaborative Learning	Online Safety	Computational Thinking
Year 5	Mars Rover 1	Search Engines	Online Safety	Stop Motion Animation	Online Safety	Programming Music
Year 6	Bletchley Park and the history of computers	Big Data 1	Online Safety	Exploring AI	Online Safety	Intro to Python



Early Years Foundation Stage - Related to Computing

Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them - from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. Classrooms should contain a role play area with a range of technology, both functioning and model / broken devices, or a variety of electronic toys, such as remote-controlled cars, walkie-talkies and interactive pets, as part of continuous provision. Further technology could be included in conjunction with other activities, such as digital cameras for pupils to photograph their own learning.

National Curriculum - Aims and Purpose

Purpose::

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate - able to use, and express themselves and develop their ideas through, information and communication technology - at a level suitable for the future workplace and as active participants in a digital world.

Aims:

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.



National Curriculum - Key stage 1

Pupils should be taught to:

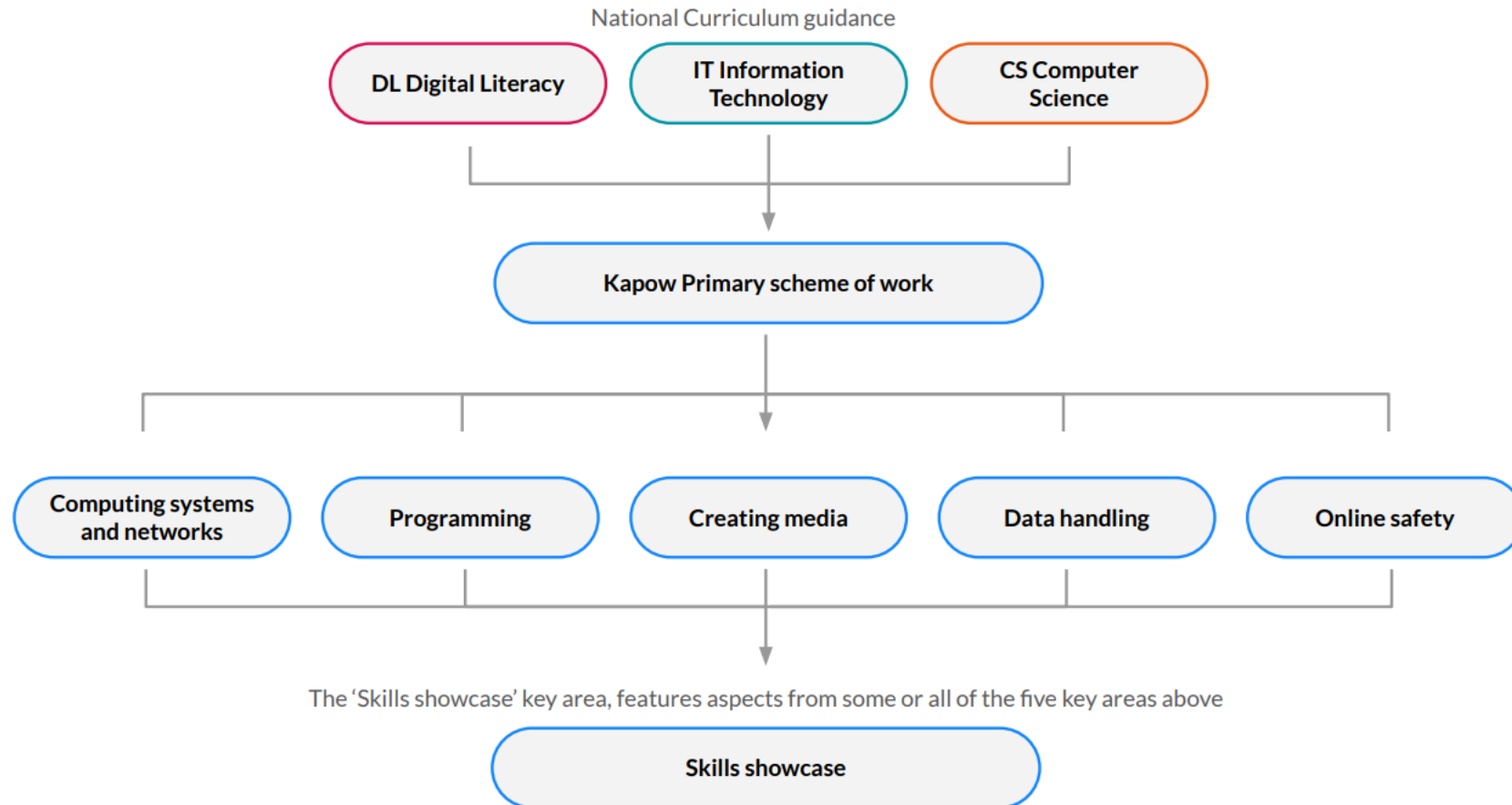
- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

National Curriculum - Key Stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
 - use sequence, selection, and repetition in programs; work with variables and various forms of input and output
 - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
 - understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration
 - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
 - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact...

How is Kapow's Primary Computing scheme of work organised?





Progression Milestones for Computing

Progression of Skills									
Computer Science	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Hardware		To use ICT hardware to interact with age-appropriate computer software	<p>Learning how to operate a camera or tablet to take photos and videos.</p> <p>Learning how to explore and tinker with hardware to find out how it works.</p> <p>Recognising that some devices are input devices and others are output devices.</p> <p>Learning where keys are located on the keyboard.</p>	<p>Understanding what a computer is and that it's made up of different components.</p> <p>Recognising that buttons cause effects and that technology follows instructions.</p> <p>Learning how we know that technology is doing what we want it to do via its output.</p> <p>Using greater control when taking photos with cameras, tablets or computers.</p> <p>Developing confidence with the keyboard and the basics of touch typing.</p>	<p>To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices).</p> <p>Drawing comparisons across different types of computers.</p> <p>To know that a router connects us to the internet.</p> <p>To know that a server is central to a network and responds to requests made.</p>	<p>Using tablets or digital cameras to film a weather forecast.</p> <p>Understanding that weather stations use sensors to gather and record data which predicts the weather.</p>	<p>Learning that external devices can be programmed by a separate computer.</p> <p>Learning the difference between ROM and RAM.</p> <p>Recognising how the size of RAM affects the processing of data.</p> <p>Understanding the fetch, decode, execute cycle.</p>	<p>Learning about the history of computers and how they have evolved over time.</p> <p>Using the understanding of historic computers to design a computer of the future.</p> <p>Understanding and identifying barcodes, QR codes and RFID.</p> <p>Identifying devices and applications that can scan or read barcodes, QR codes and RFID.</p> <p>Understanding how corruption can happen within data during transfer (for example when downloading, installing, copying and updating files).</p> <p>Identify different types of AI and</p>	



	Networks and data representation			N/A	N/A	<p>Understanding that websites and videos are files that are shared from one computer to another.</p> <p>To know what a packet is and why it is important for website data transfer.</p> <p>Understanding how networks work and their purpose.</p> <p>Recognising links between networks and the internet. Learning how data is transferred.</p>	<p>Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration.</p>	<p>Learning the vocabulary associated with data: data and transmit.</p> <p>Learning how the data for digital images can be compressed.</p> <p>Recognising that computers transfer data in binary and understanding simple binary addition.</p> <p>Relating binary signals (Boolean) to the simple character-based language, ASCII.</p> <p>Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.</p> <p>Understanding how bit patterns represent images as pixels.</p>	<p>Understanding that computer networks provide multiple services.</p>
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Computational thinking

			<p>Learning that decomposition means breaking a problem down into smaller parts.</p> <p>Using decomposition to solve unplugged challenges.</p> <p>Using logical reasoning to predict the behaviour of simple programs.</p> <p>Developing the skills associated with sequencing in unplugged activities.</p> <p>Following a basic set of instructions.</p> <p>Assembling instructions into a simple algorithm.</p>	<p>Articulating what decomposition is.</p> <p>Decomposing a game to predict the algorithms used to create it.</p> <p>Learning that there are different levels of abstraction.</p> <p>Explaining what an algorithm is.</p> <p>Following an algorithm.</p> <p>Creating a clear and precise algorithm.</p> <p>Learning that programs execute by following precise instructions.</p> <p>Incorporating loops within algorithms.</p>	<p>Using decomposition to explain the parts of a laptop computer.</p> <p>Using decomposition to explore the code behind an animation.</p> <p>Using repetition in programs.</p> <p>Using logical reasoning to explain how simple algorithms work.</p> <p>Explaining the purpose of an algorithm.</p> <p>Forming algorithms independently.</p>	<p>Using decomposition to understand the purpose of a script of code.</p> <p>Identifying patterns through unplugged activities.</p> <p>Using past experiences to help solve new problems.</p> <p>Using abstraction to identify the important parts when completing both plugged and unplugged activities.</p> <p>Breaking down what they want to achieve into smaller, manageable parts.</p> <p>Using logic, pattern recognition and decomposition to solve simple problems.</p> <p>Remixing code to alter and add to an existing program.</p> <p>Recognising repeating patterns in a program or code.</p> <p>Creating loops to make code more efficient in block-based programs.</p> <p>Beginning to use variables in block-based programming languages to make programs more interactive.</p>	<p>Decomposing animations into a series of images.</p> <p>Decomposing a program without support.</p> <p>Decomposing a story to be able to plan a program to tell a story. Predicting how software will work based on previous experience.</p> <p>Writing more complex algorithms for a purpose.</p>	<p>Decomposing a program into an algorithm. Using past experiences to help solve new problems.</p> <p>Writing increasingly complex algorithms for a purpose. Analysing the effectiveness of prompts and refine them for improved AI outputs.</p>
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							<p>Including a conditional statement in block-based programming languages.</p> <p>Recognising the relationship between what is happening in a program and the written (block) code.</p>		
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Programming

Programming a Floor robot to follow a planned route.	Using logical thinking to explore software, predicting, testing and explaining what it does.	Using logical thinking to explore more complex software; predicting, testing and explaining what it does.	Creating algorithms for a specific purpose.	Programming an animation.	Debugging quickly and effectively to make a program more efficient.
Learning to debug instructions when things go wrong.	Using an algorithm to write a basic computer program.	Incorporating loops to make code more efficient.	Coding a simple game.	Iterating and developing their programming as they work.	Remixing existing code to explore a problem.
Using programming language to explain how a floor robot works.	Using loop blocks when programming to repeat an instruction more than once.	Continuing existing code.	Using abstraction and pattern recognition to modify code.	Confidently using loops in their programming.	Using and adapting nested loops.
Learning to debug an algorithm in an unplugged scenario.		Making reasonable suggestions for how to debug their own and others' code.	Incorporating variables to make code more efficient.	Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.	Programming using the language Python.
				Writing code to create a desired effect.	Changing a program to personalise it.
				Using a range of programming commands.	Evaluating code to understand its purpose.
				Using repetition within a program.	Predicting code and adapting it to a chosen purpose.
				Amending code within a live scenario.	Applying coding skills like decomposition and pattern recognition to interact with AI applications.
				Recognising examples of programming elements in real-life applications.	
				Looking at programming blocks and considering how they could be used in a program.	
				Decomposing a program independently when given a specific outcome or task to achieve.	
				Altering existing code with a new, specific outcome in mind.	



<p>Independently using loops to make code more efficient in text-based programs.</p>	
<p>Using nested loops to make code more efficient.</p>	
<p>Using variables in block-based programming languages and understanding the impact of changing the variables in their code.</p>	
<p>Explaining what a program does and how it works, referring to the inputs and outputs.</p>	
<p>Becoming more efficient and effective at debugging their programs.</p>	
<p>Systematically identify mistakes, problems or 'bugs' in a program.</p>	



Information Technology	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Using software	To complete a simple program with an adult.	To complete a simple program on electronic devices To use ICT hardware to interact with age-appropriate computer software	Using a basic range of tools within graphic editing software. Taking and editing photographs. Developing control of the mouse through dragging, clicking and resizing of images to create different effects. Developing understanding of different software tools.	Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Using software (and unplugged means) to create story animations. Creating and labelling images	Taking photographs and recording video to tell a story. Using software to edit and enhance their video adding music, sounds and text on screen with transitions.	Building a web page and creating content for it. Designing and creating a webpage for a given purpose. Use online software for documents, presentations, forms and spreadsheets. Using software to work collaboratively with others.	Using logical thinking to explore software more independently, making predictions based on their previous experience. Using software programme Sonic Pi/Scratch to create music. Using the video editing software to animate. Identify ways to improve and edit programs, videos, images etc. Independently learning how to use 3D design software package TinkerCAD.	Using logical thinking to explore software independently, iterating ideas and testing continuously. Using search and word processing skills to create a presentation. Planning, recording and editing an audio recording. Creating and editing sound recordings for a specific purpose. Creating and editing videos, adding multiple elements: music, voiceover, sound, text and transitions. Using design software TinkerCAD to design a product. Creating a website with embedded links and multiple pages. Using text-based and image-based AI tools to generate content



Using email and internet searches	To use the internet with adult supervision	To use the internet with adult supervision to find and retrieve information of interest to them	<p>Recognising devices that are connected to the internet</p> <p>Searching and downloading images from the internet safely.</p> <p>Understanding that we are connected to others when using the internet</p>	<p>Searching for appropriate images to use in a document</p> <p>Understanding what online information is.</p>	<p>Learning to log in and out of an email account</p> <p>Writing an email including a subject, 'to' and 'from'</p> <p>Sending an email with an attachment</p> <p>Replying to an email</p>	<p>Understanding why some results come before others when searching.</p> <p>Using keywords to effectively search for information on the internet</p> <p>Understanding that information found by searching the internet is not all grounded in fact</p> <p>Searching the internet for data</p>	<p>Developing searching skills to help find relevant information on the internet</p> <p>Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns.</p>	Understanding how search engines work.
Using data			<p>Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.</p> <p>Using representations to answer questions about data</p> <p>Using software to explore and create pictograms and branching databases.</p>	<p>Collecting and inputting data into a spreadsheet</p> <p>Interpreting data from a spreadsheet</p>	<p>Understanding the vocabulary to do with databases: field, record, data</p> <p>Learning about the pros and cons of digital versus paper databases.</p> <p>Sorting and filtering databases to easily retrieve information</p> <p>Creating and interpreting charts and graphs to understand data</p>	<p>Understanding that data is used to forecast weather.</p> <p>Recording data in a spreadsheet independently</p> <p>Sorting data in a spreadsheet to compare using the 'sort by...' option</p> <p>Designing a device which gathers and records sensor data</p>	<p>Understanding how data is collected in remote or dangerous places</p> <p>Understanding how data might be used to tell us about a location</p>	<p>Understanding how barcodes, QR codes and RFID work</p> <p>Gathering and analysing data in real time.</p> <p>Creating formulas and sorting data within spreadsheets.</p>



	Wider use of technology			Recognising common uses of information technology, including beyond school. Understanding some of the ways we can use the internet.	Learning how computers are used in the wider world.	Understanding the purpose of emails. Recognising how social media platforms are used to interact.	Understanding that software can be used collaboratively, online to work as a team.	Learn about different forms of communication that have developed with the use of technology.	Learning about the Internet of Things and how it has led to 'big data'. Learning how 'big data' can be used to solve a problem or improve efficiency.
Digital Literacy	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
		To develop digital literacy skills by being able to access, understand and interact with a range of technologies	<p>Logging in and out and saving work on their own account.</p> <p>When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable.</p> <p>Understanding how to interact safely with others online.</p> <p>Recognising how actions on the internet can affect others.</p> <p>Recognising what a digital footprint is and how to be</p>	<p>Learning how to create a strong password.</p> <p>Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable</p> <p>Identifying whether information is safe or unsafe to be shared online.</p> <p>Learning to be respectful of others when sharing online and ask for their permission</p>	<p>Learning how to create a strong password.</p> <p>Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable</p> <p>Identifying whether information is safe or unsafe to be shared online.</p> <p>Learning to be respectful of others when sharing online and ask for their permission</p>	<p>Recognising that different information is shared online including facts, beliefs and opinions.</p> <p>Learning how to identify reliable information when searching online.</p> <p>Learning how to stay safe on social media.</p> <p>Considering the impact technology can have on mood.</p> <p>Learning about cyberbullying.</p> <p>Learning that not all emails are genuine, recognising when an email might be fake</p>	<p>Recognising that information on the internet might not be true or correct and that some sources are more trustworthy than others.</p> <p>Learning to make judgements about the accuracy of online searches.</p> <p>Identifying forms of advertising online.</p> <p>Recognising what appropriate behaviour is when collaborating with others online.</p> <p>Reflecting on the positives and negatives of time spent online.</p>	<p>Identifying possible dangers online and learning how to stay safe.</p> <p>Evaluating the pros and cons of online communication.</p> <p>Recognising that information on the internet might not be true or correct and learning ways of checking validity.</p> <p>Learning what to do if they experience bullying online.</p> <p>Learning to use an online community safely</p>	<p>Learning about the positive and negative impacts of sharing online.</p> <p>Learning strategies to create a positive online reputation.</p> <p>Understanding the importance of secure passwords and how to create them.</p> <p>Learning strategies to capture evidence of online bullying in order to seek help.</p> <p>Using search engines safely and effectively.</p> <p>Recognising that updated software can help to prevent data</p>



				careful about what we post.	before sharing content. Learning strategies for checking if something they read online is true.	and what to do about it.	Identifying respectful and disrespectful online behaviour.		corruption and hacking. Exploring ethical considerations around AI use and its impact on society.
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Progression of Knowledge

Computing systems and networks	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<p>To know that "log in and log out" means to begin and end a connection with a computer.</p> <p>To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.</p> <p>To know that passwords are important for security.</p> <p>To know that when we create something on a computer it can be more easily saved and shared than a paper version.</p> <p>To know some of the simple graphic</p>	<p>To know the difference between a desktop and laptop computer.</p> <p>To know that people control technology. To know that buttons are a form of input that give a computer an instruction about what to do (output).</p> <p>To know that computers often work together.</p> <p>To know that touch typing is the fastest way to type.</p> <p>To know that I can make text a different style, size and colour.</p>	<p>To know what a tablet is and how it is different from a laptop/desktop computer.</p> <p>To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices).</p> <p>To know that a server is central to a network and responds to requests made.</p> <p>To know that the internet connects all the networks around the world.</p> <p>To know that a router connects us to the internet.</p>	<p>To understand that software can be used collaboratively online to work as a team.</p> <p>To know what type of comments and suggestions on a collaborative document can be helpful.</p> <p>To know that you can use images, text, transitions and animation in presentation slides.</p>	<p>To know how search engines work.</p> <p>To understand that anyone can create a website and therefore we should take steps to check the validity of websites.</p> <p>To know that web crawlers are computer programs that crawl through the internet.</p> <p>To understand what copyright is.</p> <p>To know the difference between ROM and RAM.</p>	<p>To understand the importance of having a secure password and what "brute force hacking" is.</p> <p>To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.</p> <p>To know about some of the historical figures that contributed to technological advances in computing.</p> <p>To understand what techniques are required to create a presentation using appropriate software.</p> <p>To know that AI is artificial intelligence and is used in everyday life.</p> <p>To know that AI is trained on data to</p>



				design features of a piece of online software.	To know that "copy and paste" is a quick way of duplicating text.	<p>To know what a packet is and why it is important for website data transfer.</p> <p>To know the roles that inputs and outputs play on computers.</p> <p>To understand that email stands for 'electronic mail'.</p> <p>To know that an attachment is an extra file added to an email.</p> <p>To understand that emails should contain appropriate and respectful content.</p> <p>To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.</p>			<p>recognise patterns and generate outputs.</p> <p>To know that AI can be used to generate written content.</p> <p>To know that AI can be used to create visual content like pictures.</p> <p>To know that AI can help generate basic HTML code to create the structure and layout of a website.</p> <p>To know that there are ethical issues surrounding AI, including data privacy, bias and responsible use.</p>
	Programming	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				<p>To understand that an algorithm is when instructions are put in an exact order.</p> <p>To know that input devices get information into a</p>	<p>To understand what machine learning is and how that enables computers to make predictions.</p>	<p>To know that Scratch is a programming language and some of its basic functions.</p> <p>To understand how to use loops to</p>	<p>To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch.</p>	<p>To know that a soundtrack is music for a film/video and that one way of composing these is on programming software.</p>	<p>To know that there are text-based programming languages such as Logo and Python.</p>



				<p>computer and that output devices get information out of a computer.</p> <p>To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing.</p> <p>To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.</p> <p>To understand the basic functions of a Bee-Bot.</p> <p>To know that you can use a camera/tablet to make simple videos.</p> <p>To know that algorithms move a bee-bot accurately to a chosen destination.</p>	<p>To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times.</p> <p>To know that abstraction is the removing of unnecessary detail to help solve a problem.</p> <p>To know that coding is writing in a special language so that the computer understands what to do.</p> <p>To understand that the character in Scratch Jr is controlled by the programming blocks.</p> <p>To know that you can write a program to create a musical instrument or tell a joke.</p> <p>To know that programming a computer or device involves giving it instructions to</p>	<p>improve programming.</p> <p>To understand how decomposition is used in programming.</p> <p>To understand that you can remix and adapt existing code.</p>	<p>To know what a conditional statement is in programming.</p> <p>To understand that variables can help you to create a quiz on Scratch.</p> <p>To know that combining computational thinking skills (sequence, abstraction, decomposition etc) can help you to solve a problem.</p> <p>To understand that pattern recognition means identifying patterns to help them work out how the code works.</p> <p>To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.</p> <p>To know 'decomposition' is the process of breaking down a task or problem into smaller parts.</p> <p>To know breaking down a problem into</p>	<p>To understand that using loops can make the process of writing music simpler and more effective.</p> <p>To know how to adapt their code while performing their music.</p> <p>To know that a Micro:bit is a programmable device.</p> <p>To know that Micro:bit uses a block coding language similar to Scratch.</p> <p>To understand and recognise coding structures including variables.</p> <p>To know what techniques to use to create a program for a specific purpose (including decomposition).</p> <p>To know that Programmers often save time when creating code by taking code from one program and turning it into another.</p> <p>To know that nested loops are loops within loops.</p>	<p>To know that nested loops are loops inside of loops.</p> <p>To understand the use of random numbers and remix Python code.</p>
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				<p>perform specific tasks.</p> <p>To know that video games, phones, websites and apps are all created using programming.</p> <p>To know that different devices and programs use different programming languages or 'codes'.</p> <p>To know that an algorithm becomes a program when it is coded.</p> <p>To know that programs execute the exact instructions they are given, even if they are incorrect.</p> <p>To know that a program is a series of instructions (algorithms) that are written for a computer to follow.</p> <p>To know that a person can program a device by giving it an</p>	<p>smaller parts makes it easier to solve the problem.</p> <p>To know 'abstraction' is identifying the important detail and ignoring irrelevant information.</p> <p>To know loops are used to save time when writing code by reducing repetition.</p> <p>To know a variable is a container or holder for storing information that can change, e.g. numbers or text.</p> <p>To know conditional statements tell the computer what to do next based on a user's input.</p> <p>To know It is important to identify where the mistake is in the programming as part of the debugging process.</p> <p>To know errors in a program could result from sequencing errors, coding errors or missing code.</p>	<p>To know that running a program to identify errors should be done before checking the code.</p> <p>To know that errors in a program could be as a result of forgetting to 'end' a loop.</p> <p>To know that typing and spacing are very important in text-based languages and can cause errors in code if used incorrectly.</p>	
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					<p>algorithm/algorithms to follow.</p> <p>To know that there must be an error if a program does not execute as expected.</p> <p>To know that an error in a computer program is known as a 'bug' and fixing errors is known as 'debugging'.</p>				
	Creating Media	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		To play with a range of materials to learn cause and effect	To play with a range of materials to learn cause and effect	<p>To understand that holding the camera still and considering angles and light are important to take good pictures.</p> <p>To know that you can edit, crop and filter photographs.</p> <p>To know how to search safely for images online.</p>	<p>To understand that an animation is made up of a sequence of photographs.</p> <p>To know that small changes in my frames will create a smoother looking animation.</p> <p>To understand what software creates simple animations and some of its features e.g. onion skinning.</p>	<p>To know that different types of camera shots can make my photos or videos look more effective.</p> <p>To know that I can edit photos and videos using film editing software.</p> <p>To understand that I can add transitions and text to my video.</p>	<p>To know some of the features of web design software.</p> <p>To know that a website is a collection of pages that are all connected.</p> <p>To know that websites usually have a homepage and subpages as well as clickable links to new pages, called hyperlinks.</p> <p>To know that websites should be informative and interactive.</p>	<p>To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph.</p> <p>To know that decomposition of an idea is important when creating stop-motion animations.</p> <p>To know that editing is an important feature of making and improving a stop motion animation.</p>	To know that sound clips can be recorded using sound recording software and that sound clips can be edited and trimmed.



	Data Handling	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				<p>To know how that charts and pictograms can be created using a computer.</p> <p>To understand that a branching database is a way of classifying a group of objects.</p> <p>To know that computers understand different types of 'input'.</p>	<p>To understand that you can enter simple data into a spreadsheet.</p> <p>To understand what steps you need to take to create an algorithm.</p> <p>To know what data to use to answer certain questions.</p> <p>To know that computers can be used to monitor supplies.</p>	<p>To know that a database is a collection of data stored in a logical, structured and orderly manner.</p> <p>To know that computer databases can be useful for sorting and filtering data.</p> <p>To know that different visual representations of data can be made on a computer.</p>	<p>To know that computers can use different forms of input to sense the world around them so that they can record and respond to data. This is called 'sensor data'.</p> <p>To know that a weather machine is an automated machine that responds to sensor data.</p> <p>To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.</p>	<p>To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock.</p> <p>To know what numbers using binary code look like and be able to identify how messages can be sent in this format.</p> <p>To understand that RAM is Random Access Memory and acts as the computer's working memory.</p> <p>To know what simple operations can be used to calculate bit patterns.</p>	<p>To know that data contained within barcodes and QR codes can be used by computers.</p> <p>To know that infrared waves are a way of transmitting data. To know that Radio Frequency Identification (RFID) is a more private way of transmitting data.</p> <p>To know that data is often encrypted so that even if it is stolen it is not useful to the thief.</p> <p>To know that data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'.</p> <p>To know that devices or that are not updated are most vulnerable to hackers. To know the difference between mobile data and WiFi.</p>



	Online Safety	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>To use the internet with adult supervision</p>	<p>To use the internet with adult supervision to find and retrieve information of interest to them</p> <p>To use ICT hardware to interact with age-appropriate computer software</p>	<p>To know that the internet is many devices connected to one another.</p> <p>To know that you should tell a trusted adult if you feel unsafe or worried online.</p> <p>To know that people you do not know on the internet (online) are strangers and are not always who they say they are.</p> <p>To know that to stay safe online it is important to keep personal information safe.</p> <p>To know that 'sharing online' means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.</p>	<p>To understand the difference between online and offline.</p> <p>To understand what information I should not post online.</p> <p>To know what the techniques are for creating a strong password.</p> <p>To know that you should ask permission from others before sharing about them online and that they have the right to say 'no'.</p> <p>To understand that not everything I see or read online is true.</p>	<p>To know that not everything on the internet is true; people share facts, beliefs and opinions online.</p> <p>To understand that the internet can affect your moods and feelings.</p> <p>To know that privacy settings limit who can access your important personal information. Information, such as your name, age, gender etc.</p> <p>To know what social media is and that age restrictions apply.</p>	<p>To understand some of the methods used to encourage people to buy things online.</p> <p>To understand that technology can be designed to act like or impersonate living things.</p> <p>To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology.</p> <p>To understand what behaviours are appropriate in order to stay safe and be respectful online.</p>	<p>To know different ways we can communicate online.</p> <p>To understand how online information can be used to form judgements.</p> <p>To understand some ways to deal with online bullying.</p> <p>To know that apps require permission to access private information and that you can alter the permissions.</p> <p>To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.</p>	<p>To know that a 'digital footprint' means the information that exists on the internet as a result of a person's online activity.</p> <p>To know what steps are required to capture bullying content as evidence.</p> <p>To understand that it is important to manage personal passwords effectively.</p> <p>To understand what it means to have a positive online reputation.</p> <p>To know some common online scams.</p>



Progression in Computing Vocabulary

EYFS	Choices Internet Website	Equipment Buttons Movement	Screen Mouse Images Keyboard Paint	Technology Share Create Internet	Collect Set of photos Count Organise	Purpose Online tools Communicate Instructions Robots Patterns Program
Year 1	Login Password Create Write Paint Tools Name Save Open Retrieve	Data Pictogram Chart Graph Interpret Results Mix	Instructions Robots/Beebots Sprite Program Position Command Predict Algorithm Debug Command	Instructions Program Algorithm Debug Command Predict Create Write Scratch junior	Create Paint Chart Animate eBook Delete Edit Mix Undo Background Template	Photograph Write Text File Folder Font Colour Size Upload Icon Re-open Edit Program Layout
Year 2	Create Write Program Algorithm Debug Predict Outcome Command Tools Photograph Background	Image Image bank Text Retrieve eBook Shared image bank Text Data Chart Tools Software Graph	Algorithms Debug Program Sprite Background Scene Reasoning Predict Command Tools Visual	Image Text PowerPoint Photograph Camera Files Digital Images Paint Upload Present	Create Write Paint Presentation Layout Template Animate Animation Upload Digital image Mix	Data Pictogram Chart Questionnaire Interpret Results Survey Gather Opinions J2VVote
Year 3	Visual Sequence Selection Repetition Input Output Navigate	Drawings Movie clip Presenting Data Information Collect Analyse	Surveys Microsoft forms Interpret Share Analyse Bar charts Pictograms	Showcase Digital Sketchbook Photo composition Lighting Subject Background Edit	Algorithm Debug Logical reasoning Predict Copy Paste Logo	Microsoft excel Interrogate Database Filters Search Screenshot Record



	Algorithm Debug Program Logical reasoning Errors Code	Evaluate PowerPoint Text Images Cloud based server Copyright Creative common Websites Research Media Soundbites	Tables Link Information Collect Analyse Evaluate Feedback	Crop Filters Contrast Record Observe Review Revisit	Code Program Write Design	Field Sort Graph
Year 4	Storyboard Video iMovie Text titles Voiceover Transition Panning Special effects Audience Purpose Import Technology Copyright Audio Edit Sound effects	Fact file Soundscape GarageBand Internet Sound files Import Technology Copyright	Collect Organise Database Interrogate Sort Analyse Search Function Electronic database Data collection sheet Data types: Alphanumeric, Text, Numeric, Currency, Date, Time and Multiple choice Graph Field	Audio book Text Images Sound Audience Purpose Import Video Still image Book Creator Evaluate Copyright	Explain Present Spreadsheets Graphs Formulae Cell reference/address Generate Autofill Cursor Column labels	Animation Program Storyboard Algorithms Debug Script Encode Error Audience Purpose Scratch Sprite Motion menu Event menu Look menu Control menu
Year 5	Common craft video Animation Storyboard Scene Import Visual prop Narration Screenshot Interfaces Edit Frame shot Film Record	Scratch 2 Scratch 3 Coding/code Design Write Debug Delete Rename Resize Selection Direction tools/arrow keys Pen tools Script Variables Sprite	Scratch 2 Scratch 3 Coding/code Design Write Debug Delete Rename Resize Selection Direction tools/arrow keys Pen tools Script Variables Sprite	QR code Text Image Drawings Movie clips Websites YouTube clips Cloud based survey Hyperlinks Resource Scan Prototype Software Soundbites Media	Spreadsheets Formulae Conditional formatting Data validation Pick lists Layout Presentation Variables Predict	PowerPoint Presentation Design Layout Insert Slide Background Font size Transition Bullet points Images Colour Re-order



Year 6	Research Present Information Software Review Summarise Copyright Plagiarism Reference Digital content Digital work Evaluate Repurpose	Game Variables Speed Nest of codes Components Game plan Scratch Design Write Debug Features Errors Script	Storyboard Video Script Sources Content Copyright Creative Commons License	World Wide Web Internet Web browser Web Server Network Retrieve Deliver Search engines Store Binary data Computer virus Hackers Network security Encryption Digital images Pixels Colour Packets Routes Destination	Design Present Text Images Consumer Font Styles Colour Insert Templates Background Feedback Reflect Copyright	Design Present Text Images Consumer Font Styles Colour Insert Templates Background Feedback Reflect Copyright
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