



Computer Science Curriculum Overview

Key Stage 3- Year 7

Revisiting devices and software, including:

- Microsoft 365 suite and setting up the Edge browser
- efficient use of iPad, iMac and cloud storage

File sizes and digital media types review, including:

- bits, bytes, kilobytes, megabytes, gigabytes – unit conversion and appropriate unit use for different media types
- Approximating file sizes given media type and quality
- Common document, image, audio and video formats and extensions
- Using software to change formats and quality of digital media (including video and audio compression)
- basic understanding of the meaning of image resolution, video frame rates and bit rates

Historical background of the development of the modern digital age, including:

- development of mechanical computational devices in the 1800's through the work of Charles Babbage
- application of algorithms and computational thinking to solve problems in the 1800's through the work of Ada Lovelace
- Alan Turing's contributions to the development of modern computing

Computer hardware – including:

- transistors as the functional agents of binary
- an overview of the basic architecture of a computer
- input/output devices
- data storage types



Textual programming with JavaScript (JS) including:

- basic use of an integrated development environment (IDE) and online editors to work with code inside the script tag on a HTML page both locally and online
- assigning variables
- string, integer and floating decimal data types
- converting user input from prompt boxes to integer and floating decimal data types
- using user input to perform basic mathematical calculations
- outputs through the document write method and alert boxes
- drawing objects on the JS canvas
- using basic comparison operators and conditionals

Data representation – binary and hexadecimals, including:

- bits and bytes review
- number system overview (base systems)
- importance of binary numbers in computing
- how text, images and sound are represented in binary
- conversion of binary to denary and vice versa
- importance of hexadecimal numbers in computing
- conversion of hexadecimal to denary, binary and vice versa
- conversion of 1 byte (8 bits) to 2-digit hexadecimal

Software application- audio creation and editing, including:

- common audio formats (proprietary and open source)
- lossy and lossless compression
- making different waveforms using a synthesizer and envelope modification
- using a midi interface
- sampling, editing and mixing