Pride | Ambition | Care | Excellence

Computer Science | Curriculum Map

Co-op Academy
Florence MacWilliams

Curriculum | Intent

The Computer Science Curriculum at Co-op Academy Florence Macwilliams exists to empower students to transition from passive consumers of technology to active and confident creators. In a world that is increasingly driven by digital innovation, it is becoming a fundamental skill to understand how technology works. The curriculum is designed to teach students how to think logically, solve complex problems creatively, and to navigate an ever changing digital world safely and ethically.

Our Curriculum is:

Ambitious: We challenge students to master complex digital skills. Rather than just using software, they write text based code using Python, design mobile apps and program physical microcontrollers.

Broad and Balanced: In Key Stage 3, students rotate through three distinct strands; Computer Science, Information Technology, and Creative Media. This ensures a wide foundation and allows students to discover their strengths before specialising in their Key Stage 4 qualifications.

Future Focused: We prepare students for modern workplaces by engaging with current industry trends and practices, including machine learning, 3D animation, and cybersecurity.

Safe and Ethical: We embed online safety into each unit. Students learn to critically evaluate information, manage their digital footprints, and understand the legal and ethical responsibilities of using technology.

	Autumn Term		Spring Term		Summer Term	
7	Clear Messaging in Digital Media Students step into the role of digital designers. They will learn how to understand a target audience and use professional software to create digital campaigns and brand identities.	Computer Networks We explore what makes the internet work. Students will learn how data travels around the world, understanding the physical cables, routers, and Wi-Fi signals that connect our digital world.	Media for a Cause Students will plan and build a persuasive digital campaign to raise awareness for a charity, focusing on safe, effective, and empathetic online communication.	Fundamental Programming Students build their first computer programs using visual building blocks. They will learn the core logic of coding to design and build their own applications.	Physical Computing Students will learn how to physically engineer a device by wiring up microcontrollers and programming them to light up LEDs and react to physical button presses	Data Modelling Students learn how modern businesses use data. They will be using spreadsheets to organise information, create formulas and visual charts to spot trends.
8	Vector Graphics Transitioning to professional design, students will learn how to create scalable digital logos and graphics using mathematical nodes and paths.	Computer Systems Students will learn how the CPU and memory actually process information, store files, and make decisions using logic gates.	Developing for the Web Students will take on the role of a web developer. They will learn how to write text based code with HTML and CSS to design, structure, and style a professional website from scratch.	Data Representation Students will learn how computers understand words and numbers. Students will also be learning how to read and understand binary code.	Mobile App Development Students will design and program user friendly mobile app prototypes, focusing on how people interact with touch screens.	Introduction to Python Programming Students will be moving from using block based coding to using a text based editor. They will be able to write Python scripts that can ask questions, perform complex maths and make automated decisions.
9	Python with Data Advancing their programming skills, students will learn how to write robust code that can handle large amounts of data, automate repetitive tasks, and safely handle errors.	3D Animation Moving into the digital media industry, students will learn how to navigate 3D software, animate objects in a 3D space and render digital environments.	Using Data Science Students will take on the role of a data analyst. They will use advanced tools to automatically clean, sort, and analyse massive amounts of data.	Images and Sound Students will discover how the physical world is digitised. They will calculate how millions of pixels make up a photo and how sound waves are converted into digital audio.	Cybersecurity & Legislation We will tackle modern digital threats. Students will learn how hackers breach systems, how firewalls can protect a network, and the strict UK laws that govern computer misuse and data protection.	Machine Learning Preparing for the future, students will train their own Artificial Intelligence models and then wire it up to physical hardware, whilst debating the ethics of AI within society.

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Careers Link	Graphic Designer Social Media Manager Digital Marketing	IT Support Technician Network Engineer System Administrator	Digital Campaign Manager User Experience Researcher	Web Developer Quality Assurance Tester Software Developer	Robotics Technician Hardware Engineer Embedded Systems Engineer	Data Analyst Business Analyst Financial Modeler

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Careers Link	Brand Identity Designer Illustrator User Interface Designer	Computer Technician IT Infrastructure Manager	Web Designer Front-End Developer Full-Stack Developer	Database Administrator Low-level Software Engineer	Mobile Game Developer iOS/Android Developer	Software Developer Automation Engineer Python Programmer

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Careers Link	Database Developer Back-End Developer	3D Modeler 3D Game Developer Technical Artist	Data Scientist Data Visualisation Specialist	Audio Engineer Sound Designer	Penetration Tester Data Protection Officer Information Security Analyst	AI Researcher Machine Learning Engineer Computer Vision Engineer

Co-op Academy Florence MacWilliams

At Co-op Academy Florence MacWilliams, colleagues and pupils work at 'PACE' ensuring pride, ambition, care, and excellence for self, school and city