

Computer Science Key Stage 3 Curriculum

	Autumn Term	Spring Term	Summer Term
Y7	Spreadsheets Formatting Formulae Functions Validation HTML Page structure Linking Lists	Algorithms Flow Diagrams Logical thinking Interactive adventure story Scratch game Variables Sequence Selection Iteration	Binary Representation Conversion Addition Logic Gates Circuits Truth tables
Y8	Data Representation, Conversion and Arithmetic Denary, binary & hexadecimal Adding binary numbers Binary shift Online Threats Hacking Phishing Viruses	Secondary Storage Magnetic Optical Flash Python Strings Integers and floats Functions	Algorithms Linear search & binary search Bubble sort, merge sort & insertion sort Pseudocode Databases Tables and forms Queries and reports
Y9	Networks Types Hardware Topologies HTML & CSS Syntax Classes Styles & formatting	JavaScript Data types Operators Arrays Python String and integer manipulation Functions Local and global variables	Little Man Computer Fetch decode execute cycle Assembly language Programming Social Media Positives & negatives Legislation Ethical implications

Computer Science GCSE Curriculum Overview

	Autumn Term	Spring Term	Summer Term
Y10	<p>Computer Hardware The central processing unit Von Neumann architecture Types of computer system</p> <p>Primary Storage RAM & ROM Flash memory Virtual memory</p> <p>Secondary Storage Magnetic Optical Flash</p> <p>The Internet Domain name system Virtual networks</p>	<p>Networks Types Hardware Topologies Encryption Protocols Layering Connections Packets Routing - packet & circuit switching</p> <p>Hacking Malware Phishing Structured query language injection Firewalls</p>	<p>Logic Gates, circuits & truth tables Boolean expressions</p> <p>Data Representation, Conversion and Arithmetic Denary, binary & hexadecimal Adding binary numbers Binary shift Images and sound Compression</p> <p>Translators and Programming Tools Assembly language & translators Compilers Interpreters Integrated development environment</p>
Y11	<p>NEA – Programming Project</p> <p>Computational thinking and Algorithms Problem solving Abstraction Decomposition Pattern recognition Flow diagrams Pseudocode Sorts & Searches</p>	<p>Programming techniques Variables and constants Data types Operators Arrays SQL</p> <p>Writing Reliable Programs Error types Defensive design</p> <p>Legal, ethical, moral and social issues Legislation Moral & social implications</p>	<p>Software Procurement</p> <p>System Software Operating systems User Interface Utilities Memory management</p> <p>Revision & Exam Skills</p>

Computer Science A level Curriculum

	Autumn Term	Spring Term	Summer Term
Y12	<p>Computer Systems The central processing unit Input, output, storage & memory</p> <p>Data Types Denary, binary & hexadecimal Images, sound & instructions</p> <p>Computer Arithmetic Adding & subtracting integers in binary Real number representation Normalisation of floating points</p> <p>Logic Gates & Boolean Algebra De Morgan's Rules Adder & Flip-flop circuits Karnaugh maps</p>	<p>Types of Programming Language Assembly language Object-oriented programming</p> <p>Software Applications Utilities Operating systems</p> <p>Applications Generation Translators</p> <p>Software Development Methodologies</p> <p>Data Structures Arrays, stacks and queues Linked lists Trees, graphs and hash tables</p>	<p>Data Transmission Network types & topologies Layering Protocols</p> <p>The Internet Client & server side processing Compression Encryption</p> <p>Databases Relationships & normalisation SQL</p> <p>NEA – Programming Project</p>
Y13	<p>NEA – Programming Project</p> <p>Computational thinking Decomposition Abstraction Problem solving Thinking logically</p> <p>Programming techniques Sequence Selection Iteration</p>	<p>Algorithms Sorts Searches Complexity Dijkstra's algorithm A* search</p> <p>Legal, ethical, moral and social issues Legislation Artificial intelligence Moral & social implications</p>	<p>Revision & Exam Skills</p>