Computing Curriculum Overview

	Term 1	Term 2		Term 3	
EYFS	**What is a Computer? Key Skills**	**Presenting Information & Multimedia**	**Data**	**Programming & Algorithms**	**Digital Literacy**
	- Use different digital devices. - Recognise that you can access content on a digital device. - Use a mouse, touchscreen or appropriate access device to target and select options on screen. - Recognise a selection of digital devices. - Recognise the basic parts of a computer, e.g. mouse, screen, and keyboard. - Select a digital device to fulfil a specific task, e.g. to take a photo.	- Use technology to explore and access digital content. - Operate a digital device with support to fulfil a task. - Create simple digital content, e.g. digital art. - Choose media to convey information, e.g. image for poster.	- Access content in a range of formats, e.g. image, video, audio. - Answer basic questions about information displayed in images e.g. more or less.	- Explore technology. - Repeat an action with technology to trigger a specific outcome. - Recognise the success or failure of an action. - Follow simple instructions to control a digital device. - Recognise that we control computers. - Input a short sequence of instructions to control a device.	- Are aware that some online content is inappropriate. - Are aware that information can be public or private. - Know to tell an appropriate adult if they see something on the computer that upsets them.
Year 1	**Technology around us** • Recognising technology in school and using it responsibly. **Digital painting** • Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.	**Moving a robot** • Writing short algorithms and programs for floor robots, and predicting program outcomes. **Grouping data** • Exploring object labels, then using them to sort and group objects by properties.		**Digital writing** • Using a computer to create and format text, before comparing to writing non-digitally. **Programming animations** • Designing and programming the movement of a character on screen to tell stories.	
Year 2	**Pictograms** • Collecting data in tally charts and using attributes to organise and present data on a computer. **Information technology around us** • Identifying IT and how its responsible use improves our world in school and beyond.	**Robot algorithms** • Creating and debugging programs, and using logical reasoning to make predictions. **Digital music** • Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.		**Programming quizzes** • Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz. **Digital photography** • Capturing and changing digital photographs for different purposes.	
Year 3	**Sequencing sounds** • Creating sequences in a block-based programming language to make music. **Branching databases** • Building and using branching databases to group objects using yes/no questions.	**Connecting computers** • Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks. **Desktop publishing**		**Stop-frame animation** • Capturing and editing digital still images to produce a stop-frame animation that tells a story. **Events and actions in programs**	

		• Creating documents by modifying text, images, and page layouts for a specified purpose.	• Writing algorithms and programs that use a range of events to trigger sequences of actions.
Year 4	**The internet** • Recognising the internet as a network of networks including the WWW, and why we should evaluate online content. **Repetition in shapes** **Using a text-based programming language to explore count-controlled loops when drawing shapes.**	**Data logging** • Recognising how and why data is collected over time, before using data loggers to carry out an investigation. **Audio production** • Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**Repetition in games** • Using a block-based programming language to explore count-controlled and infinite loops when creating a game. **Photo editing** • Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.
Year 5	**Flat-file databases** • Using a database to order data and create charts to answer questions. **Introduction to vector graphics** • Creating images in a drawing program by using layers and groups of objects.	**Selection in physical computing** • Exploring conditions and selection using a programmable microcontroller. **Systems and searching** • Recognising IT systems in the world and how some can enable searching on the internet.	**Video production** • Planning, capturing, and editing video to produce a short film. **Selection in quizzes** • Exploring selection in programming to design and code an interactive quiz.
Year 6	**Variables in games** • Exploring variables when designing and coding a game. **Introduction to spreadsheets** • Answering questions by using spreadsheets to organise and calculate data.	**Webpage creation** • Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation. **Communication and collaboration** • Exploring how data is transferred by working collaboratively online.	**3D modelling** • Planning, developing, and evaluating 3D computer models of physical objects. **Sensing movement** • Designing and coding a project that captures inputs from a physical device.
Year 7	**Using the Internet and E-safety** • G Suite/MS Teams • Using the Internet • Social Media **Computer Systems** • Hardware and software • Input and Output devices	**Data Representation** • Binary and Denary • Images • ASCII **Spreadsheets** • Autofill • Cells and equations • Functions	**Programming (Scratch)** • Variables and movement • Collision detection • Events **Programming (Python I)** • Input and Output • Variables • Selection (making choices)

Year 8	**Data Representation II** • Binary, Denary and Hex • Character Sets **Flowol** • Algorithms and flowcharts • Use of control structures	**Cyber Security** • E-safety and Social Media • Cyber security threats • Protection methods **Mobile App Development** • Events • Variables • Selection	**Spreadsheets** • Advanced functions • Simulate a "business" **Programming (Python II)** • Variables • Selection • Iteration (for loops)
Year 9	**Computer Networks** • Connectivity • Wired vs Wireless **Algorithms** • Flowcharts • Pseudocode • Trace tables	**Computer Systems** • The CPU • Main memory • Secondary memory **Data Representation** • Number bases and arithmetic • Images • Sound	**Python Programming** • Selection and Iteration • Data structures **End of Year 9 Project** • Simulate real world problem
Year 10	• Input and Output in Algorithms • Data Structures (Arrays) • Hardware • Binary numbers	• CPU: Fetch Decode Execute cycle • Performance factors of CPU • Image representation • Operating system functions • High- and Low-level programming	• Comparing algorithms • Sort algorithms • Search algorithm • String handling • Subroutines • Sound representation • Hexadecimal numbers • Data compression algorithms
Year 11	• Making programs robust • Validating input • Input and Output from files • Records • Cloud storage • Network topologies • Network protocols and layers	• Relational databases • SQL • Network threats • Cyber security • Ethical, moral, and environmental impacts	Revision