



Year 8 Summer Term
'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Networks

Curriculum Intent	In addition to working further on objectives from Year __, pupils will be taught, following National Curriculum guidelines, the following this term:
Skills/National Curriculum Links	<p>Computing – KS3</p> <p>Key stage 3 Pupils should be taught to:</p> <ul style="list-style-type: none"> • design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem • use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions • understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] • understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems • understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits • undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users • create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability • understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognize inappropriate content, contact and conduct and know how to report concerns.
Numeracy	
Literacy	<p>Vocabulary Tier 2: operate, classical, significance, relative</p> <p>Vocabulary Tier 3: Internet, World Wide Web, URL (Uniform Resources Locator), IP address, protocol, wide area network, local area network, data packets, packet switching, domain name, client-server network, peer-to-peer network, cloud computing, encryption, decryption, plaintext, cipher text</p> <p>Reading: Presentations, worksheets, and homework</p> <p>Writing: complete worksheets and skill task</p> <p>Oracy: learn how to pronounce difficult or new keywords</p> <p>SMSC: Understand identity theft, how the online world can be fun but dangerous if not used sensibly</p> <p>PSHE: Understand how the economy is impacted by cyber crime</p> <p>Careers: Cyber security</p> <p>Literacy: literacy slide will provide a definition of the keyword, antonym and synonym</p>
Adaptation	Throughout this topic, quality first teaching will provide differentiation:
QFT/SEND Provision	<p>By product: Learning will produce work on a variety of different levels, a mix of individual, think pair share, designing original mats, Q&A with teacher, teacher marking and self-marking.</p> <p>By resource: presentations, worksheets with extension tasks</p> <p>By Intervention: by providing different levels of supervision/support, seating plan, use of TA</p> <p>By Progressive Questioning: exploring pupils' understanding through interactive dialogue.</p> <p>By Grouping: according to prior attainment, gender, social preference, preferred learning style.</p> <p>By Task: Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.</p> <p>By Offering Optional Activities: In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>



Implementation Curriculum Delivery

To be able to:

Learning Outcomes (Knowledge)

Networks	The Internet	Learn what the Internet and World Wide Web are Learn how web addresses are constructed Learn what a protocol is and why one is needed for data communication Understand how packet switching works Learn what the Domain Name Server (DNS) does
	Connectivity	Learn the meaning and significance of bandwidth Compare different types of cable, and the relative speeds of data transmission Calculate time taken to download files of different sizes at different bandwidths Understand what is meant by buffering and why it is used
	Topologies	Understand the difference between LANs and WANs Be able to give examples of each type of network Know what extra hardware is needed for a LAN to operate Identify three different network topologies – bus, ring and star
	Client-server networks	Understand what constitutes a client-server network Contrast a client-server network with a peer-to-peer network Be able to list advantages and disadvantages of each model Understand what is meant by cloud computing List the main advantages of cloud computing
	Encryption	To identify some of the types of data that need to be kept secure To learn some of the ways in which data is kept secure To learn how unauthorised people can break ciphers and read encrypted data To learn some classical encryption techniques

Current learning to be developed in the future within:

Element of this topic such as encryption will inform students when designing and creating programs to include validation and the importance of verification.

This links to previous learning about Alan Turing and Caesar cipher in year 7 during using computers safely effectively and responsibly.

Assessment

- Refer to assessment maps for formative and summative assessment opportunities.

Impact

- Learning will be tested during **Summative Assessment 1 and Summative Assessment 2**.
- Assessment results will indicate pupils emerging, developing, securing or mastering.
- Data review documentation will indicate if pupils are underachieving, meeting or exceeding MEG grade.
- In line with the departmental marking policy, quality written feedback will be provided for the specified marked piece