



# Curriculum Maps 2024-2025

Work Hard, Be Kind, Have Passion

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## Computing



# Curriculum Intent

Work Hard, Be Kind, Have Passion

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We aim to equip students with the knowledge, skills, and understanding to thrive in an increasingly digital world. Our Computing curriculum fosters computational thinking, problem-solving abilities, and digital literacy across all key stages. We encourage students to become creators of technology, not just consumers, by developing their programming skills and understanding of computer systems.

Our goal is to inspire students to pursue computing with confidence and creativity. We provide a strong foundation in computer science principles, from hardware and software to data representation and algorithms. We also emphasise the importance of online safety, ethical considerations, and the societal impact of technology.

Through a blend of theoretical knowledge and practical application, we prepare our students for further education and careers in computing and related fields. We strive to develop resilient, analytical thinkers who can adapt to rapidly evolving technologies and contribute meaningfully to the digital landscape.

# HGSS Curriculum Map

## Year 7 Computing



<b>Exam board: N/A</b>		<b>Careers: Junior web developer, IT support technician, digital content creator</b>	<b>Co-Curricular: Code Club, Digital Leaders programme, Robotics workshops</b>	<b>Sequencing: Builds foundational knowledge for GCSE Computer Science</b>
	<b>Rotation 1</b>	<b>Rotation 2</b>		
<b>Content</b>	Understanding computer hardware	Introduction to block-based programming		
<b>Skills:</b>	Students will understand the basic principles of computer systems and computer architecture. You will explore some of the theory of the input-process-output sequence and the Fetch-Decode-Execute cycle.	Students will be introduced to the idea of computer programs requiring a precise series of statements. They will explore creating simple algorithms, sequential programming and the basic programming constructs.		

# HGSS Curriculum Map

## Year 8 Computing



Exam board: N/A		Careers: Junior web developer, IT support technician, digital content creator	Co-Curricular: Code Club, Digital Leaders programme, Robotics workshops	Sequencing: Builds foundational knowledge for GCSE Computer Science
	<b>Rotation 1</b>	<b>Rotation 2</b>		
<b>Content</b>	Binary system and data representation	Computational thinking using Flowgorithm		
<b>Skills:</b>	Students will be introduced to simple binary and denary conversion and vice versa, and learn how text characters are represented using the ASCII code. This will be followed by some simple binary addition. They will also learn more in depth how binary is used to represent shades and colours of images.	Students will understand what a problem is and be able design, use and evaluate flowcharts as algorithms that model the state and behaviour of real world problems. They will be using a flowchart modelling software called Flowgorithm.		

# HGSS Curriculum Map

## Year 9 Computing



<b>Exam board: N/A</b>		<b>Careers: Junior web developer, IT support technician, digital content creator</b>	<b>Co-Curricular: Code Club, Digital Leaders programme, Robotics workshops</b>	<b>Sequencing: Builds foundational knowledge for IT and GCSE Computer Science</b>
	<b>Rotation 1</b>	<b>Rotation 2</b>		
<b>Content</b>	History of computing and technological pioneers	Text-based programming with Python		
<b>Skills</b>	This unit introduces students to the amazing work of pioneer Computer Scientists . They will study their important work in shaping computer science as it is today and explore snippets of their contribution to data encryption, HTML website design, Boolean logic gates and problem solving using basic sorting algorithms.	Students will be introduced to Python, a powerful but easy-to-use textual programming language. They will understand the process of developing programs, the importance of writing correct syntax and being able to formulate algorithms for simple programs and debugging your programs.		

# HGSS Curriculum Map

## Year 10 Computing



<b>Exam board: N/A</b>		<b>Careers: Junior web developer, IT support technician, digital content creator</b>	<b>Co-Curricular: Code Club, Digital Leaders programme, Robotics workshops</b>	<b>Sequencing: Develop transferable digital skills for future studies and careers</b>
	<b>Rotation 1</b>	<b>Rotation 2</b>		
<b>Content</b>	Rotation 1 - Digital literacy & Ms 365 Skills for Academic Success	Web development basics with HTML and CSS		
<b>Skills</b>	Students will develop digital literacy skills, including ethical content creation, effective online research, and proficiency in Microsoft 365 applications for academic purposes. They will master document creation, presentation design, and digital storytelling, whilst improving time management using digital tools.	Students will develop their knowledge of HTML to create websites then format and improve its appearance using CSS. They will develop their understanding of the different tags and their purposes and use the correct syntax to create websites.		



# HGSS Curriculum Map

## Year 11 Computing



<b>Exam board: N/A</b>		<b>Careers: Junior web developer, IT support technician, digital content creator</b>	<b>Co-Curricular: Code Club, Digital Leaders programme, Robotics workshops</b>	<b>Sequencing: Develop transferable digital skills for future studies and careers</b>
	<b>Rotation 1</b>	<b>Rotation 2</b>		
<b>Content</b>	Digital citizenship and online safety	Data handling with spreadsheets		
<b>Skills</b>	Students will explore digital citizenship, analysing digital media's impact on cognition and well-being. They will learn to manage digital footprints, understand online behaviour, evaluate digital monetisation, and develop healthy social media habits.	The overall intention for this unit is to provide an opportunity for students to acquire/recall knowledge and understanding of what spreadsheets are and how they are used. They will understand hypotheses. They will learn how set up and format a spreadsheet to manipulate and analyse the data you collect to test a hypothesis. They will use formulae, functions, graphs and charts to help you present results from which conclusions can be drawn.		

# HGSS Curriculum Map

## Year 10 Computer Science



Exam Board: OCR		Careers: Software developer, systems analyst, cybersecurity specialist			Co-Curricular: Coding club, Cyber Discovery program		Sequencing: Builds on KS3 computing knowledge and develops fundamental skills for KS5 computing	
	Autumn 1	Autumn 2	Spring 1	AP1	Spring 2	Summer 1	Summer 2	AP2
<b>Content</b>	Boolean logic; Data storage - Numbers	Algorithms design and refinement	Programming fundamentals	In-class assessment. Mix of short- answer questions, practical coding tasks, and problem- solving exercises.	Data storage - Characters, images, sound	Computer architecture; CPU performance	Networks and topologies	End-of-year assessment on computer Combination of written exam- style questions and writing algorithms.
<b>Skills:</b>	Logic gate analysis; Number base conversions	Flowchart creation; Pseudocode writing	Data types; Basic programming constructs		Binary representation of various data types	Understanding computer components; Performance analysis	Network design; Protocol understanding	



# HGSS Curriculum Map

## Year 11 Computer Science



Exam Board: OCR		Careers: Network engineer, data analyst, AI/machine learning specialist			Co-Curricular: Robotics team, App development projects		Sequencing: Builds on Year 10 content and develops fundamental skills for KS5 computing	
	Autumn 1	Autumn 2	Spring 1	AP1	Spring 2	Summer 1	Summer 2	AP2
<b>Content</b>	Data storage (continued); Compression	Networks and cyber security	Operating systems; Utility software	Mock GCSE exam covering all topics from Year 10 and the first term of Year 11. Includes both theoretical questions and practical programming problems.	Ethical, legal, and environmental impacts	Revision and exam preparation	GCSE exams	Final GCSE preparation. Complete mock exams for both Paper 1 (Computer Systems) and Paper 2 (Computational Thinking, Algorithms and Programming).
<b>Skills:</b>	Advanced data representation; Compression techniques	Network vulnerabilities; Security measures	OS functions; Software management		Tech ethics; Legislation understanding	Exam techniques; Problem-solving skills	Application of knowledge	

# HGSS Curriculum Map

## Year 12 Computing



Exam Board: Pearson BTEC		Careers: IT consultant, database administrator, web developer		Co-Curricular: Hackathons, Industry visits		Sequencing: Builds on GCSE Computer Science or provides foundation for new students	
Autumn 1	Autumn 2	Spring 1	AP1	Spring 2	Summer 1	Summer 2	AP2
Principles of Computer Science: Decomposition, pattern recognition	Algorithm design; Pseudocode and flowcharts	Data handling; Control structures	In-class assessments on Principles of Computer Science and IT Systems Security.	IT Systems Security: Threat types; Network-based threats	Cryptography principles; Physical security	Fundamentals of Computer Systems: Hardware and software	End-of-year assessment covering all Year 12 topics. Includes a mock exam for the external assessment and evaluation of coursework progress for internally assessed units.
Computational thinking; Problem analysis	Algorithm development; Diagrammatic representation	Programming techniques; Logical thinking	Combination of written exam-style questions and practical tasks in algorithm design and security implementation.	Threat identification; Security analysis	Encryption techniques; Security implementation	eSystem architecture understanding	

# HGSS Curriculum Map

## Year 13 Computing



Exam Board: Pearson BTEC			Careers: Systems architect, cloud computing specialist, IT project manager		Co-Curricular: Tech start-up simulation, Advanced coding projects		Sequencing: Builds on Year 12 content	
	Autumn 1	Autumn 2	Spring 1	AP1	Spring 2	Summer 1	Summer 2	AP2
<b>Content</b>	Computer architecture; Data processing	Number systems; Data structures	Computer Games Development: Game design processes	Mock exam for externally assessed units. Progress review of coursework units, including systems analysis and game design documentation.	Game development; Testing and reviewing	Skills, knowledge, and behaviours in computing	Project work and final assessments	Final preparations for external exams. Submission and internal moderation of all coursework units, including the game development project.
<b>Skills:</b>	Advanced system understanding; Data manipulation	Binary/hexadecimal conversions; Abstract data types	Game planning; Design documentation		Programming for games; Quality assurance	Professional practice; Industry awareness	Project management; Portfolio building	