



## Sandy Lane Primary School Computing Curriculum

<b>Mission</b>	<b>Taking PRIDE in all we do</b>					
<b>Values</b>	<b>PRIDE</b>	Positive	Responsible	Inclusive	Determined	Enquiring
	<b>School Rules</b>	Ready	Respectful	Safe		
<b>Curriculum Intent - To Promote the 5 Values and school rules</b>						

### Computing Intent

Our intentions in Computing are for children to:

- Have a **positive** approach to learning about online safety, computer systems and networks, data and information, programming and creating media.
- Take **responsibility** for their own learning and challenge themselves to build up a deep level of knowledge, skills and understanding, as well as taking a mature attitude to online safety..
- Understand how technology can be used in an **inclusive** way to ensure everyone can access and achieve.
- To be **determined** when learning new computing skills, learn from mistakes and de-bug.
- Participate in **enquiring** and exploratory tasks which foster a deeper understanding of a concept and encourage them to apply their learning in different contexts and make connections with other learning experiences.

At Sandy Lane, we strive to ensure pupils are aware of both the risks and benefits of technology so that they can become responsible digital citizens. We recognise that we live in a digital society and follow the Teach Computing curriculum that aims to provide children with



opportunities to locate, investigate, analyse, share and present digital information with increasing confidence. We provide our pupils with the skills they need to consider and use this information in an efficient manner. At Sandy Lane, our curriculum provides regular opportunities for everyone to develop, share and apply their technical knowledge in innovative ways. We hope to engage the potentially disengaged through the use of technology as well as using it to appeal to underachieving learners. By giving our pupils more choice about how they use technology, we aim to inspire each and every learner, whether they are logical thinkers or creative learners. Across both Key Stage One and Key Stage Two, we embed Computing across the whole curriculum to ensure learning is purposeful, engaging and accessible. We prepare our pupils for high school by ensuring they are digitally literate by the time they finish Key Stage Two. By exposing our pupils to a range of technical tools and technology, they leave Sandy Lane with a solid foundation to grow into active participants in our digital world.

### Implementation

At Sandy Lane we follow the Teach Computing curriculum. This is a spiral curriculum where each of the themes are revisited regularly in order to consolidate and build upon prior learning. The core principles of the curriculum is to be inclusive and ambitious, research informed and time-saving for teachers.

Teach Computing tables and progressions - unit summaries.



<b>Big Ideas</b>			
<b>1. Computers (Systems and Networks)</b>	<b>2. Data (and Information)</b>	<b>3. Programming (Creating Software)</b>	<b>4. Algorithms (and Computational Thinking)</b>
Understanding how computers work, how they're connected, and how they form systems that interact with humans and other computers.	Understanding how data is structured, stored, and used helps students make sense of the digital world.	Developing algorithms, coding them, testing, and debugging. Builds computational thinking skills like decomposition and abstraction.	Encouraging logical thinking, problem-solving, and the ability to model and represent problems systematically.
<b>5. Computer Systems (Hardware and Software)</b>	<b>6. Communication and the Internet (Networks)</b>	<b>7. Impact of Technology (Safety and Ethics)</b>	<b>8. Creating Media (Digital Literacy and Content Creation)</b>
Understanding the internal parts of a computer, how they work together, and how software controls hardware.	Understanding network structures, data transmission, the role of protocols, and the concept of the World Wide Web.	Encouraging critical thinking about how computing affects people and society, including issues of privacy, security, and sustainability.	Developing skills to produce and evaluate digital content responsibly and creatively.



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Computing Systems &amp; Networks</b>		<ul style="list-style-type: none"> <li>- Recognise technology in the world around us (e.g., school, home).</li> <li>- Identify and name common uses of information technology.</li> <li>- Understand the purpose of different pieces of technology.</li> <li>- Develop basic skills for using technology (e.g., logging on, using a mouse/touchscreen, opening software).</li> <li>- Consider how to use technology responsibly (basic introduction to online safety).</li> </ul>	<ul style="list-style-type: none"> <li>- Identify examples of information technology beyond school (shops, hospitals, libraries, etc.).</li> <li>- Understand how people use IT in their jobs and everyday life.</li> <li>- Recognise uses of IT for different tasks (e.g., writing, drawing, recording sound).</li> <li>- Develop awareness of how to use IT safely and respectfully.</li> <li>- Begin to consider the impact of technology on society (simple discussions about positives and potential issues).</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that digital devices follow instructions (input–process–output).</li> <li>- Recognise examples of input and output devices.</li> <li>- Learn how computers can be connected to share information.</li> <li>- Explore how digital networks allow devices to communicate.</li> <li>- Begin to understand how messages are sent as data across networks.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that the Internet is a global network of computers.</li> <li>- Learn about network hardware (e.g., routers, switches, servers).</li> <li>- Understand how data travels in packets across networks.</li> <li>- Explore the concept of websites as information stored on the Internet.</li> <li>- Recognise how search engines help people find information.</li> <li>- Discuss the reliability of online information and how to stay safe.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand systems that process and share information (e.g., school networks, online systems).</li> <li>- Learn about the structure of networks, including LANs (Local Area Networks) and WANs (Wide Area Networks).</li> <li>- Explore the roles of different components in a network (e.g., clients, servers).</li> <li>- Understand how information is transferred and shared online (e.g., email, cloud computing).</li> <li>- Discuss the impact of shared information systems on society, including benefits and risks.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand how data is transferred over the Internet (including protocols like TCP/IP).</li> <li>- Explore how services like the World Wide Web, email, and video conferencing rely on networks.</li> <li>- Recognise how search engines index and rank web pages.</li> <li>- Understand concepts of online communication and collaboration, including working on shared documents.</li> <li>- Learn about the importance of secure communication (e.g., encryption, strong passwords).</li> <li>- Evaluate the impact of communication technologies on</li> </ul>



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
							society and the economy (including ethical considerations).
<b>Programming A</b>		<ul style="list-style-type: none"> <li>- Understand what an algorithm is.</li> <li>- Create simple instructions (algorithms).</li> <li>- Program a robot to follow a sequence of instructions.</li> <li>- Predict the outcome of a sequence.</li> <li>- Debug (fix) simple errors in algorithms.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop algorithms for specific tasks.</li> <li>- Translate algorithms into sequences of instructions (programs).</li> <li>- Program a floor robot to complete a task using an algorithm.</li> <li>- Predict the outcome of programs more confidently.</li> <li>- Debug sequences with increasing independence.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand sequences as a series of instructions in a specific order.</li> <li>- Program sequences that control outputs such as sounds or actions.</li> <li>- Create and edit music sequences using programming tools.</li> <li>- Predict, test, and debug sequences that include audio.</li> <li>- Develop more independence in planning and creating sequences.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand what repetition is and why it is useful in programming.</li> <li>- Use loops to repeat sequences of instructions.</li> <li>- Create programs that use loops to draw shapes or repeat actions.</li> <li>- Plan and create algorithms that incorporate repetition.</li> <li>- Debug and refine programs that include loops.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand selection as a decision-making process in programs (if...then...else).</li> <li>- Use selection to control physical devices (e.g., Crumble controller with LEDs or motors).</li> <li>- Create programs that use selection to respond to sensor input.</li> <li>- Plan and design algorithms that include selection structures.</li> <li>- Test and debug programs involving physical computing components.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand variables as a way to store and change data in programs.</li> <li>- Create variables to control elements of a game (e.g., scorekeeping, timer).</li> <li>- Use variables alongside selection and repetition to make complex, interactive programs.</li> <li>- Plan and create algorithms that incorporate variables effectively.</li> <li>- Test and debug programs with multiple variables</li> </ul>



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
							and logical structures.
<b>Programming B</b>		<ul style="list-style-type: none"> <li>- Learn what commands are in a program.</li> <li>- Understand how to sequence commands to make things happen.</li> <li>- Create simple programs to control an on-screen object (Sprite).</li> <li>- Experiment with different sequences to create simple animations.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand what an event is in programming.</li> <li>- Use events to control when actions happen in a program.</li> <li>- Create simple programs that include user input (like key presses).</li> <li>- Design and create a simple quiz that uses sequences and events.</li> <li>- Begin to evaluate and improve your own programs.</li> </ul>	<ul style="list-style-type: none"> <li>- Recognise how events trigger actions in a program.</li> <li>- Create programs where events (like button presses) cause different actions.</li> <li>- Develop an interactive program using event-driven programming.</li> <li>- Understand the difference between sequences and event-driven actions.</li> <li>- Debug programs that rely on user interaction.</li> </ul>	<ul style="list-style-type: none"> <li>- Explore how loops can control the flow of a game (repetition).</li> <li>- Create games that use repetition to make objects move or react.</li> <li>- Develop an understanding of how infinite loops and count-controlled loops work.</li> <li>- Program simple interactive games that use repetition effectively.</li> <li>- Debug and evaluate games with loops to improve them.</li> </ul>	<ul style="list-style-type: none"> <li>- Build on knowledge of selection to create quizzes that react to user input.</li> <li>- Use conditional statements to program multiple outcomes (e.g., right/wrong answers).</li> <li>- Design and code a multiple-choice quiz with scoring functionality.</li> <li>- Debug programs that use selection to ensure accuracy.</li> <li>- Evaluate the effectiveness and usability of interactive quizzes.</li> </ul>	<ul style="list-style-type: none"> <li>- Use input and output devices with a microcontroller (Micro:bit).</li> <li>- Create programs that use data from sensors to trigger actions (sensing and responding).</li> <li>- Use selection and variables to make decisions based on sensor input.</li> <li>- Program physical computing projects that sense and respond to changes in the environment (e.g., step counters, alarms).</li> <li>- Debug and refine programs that integrate sensors, selection, and variables.</li> </ul>



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Creating Media A</b>		<ul style="list-style-type: none"> <li>- Recognise the differences between painting on paper and digitally.</li> <li>- Explore digital tools to create art (e.g., using a paint app).</li> <li>- Use shape, line, and colour tools to create simple pictures.</li> <li>- Make choices about which tools to use for different purposes.</li> <li>- Save, retrieve, and edit digital artwork.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand the basics of taking photographs with a digital device.</li> <li>- Explore how to frame a subject and take clear photos.</li> <li>- Review and evaluate photographs, considering improvements.</li> <li>- Use simple editing tools (crop, rotate, adjust brightness).</li> <li>- Understand that digital images can be shared responsibly.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand the purpose of desktop publishing (creating documents for a specific audience).</li> <li>- Combine text and images to create an effective layout.</li> <li>- Use templates to structure work and arrange content effectively.</li> <li>- Modify images (resize, rotate) and text formatting to improve design.</li> <li>- Evaluate how design choices affect the impact of a document.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that digital images can be manipulated.</li> <li>- Explore tools to crop, rotate, and adjust images.</li> <li>- Apply effects and filters to enhance photos.</li> <li>- Combine multiple images to create a composite picture.</li> <li>- Consider ethical issues when editing images (e.g., misinformation).</li> <li>- Save and export edited work in different file formats.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that vector drawings are made from shapes, not pixels.</li> <li>- Use vector tools to create and manipulate objects (e.g., layering, grouping).</li> <li>- Combine shapes to create complex vector graphics.</li> <li>- Edit drawings efficiently (duplicate, rotate, resize).</li> <li>- Evaluate the effectiveness of a vector image for different purposes (e.g., logos, posters).</li> <li>- Export work in different formats.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand the purpose and structure of web pages (content, layout, navigation).</li> <li>- Plan a simple website based on a specific audience or purpose.</li> <li>- Create web pages using a digital editor (adding text, images, and hyperlinks).</li> <li>- Evaluate the effectiveness of layout, design, and navigation.</li> <li>- Consider copyright when using images and text.</li> <li>- Review and improve the website based on feedback.</li> </ul>



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Creating Media B</b>		<ul style="list-style-type: none"> <li>- Use technology to create, edit, and format text.</li> <li>- Recognise the difference between using a keyboard and handwriting.</li> <li>- Use basic word processing tools (typing, spacebar, backspace, etc.).</li> <li>- Change text appearance (e.g., font size, colour).</li> <li>- Save and retrieve digital work</li> </ul>	<ul style="list-style-type: none"> <li>- Use digital tools to create and sequence musical patterns.</li> <li>- Understand how music can express feelings and ideas.</li> <li>- Combine sounds to create simple compositions.</li> <li>- Playback and edit digital music.</li> <li>- Evaluate musical pieces and consider improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that animation is a sequence of images shown quickly to create movement.</li> <li>- Plan and create a storyboard for an animation project.</li> <li>- Capture images using digital devices (e.g., tablets, cameras).</li> <li>- Use software to create a stop-frame animation.</li> <li>- Edit frames and add simple effects or sound.</li> <li>- Evaluate and improve the animation.</li> </ul>	<ul style="list-style-type: none"> <li>- Use digital tools to record and edit audio clips.</li> <li>- Trim, arrange, and combine audio recordings.</li> <li>- Add sound effects and background music to enhance audio.</li> <li>- Create a simple podcast or audio story.</li> <li>- Evaluate the clarity and quality of recordings.</li> <li>- Consider copyright and responsible use of sound files.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand the process of creating a video project (planning, filming, editing).</li> <li>- Plan a video with a storyboard and script.</li> <li>- Record high-quality video clips with attention to framing and focus.</li> <li>- Use editing software to arrange clips, add transitions, text, and sound.</li> <li>- Evaluate the impact of editing choices on the final product.</li> <li>- Export and share videos responsibly.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that 3D models are computer-generated representations of objects.</li> <li>- Use digital tools to create and manipulate 3D objects (resize, rotate, align).</li> <li>- Combine objects to create complex 3D structures.</li> <li>- Evaluate 3D models for accuracy and purpose (e.g., prototypes, designs).</li> <li>- Export 3D models in different file formats.</li> <li>- Consider real-world uses of</li> </ul>



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							3D modelling (e.g., architecture, game design).
<b>Data &amp; Information</b>		<ul style="list-style-type: none"> <li>- Understand what data is (information we can collect and sort).</li> <li>- Sort objects into groups based on physical properties (e.g., colour, size).</li> <li>- Label groups to explain how data has been organised.</li> <li>- Answer simple questions about groups of objects.</li> <li>- Begin to understand why we group data (to make sense of information).</li> </ul>	<ul style="list-style-type: none"> <li>- Recognise that data can be represented in different ways.</li> <li>- Collect data in tally charts and transfer it to pictograms.</li> <li>- Create pictograms using digital tools.</li> <li>- Interpret simple pictograms to answer questions (e.g., which has the most/least?).</li> <li>- Discuss how data representation helps us understand information quickly.</li> <li>- Begin to make comparisons between different data sets.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand what a branching database is and how it organises data.</li> <li>- Create simple "yes/no" questions to classify objects or data.</li> <li>- Use branching databases to sort information effectively.</li> <li>- Plan and design a branching database to classify groups of items.</li> <li>- Test and improve classification questions to make data sorting more accurate.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that computers can automatically collect data using sensors.</li> <li>- Use data loggers to record information (e.g., sound, light, temperature).</li> <li>- Recognise how data logging is used in real-life scenarios (e.g., weather stations, sports science).</li> <li>- Review and analyse data collected over time.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand what a flat-file database is (a simple table structure for storing information).</li> <li>- Explore records, fields, and data types (text, number, date).</li> <li>- Use database software to search for and sort data efficiently.</li> <li>- Apply filters and queries to find specific information from a large dataset.</li> <li>- Interpret and draw conclusions from the data found.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand that spreadsheets store data in cells, organised into rows and columns.</li> <li>- Use formulas to perform basic calculations (addition, subtraction, multiplication, division).</li> <li>- Apply functions (SUM, AVERAGE, MIN, MAX) to process large amounts of data quickly.</li> <li>- Create and format charts/graphs (bar, pie, line) to</li> </ul>



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				<ul style="list-style-type: none"><li>- Evaluate the usefulness of a branching database.</li></ul>	<ul style="list-style-type: none"><li>- Present data in charts or graphs to draw conclusions.</li><li>- Understand the importance of accurate data collection and what can affect it.</li></ul>	<ul style="list-style-type: none"><li>- Design a flat-file database structure and enter data accurately.</li></ul>	<ul style="list-style-type: none"><li>present findings visually.</li><li>- Explore "what if" scenarios by changing data and observing effects.</li><li>- Evaluate how spreadsheets are used to make data-driven decisions in real life (e.g., budgeting, statistics).</li></ul>



## Unit summaries

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	<p><b>Technology around us</b></p> <p>Recognising technology in school and using it responsibly.</p>	<p><b>Digital painting</b></p> <p>Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.</p>	<p><b>Moving a robot</b></p> <p>Writing short algorithms and programs for floor robots, and predicting program outcomes.</p>	<p><b>Grouping data</b></p> <p>Exploring object labels, then using them to sort and group objects by properties.</p>	<p><b>Digital writing</b></p> <p>Using a computer to create and format text, before comparing to writing non-digitally.</p>	<p><b>Programming animations</b></p> <p>Designing and programming the movement of a character on screen to tell stories.</p>
Year 2	<p><b>Information technology around us</b></p> <p>Identifying IT and how its responsible use improves our world in school and beyond.</p>	<p><b>Digital photography</b></p> <p>Capturing and changing digital photographs for different purposes.</p>	<p><b>Robot algorithms</b></p> <p>Creating and debugging programs, and using logical reasoning to make predictions.</p>	<p><b>Pictograms</b></p> <p>Collecting data in tally charts and using attributes to organise and present data on a computer.</p>	<p><b>Digital music</b></p> <p>Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p>	<p><b>Programming quizzes</b></p> <p>Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p>



	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 3	<p><b>Connecting computers</b> Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks</p>	<p><b>Stop-frame animation</b> Capturing and editing digital still images to produce a stop frame animation that tells a story</p>	<p><b>Sequencing sounds</b> Creating sequences in a block-based programming language to make music.</p>	<p><b>Branching databases</b> Building and using branching databases to group objects using yes/no questions.</p>	<p><b>Desktop publishing</b> Creating documents and modifying text, images and page layouts for a specific purpose.</p>	<p><b>Events and actions in programs</b> Writing algorithms and programs that use a range of events to trigger sequences of actions.</p>
Year 4	<p><b>The internet</b> Recognising that the internet is a network of networks including the WWW, and why we should evaluate online content.</p>	<p><b>Audio production</b> Capturing and editing audio to produce a podcast, ensuring that copyright is considered.</p>	<p><b>Repetition in shapes</b> Using a text-based programming language to explore count-controlled loops when drawing shapes.</p>	<p><b>Data logging</b> Recognising how and why data is collected over time, before using data loggers to carry out an investigation,</p>	<p><b>Photo editing</b> Manipulating digital images, and reflecting on the impact of the changes and whether the required purpose is fulfilled,</p>	<p><b>Repetition in games</b> Using a block-based programming language to explore count-controlled and infinite loops when creating a game.</p>



	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 5	<p><b>Systems and searching</b> Recognising IT systems in the world and how some can enable searching on the internet.</p>	<p><b>Video production</b> Planning, capturing, and editing video to produce a short film.</p>	<p><b>Selection in physical computing</b> Exploring conditions and selection using a programmable microcontroller.</p>	<p><b>Flat-file databases</b> Using a database to order data and create charts to answer questions.</p>	<p><b>Introduction to vector graphics</b> Creating images in a drawing program by using layers and groups of objects.</p>	<p><b>Selection in quizzes</b> Exploring selection in programming to design and code an interactive quiz.</p>
Year 6	<p><b>Communication and collaboration</b> Exploring how data is transferred by working collaboratively online.</p>	<p><b>Webpage creation</b> Designing and creating webpages, giving consideration to copyright, aesthetics and navigation.</p>	<p><b>Variables in games</b> Exploring variables when designing and coding a game.</p>	<p><b>Introduction to spreadsheets</b> Answering questions by using spreadsheets to organise and calculate data.</p>	<p><b>3D modelling</b> Planning, developing, and evaluation 3D computer models of physical objects.</p>	<p><b>Sensing movement</b> Designing and coding a project that captures inputs from physical devices.</p>

