Computer Science AQA 2 KS3/KS4 Subject Curriculum

LEARNING JOURNEY

YEAR 7

START OF KS3

Using Computers safely

Scratch Programming

Block based programming Micro:Bits

HTML & Website Development

Flowol

Year 7 Exam

YEAR 8

Welcome and introduction. Logging on, passwords, finding software, saving files.

Computer hardware & software Input/Output/Storage

Alice Programming

Introduction to Python

Print, input/output, strings, mathematical operators, lists, iteration

Binary Conversions

Spreadsheets

Year 8 Exam

YEAR 9

Practical programming in Python

Ethical, Legal and Cultural Concerns

Creating own text based programs

Databases

Tables, Fields, Records and SQL

Data Representation

Year 9 Exam

Topic 8: Ethical, Legal and environmental Impacts. What are the issues created and addressed by technology and the impact on society including ethical, legal, cultural, environmental and privacy. Legislation, Data Protection, computer misuse, copyright and licences

Topic 7: Relational Database. Explore the key terms used in a database and learn why relational databases are used to eliminate redundancy and inconsistencies that can occur in a flat file database. Next they explore increasingly challenging SQL commands where they retrieve, update and delete data in a relational database.

Topic 6: Cyber Security. What's malware, phishing, brute force attacks, DoS and Interception & theft. How to prevent attacks. What is Firewalls, password encryption and security

Topic 5: Computer networks. students will explore how a computer network works from the hardware required to the protocols used for communication

YEAR 10

START OF GCSE AQA 8525

YEAR 11

Topic 1: Fundamentals of Algorithms Using abstraction, decomposition and algorithmic thinking to define a problem. Create structure diagrams & flowcharts. How to efficiently search and sort data. Writing algorithms using Python. What are binary, bubble, merge sorts. How do I identify bugs and fixes? What are trace tables?

Topic 2: Fundamentals of Programming Using variables, constants, operators, inputs/outputs. Sequences, selection & iteration. Arithmetic, integers, Boolean. Characters & string manipulation, data types and casting. String manipulation & file handling, open, read, write, close. Storing data in records. Using SQL to search for data. Using arrays, sub programs.

Topic 3: Data Representation students will look at binary and hexadecimal numbering systems, how they work, and how to convert between bases. Then, learners explore different coding systems and find out how text, images, and sound are represented in computers.

Topic 4: Computer Systems students will gain an understanding and knowledge of how computer systems work. Starting with the building blocks of the microprocessor - logic gates - learners will discover how a computer system works and executes instructions.

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