

Programme of Study: Computing KS3



KS2 Underpinning Concepts		Year 7	Year 8	Year 9	KS5 & CEIAG Opportunities	Links to SMSC
Computational Thinking Logical reasoning Programming and Algorithms Writing and debugging simple programs Using sequence, selection, and repetition and variables Data and Information Collecting, analysing, and presenting data Computer Systems and Networks Understanding how computer networks work and understanding the internet Digital Literacy Using technology safely, respectfully, and responsibly Understanding online risks and how to report concerns Creativity with Digital Tools Creating digital content (e.g. presentations, animations, music) Evaluating digital work for effectiveness and audience	Autumn 1	Digital literacy skills & Online Safety - Safe and responsible online behaviour - Recognising online risks and reporting concerns - Understanding digital footprints and privacy	Computer systems – internal/external and operating system - Identifying hardware and software components - Understanding input/output devices - Exploring operating system functions	Cyber security - Identifying threats and protection methods - Understanding encryption and ethical hacking - Exploring online safety and digital responsibility	Academic Opportunities at KS5: - A- level Computing / Computer Science - BTEC Level 3 in Computing - BTEC Level 3 in IT - Cambridge Technicals Career Pathways: - Software Developer - Web Developer - App Developer - Data Scientist - Data Engineer - AI / Machine Learning Engineer - Cybersecurity Analyst - Penetration Tester - Cloud Architect - Network Engineer - Game Developer - Computer Vision Engineer - UI/UX Designer - IT Support Technician - Systems Analyst - Database Administrator - DevOps Engineer - Robotics Engineer - Digital Forensics Analyst - Technical Project Manager	Spiritual development: - The impact of technology on human identity and relationships (e.g. AI, virtual reality) - Ethical dilemmas in computing (e.g. surveillance, data privacy) - Creativity in programming and digital design Moral Development: - Digital ethics: plagiarism, hacking, copyright - Responsible use of technology: social media, cyberbullying - Consequences of actions in coding and data handling Social Development: - Teamwork and collaboration in coding projects - Understanding of online communities and digital citizenship - Awareness of diversity in tech and inclusion Cultural Development: - Global impact of computing: digital divide, tech innovation - Cultural representation in media and games - International laws and standards in computing
	Autumn 2	Back to the Future - Exploring the evolution of technology - Understanding key milestones in computing - Analysing the impact of computing on society	Data Modelling – Spreadsheets - Using formulas and functions - Creating charts and validating data - Analysing and presenting information	Mobile App Development - Designing user-friendly apps - Coding basic app functionality - Evaluating app performance and usability		
	Spring 1	Computer Networks and Data Transmission - Identifying types of networks and protocols - Understanding data packets and bandwidth - Exploring how information travels across networks	Developing for the Web - Writing basic HTML and CSS - Designing accessible and structured web pages - Understanding web layout and styling	Programming - Python advanced - Using functions, lists, and file I/O - Handling errors and debugging - Building more complex programs		
	Spring 2	Using fundamental programming constructs in a block-based language - Using sequence, selection, and repetition - Debugging and improving block-based programs - Developing logical thinking and problem-solving	Programming - Python basics - Using variables, loops, and conditionals - Writing and debugging simple Python code - Developing syntax awareness and logic	Computer Networks - Understanding IP addressing and DNS - Exploring network topologies and protocols - Analysing how networks support communication		
	Summer 1	Physical Computing using the micro:bit - Programming inputs and outputs - Using sensors and basic electronics - Understanding embedded systems	Data representation: text and numbers - Understanding binary and ASCII - Converting between number systems - Exploring how text and numbers are stored digitally	AI / Data Science - Exploring machine learning concepts - Analysing data sets and trends - Considering ethical implications of AI		
	Summer 2	Using Media to gain support for a cause - Creating persuasive digital content (e.g. blogs) - Targeting messages to specific audiences - Evaluating effectiveness of digital media	User Interface - design, creation and evaluate - Creating wireframes and prototypes - Evaluating user experience and accessibility - Designing interfaces for specific audiences	Web Development - Planning and designing a website - Creating and testing web pages - Evaluating design and functionality		