Mulberry Academy Woodside
Computer Science KS3
Curriculum Overview 2025 – 2026

At Mulberry Academy Woodside, the Computer Science curriculum is driven by ambition and the pursuit of academic excellence for all students. We are committed to delivering a challenging, inclusive, and knowledge-rich curriculum that equips students with the computational thinking, technical knowledge, and problem-solving skills needed to succeed in an increasingly digital world.

Our curriculum empowers all students, regardless of starting point, to understand how digital systems work, to think logically and creatively, and to apply their knowledge through purposeful programming and digital projects. Through regular reflection, evaluation, and refinement of their work, students build resilience, precision, and confidence, enabling them to achieve their full potential both within Computer Science and beyond.

	AUTUMN TERM		SPRING TERM		SUMMER TERM	
	TERM 1A	TERM 1B	TERM 2A	TERM 2B	TERM 3A	TERM 3B
Year 7 Overview	**Digital Literacy** Students develop the skills needed to use digital tools confidently and effectively. They learn how to create, manage, and evaluate digital content, use online tools for communication and collaboration, and assess the reliability of	**E-Safety** Students learn how to use technology safely, responsibly, and respectfully. They explore topics such as online privacy, digital footprints, cyberbullying, scams, and appropriate online behaviour, and develop strategies for	**Data representation** In this unit, students learn how computers represent data using binary (0s and 1s). They explore how images are built from pixels, how resolution and colour depth affect image quality and file size, and how colours are represented using RGB	**Hardware and software** Students learn to identify common hardware components such as input, output, and storage devices, and explore different types of software, including operating systems and	**Scratch** Students learn the fundamentals of programming by creating animations, stories, and simple games using Scratch. They explore key concepts such as sequencing, loops, events, and selection, while developing	**Kodu 3D Gaming** Students learn to design and build simple 3D games using Kodu, creating game worlds, characters, and rules. They develop skills in algorithms, logical reasoning, and creativity while learning how player

	information they find online, helping them become informed, responsible, and independent digital users.	staying safe online, protecting personal information, and knowing how and where to seek help if concerns arise.	values. Students apply this understanding by creating and editing digital images, developing a clear understanding of how visual data is stored, processed, and manipulated by computers.	applications. They develop an understanding of how hardware and software work together to perform tasks on a computer.	problem-solving and logical thinking skills.	input and game mechanics control gameplay.
Year 8 Overview	**Intro to Python** Students learn the fundamentals of programming using Python, including writing simple programs with variables, inputs, and outputs. They explore core concepts such as data types, selection using if statements, and repetition using loops, developing logical thinking and problem-solving skills through practical coding tasks.	**Networking** Students learn what computer networks are and how devices communicate with each other using agreed rules called protocols. They explore key networking hardware such as routers, switches, servers, and cables, compare wired and wireless networks, and develop an understanding of bandwidth and how network choices affect performance and everyday internet use.	**Network and Cyber Security** In this unit, students learn how data is created, collected, and protected online, and why it is valuable to organisations and cybercriminals. They explore common cybersecurity threats such as social engineering, phishing, malware, and malicious bots, and understand how human behaviour can increase security risks. Students also learn about laws such as the Data Protection Act and develop strategies to help keep personal data and digital systems secure.	**Algorithm and Computational Thinking** In this unit, students develop computational thinking skills by learning how to break problems into manageable parts and design clear solutions. They learn to create and compare algorithms, use decomposition to break tasks into smaller steps, apply abstraction to focus on relevant information, and recognise patterns to improve efficiency. Students also represent algorithms using flowcharts, helping them plan, evaluate, and communicate solutions clearly	**App development** In this unit, students learn what computer networks are and how devices communicate using agreed rules called protocols. They identify key networking hardware such as cables, hubs, servers, and routers, and explore how networks connect to the internet. Students compare wired and wireless networks, understand the concept of bandwidth, and consider the advantages and disadvantages of different network types in real-world situations	**Python and Next steps** In this unit, students learn the foundations of programming using Python. They develop an understanding of algorithms and programs, use variables, inputs, and different data types, and write clear code using correct syntax. Students apply selection with if, elif, and else statements, use Boolean logic to make decisions, and control repetition with while loops, building confidence in solving problems and creating simple, logical programs

Year 9 Overview	Artificial Intelligence and Automation	Data representation – images	Vector Graphs	Spreadsheets	Web development
	Students learn what artificial intelligence and automation are, and explore how they are used in everyday life, such as recommendation systems, voice assistants, and autonomous technologies. They examine how AI systems use data and algorithms to make decisions, consider the benefits and limitations of automation, and discuss ethical issues including bias, privacy, and the impact of AI on jobs and society.	In this unit, students learn that digital images are represented using binary (0s and 1s). They understand that images are made of pixels, with resolution and colour depth affecting quality and file size, and that colour is represented using RGB values. Students also explore how images can be easily manipulated using software, developing both technical understanding and critical awareness of digital media.	In this unit, students learn how to work efficiently with **vector graphics** by selecting and manipulating multiple objects at once. They practise aligning and distributing shapes for accuracy and consistency, grouping objects to treat them as a single item, and combining shapes using union, intersection, and difference to create new forms. This develops precision, organisation, and an understanding of how complex vector images are built from simple shapes	In this unit, students develop core spreadsheet skills to model and analyze data. They learn how data is organised into rows, columns, and cells, use formulas and functions to perform calculations, and apply tools such as autofill, sorting, filtering, and charts to analyse information. Students also explore the difference between data and information, identify primary and secondary data sources, and use spreadsheets to collect, interpret, and present data clearly and effectively	In this unit, students learn how websites are created and organised using HTML and CSS. They understand how HTML provides the structure of web pages, how images and text are added for different audiences and purposes