SUBJECT: COMPUTING & DIGITAL MEDIA YEAR 8 OVERVIEW

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic (s)	Data Representation	Programming using Python Turtle	Vector graphics	Computer Systems	Technological Developments – Recovery Curriculum	Developing for the web
Topic Objectives	• understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] • understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits	• Use programming languages, at least one of which is textual, to solve a variety of computational problems; design and develop modular programs that use procedures or functions •	• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users • create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	• understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems • understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming.	• understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching] • understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming	• Create, reuse, revise, and repurpose digital artefacts for a given audience, with attention to trustworthiness, design, and usability. • design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • undertake creative projects that involve selecting, using, and combining multiple applications,

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Acquired Knowledge / Skills

Introduction to Number bases	Problem solving challenge practice	What are vector graphics?	Understand Computer Hardware	Alan Turing & Code Breaking - Encryption	Website Building Blocks
Representing Text	Problem solving international competition	How can vectors be united to form more intricate images	Understand Computer Software	Sir Tim Berners-Lee and the World Wide Web	Images and websites
Representing Sound	Sequences in Python	Using line tools in additional to shapes	Understanding the role of the CPU	George Boole & Logic Gates	Introduction to CSS
Using Hexadecimal	User inputs and Variables	Vector graphics for a purpose	Understanding the logic operators	Charles Babbage & Ada Lovelace - Algorithms	Searching the web
Representing Images	Selection in Python	Vector vs Bitmap graphics	Learn how computers can be artificially intelligent	Margaret Hamilton & Katherine Johnson - Debugging Code	Advanced searching on the web
Binary Maths	Iteration in python	Using feedback to refine final products			Technology threats
Computational Logic	Problem Solving with Python	Assessing products against success criteria			

Target Vocabulary

Representations	symbols	Sequence	Module	Vector	raster	Computer	System	Encryption	Plain Text	HTML	Elements
communication	storage	Command	Function	bitmap	paths	Device	Program	Decryption	Cipher Text	Tags	CSS
symbols	hex	Iteration	Variables	pixels	rectangle	Software	Instructions	Ciphers	Boolean Logic	Searching	Formatting
characters	encoding	Debug	Comments	ellipse	segment	Data	Hardware	AND NOT OR gates	Searching	Image	attribute
decoding	binary digits	IF statement	While	arc	polygon	Memory Storage	Communication	Sorting	Algorithms	directory	Render
digital systems	decimal numbers	Print	Syntax	star	fill	Input	Output	Hardware	Software	Style	Head
processing		Logical	Condition Controlled	stroke	select			Debugging	HTML	Body	Search Term,
				move	Resize			World Wide Web	Tags	Keywords	Hyperlink
				rotate	duplicate						
				flip	group						
				ungroup	align						
				distribute	union						

		Count Controlled, / String Concatenation / Index	difference / Intersect distribute / object segment / path node / logo illustration / Icon scalable / algorithms	Operating System / Architecture Truth Tables / Logic Operators (AND, NOT, OR), AI / Machine Learning		Crawler / Spider Index query / Ranking Connective / Operator AND OR NOT / quote search Phishing / Cyberbullying Malware / Overshare Virus / Trojan Horse Spyware / Ransomware Worm / Adware
Assessment	Lesson starters, Homework and End of Unit Assessment	Lesson starters, Homework and End of Unit Assessment	Lesson starters, Homework and End of Unit Assessment	Lesson starters, Homework and End of Unit Assessment	Lesson starters, Homework and End of Unit Assessment	Lesson starters, Homework and End of Unit Assessment