

Computer Science

Year 7

- E-safety and Computer Basics
- History of Computers
- Binary Conversions
- Algorithms
- Scratch Coding & Game Creation
- Hardware
- Encryption
- Cyber Security
- Python Turtle

Year 8

- E-safety
- Binary Conversions
- Logic Gates and Truth Tables
- Python Programming
- Spreadsheets
- Databases
- Communication
- Images and Sound Representation
- Cyber-Security and AI

Year 9

- Python Programming
- HTML & Web Design
- JavaScript
- Build a Computer
- Spreadsheets
- Cyber-Security
- Skills for Life

GCSE AQA - 8525

Year 10

- Algorithms (Abstraction, Decomposition, Flowcharts, Pseudocode, Searching and Sorting Algorithms)
- Python Programming (Data Types, Variables, Input / Output, String Manipulation, Arithmetic Operators, Sequence and Selection, Iteration, Arrays and Records, Functions)
- Data Representation (Units and Binary Numbers, Binary Arithmetic, Hexadecimal, ASCII and Unicode, Images and Sound, Compression)
- Computer Systems (Application and System Software, Translators, Architecture, CPU, Memory, Storage)

Year 11

- Cyber-Security (Cyber Security Threats, Social Engineering, Malicious Code, Detection and Prevention)
- Relational Databases (Field, Record, Primary and Foreign Keys, Relationships, SQL)
- Ethics (Ethical Impacts, Environmental Issues, Legislation and Privacy)

A-Level OCR - H446

Year 12

- Components of a Computer (CPU, Performance, Input / Output and Storage Devices)
- System Software (Operating Systems, Applications, Translators)
- Software Development (Systems analysis, Programming Paradigms, Assembly Language)
- Exchanging Data (Compression and Encryption, Databases, SQL, Normalisation)
- Networks (Internet Communication, Security, HTML & CSS, JavaScript, Search Engine Indexing, Client & Server, P2P)
- Data Types (Data Types, Binary and Hex, ASCII and Unicode, Binary Arithmetic, Floating Point, Bitwise Manipulation and Masks)

Year 13

- Data Structures (Arrays, tuples and records, queues, lists and linked lists, stacks, hash tables, graphs, trees)
- Boolean Algebra (Logic Gates, Boolean Expressions, Karnaugh Maps, Adders and D type Flip Flops)
- Legal and Cultural Issues (Legislation, Ethics, Privacy)
- Computational Thinking (Thinking... abstractly / ahead / procedurally / logically / concurrently, problem recognition, problem solving)
- Programming Techniques
- Algorithms (Analysis and design of algorithms, searching algorithms, bubble sort and insertion sort, merge sort and quicksort, graph traversal algorithms, optimisation algorithms)