

	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	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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,

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 addition 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						

		Count Controlled, Concatenation	String Index	<table border="1"> <tr> <td>difference</td> <td>Intersect</td> </tr> <tr> <td>distribute</td> <td>object</td> </tr> <tr> <td>segment</td> <td>path</td> </tr> <tr> <td>node</td> <td>logo</td> </tr> <tr> <td>illustration</td> <td>Icon</td> </tr> <tr> <td>scalable</td> <td>algorithms</td> </tr> </table>	difference	Intersect	distribute	object	segment	path	node	logo	illustration	Icon	scalable	algorithms	<table border="1"> <tr> <td>Operating System</td> <td>Architecture</td> </tr> <tr> <td>Truth Tables</td> <td>Logic Operators (AND, NOT, OR),</td> </tr> <tr> <td>AI</td> <td>Machine Learning</td> </tr> </table>	Operating System	Architecture	Truth Tables	Logic Operators (AND, NOT, OR),	AI	Machine Learning		<table border="1"> <tr> <td>Crawler</td> <td>Spider</td> </tr> <tr> <td>Index query</td> <td>Ranking</td> </tr> <tr> <td>Connective</td> <td>Operator</td> </tr> <tr> <td>AND OR NOT</td> <td>quote search</td> </tr> <tr> <td>Phishing</td> <td>Cyberbullying</td> </tr> <tr> <td>Malware</td> <td>Overshare</td> </tr> <tr> <td>Virus</td> <td>Trojan Horse</td> </tr> <tr> <td>Spyware</td> <td>Ransomware</td> </tr> <tr> <td>Worm</td> <td>Adware</td> </tr> </table>	Crawler	Spider	Index query	Ranking	Connective	Operator	AND OR NOT	quote search	Phishing	Cyberbullying	Malware	Overshare	Virus	Trojan Horse	Spyware	Ransomware	Worm	Adware
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