THE BRITISH SCHOOL
OF NANJING
A NORD ANGLIA EDUCATION SCHOOL

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Computer Science Curriculum Overview

Key Stage 3- Year 8

Revisiting devices and digital 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 and terabytes – unit conversion and appropriate unit use for different media types
- Approximating file sizes given media type and quality

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

Computational thinking, including:

- making simple algorithms
- developing algorithms into flowcharts (including loops)
- using abstraction, decomposition and pattern recognition to simplify problems in order to develop algorithms to solve them

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Textural coding through designing an interactive webpage using HTML5, CSS and JavaScript (JS), including:

- 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
- Adding text, media (images, video, audio), hyperlinks (internal and external) into the body of a HTML page
- Adding styling and interactivity to page elements using inline, internal and external CSS
- Adding basic JS to add further interactivity to a HTML page

An introduction to networking and Cyber Security, including:

- IP and MAC addresses and network communication protocols
- types of networks
- the Domain Name System, URL's and how the internet works
- the difference between the World Wide Web and the Internet
- data integrity and security
- data validation and verification
- security risks – hacking, viruses, phishing, pharming, malware
- securing data and networks

Hardware and Software application

- programming an Arduino using a graphical language
- introduction to basic electrical circuits
- introduction to digital and analogue signals
- introduction to the concept of control systems through the use of sensors, microprocessors and actuators