

Year 8 Computing Curriculum Overview

Year 8		Autumn 1 (7/8 weeks)	Autumn 2 (7 weeks)	Spring 1 (6 weeks)	Spring 2 (5/6 weeks)	Summer 1 (5/6 weeks)	Summer 2 (7 weeks)
	Course topic	Computational Thinking Computer Graphics Legislation		Computer Crime Cyber Security Encryption		Binary Representation	
	Additional support links:	• What is computational thinking? BBC Bitesize • Computational thinking • Graphics software BBC Bitesize		• Cyber security BBC Bitesize • Introduction of cybersecurity		• The creation of binary • How computers see the world - Binary	
	Powerful/ Core Knowledge	• Computational abstraction is a model that includes sufficient information to represent the computational aspects of a situation without describing everything • An algorithm is a precise method for solving a given problem can be expressed as flowcharts - <i>completing & creating flowchart algorithms</i>. • Decomposition Computer Graphics • The difference between vector and bitmap images, including file size, scaling, file format features and typical uses • Use editing tools to edit and manipulate images including free hand draw, rotate, flip, crop, group/ungroup, resize, use filters, invert colours, layering		• Explain what malware is and give some examples of how it operates and what the impact could be on a device or user (e.g. viruses, trojans, ransomware) • Identify commercial content and scams (e.g. pop-ups, spam) and can discuss simple strategies to manage such content (e.g. pop-up blockers, junk folders, unsubscribing). • Explain strategies to reduce potential risks including encryption, anti-virus, firewalls		Understand how computers store data. • Units of storage (bit → PB) • Binary conversions (DEN- BIN/BIN- DEN) • Representation of characters (ASCII/Unicode), images, sounds • Logic gates (AND/OR/NOT) Be able to think algorithmically. Be able to understand decomposition and abstraction. Be able to convert binary.	

	- Create and modify graphic images to meet user requirements - Ownership of images, copyright, copyright free, <i>creative commons</i> and gaining permissions Key people could include: Danielle Bunten Noel Berry Matt Thorson David Gaider Muhammad ibn Mūsā al'Khawārizmī – Algorithms Satoshi Tajiri – Pokémon (Asperger's Syndrome, combined his childhood love of collecting insects with his love of video games and skill at electronics and computer science to create the biggest money-making media franchise of all time.)	- Understand the consequences of computer misuse. - Know and apply computing legislation – CMA - Piracy - Identify the potential consequences of illegal access or downloading and how it may impact me and my immediate peers Key people could include: Alan Turing – Ciphers Shafi Goldwasser – zero proofs	Be able to convert between hexadecimal and denary. Be able to add 2 8-bit numbers. Write an accurate, efficient algorithm without assistance for any given problem. To be able to understand the ASCII character set. Be able to convert ASCII code. Be able to recognise how images are stored in computer systems. Key people and stories could include: Barbara Liskov Louis Braille - a binary representation of characters
Skills: Included here are the specific skills your child will learn	Using abstraction and decomposition to make it easier to solve problems. Laws and legal knowledge that is common across courses. Ability to discuss and apply legal knowledge. KS3 NC: Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems	Students will be able to protect their work and digital devices across the curriculum and life. KS3 NC: understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and	Understanding how computer memory and storage work, enabling students to manage this across their devices. Sequence, selection and iteration. Problem solving skills. Iterative and final testing. KS3 NC: Understand how instructions are stored and executed within a computer system; understand how



		Editing and creating graphics for other subjects and courses. KS3 NC: create, re-use, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	conduct and know how to report concerns	data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.
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