VICTORIA COLLEGE
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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 **Databases** Tables and forms Queries and reports	**Algorithms** Linear search & binary search Bubble sort, merge sort & insertion sort Pseudocode **Secondary Storage** Magnetic Optical Flash	**Python** Strings Integers and floats Functions **Online Threats** Hacking Phishing Viruses
Y9	**HTML & CSS** Syntax Classes Styles & formatting **JavaScript** Data types Operators Arrays	**Networks** Types Hardware Topologies **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

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Computer Science GCSE Curriculum Overview

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

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Computer Science A level Curriculum

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