Curriculum Map 2023/24

Subject: GCSE Computer Science **Year Group: 11**

Time Period	Autumn Term	Spring Term	Summer Term
Content	**1.3 Computer Networks, connections and protocols** • Networks and topologies • Wired and wireless networks, protocols and layers **1.4 Network security** • Threats to computer systems and networks Identifying and preventing vulnerabilities **1.6 Ethical, legal, cultural and environmental** • Impacts of digital technology on wider society • Legislations relevant to Computer Science	**2.3 Producing robust programs** • Defensive design • Testing **2.5 Programming languages and IDE** • levels of programming language • The Integrated Development Environment (IDE) **Revision and final exam preparation**	**Revision and final exam preparation**
Skills	Students learn how different aspects of computer networks work, from an abstracted view, and apply the concepts learnt to the real world of communication and data transmission.	Student build on their skills by understanding the importance to thoroughly test a program for bugs, errors and loopholes to ensure they are robust.	Students will consolidate their learning through a series of practice exams and recall activities.

	Students demonstrate their awareness of real world network threats and how to prevent such threats. Students learn how to analyse and generate arguments both for and against the use of computer systems in society. They are able to express this in a structured essay style questions.	Students will consolidate their learning through a series of practice exams and recall activities.	
Key Questions	What are LANS & WANs? What factors affect the performance of networks? What does client server and peer-to-peer mean? What hardware do you use on a LAN? What is the Internet really? What is a DNS, hosting, the cloud, web server and client mean? What hardware is used in a network? What is a topology? Which is better wired or wireless? What is Ethernet, Wi-Fi and Bluetooth connections and how do they work? Why is cryptography and encryption? What's an IP and MAC address? How do I learn these TCP/IP, HTTP, HTTPS, FTP, POP, IMAP, SMTP, and what are layers? What forms of attack happen to computers and networks? What's malware, phishing, brute force	Why use defensive programming? Use of defensive designs. Testing to make sure it works and debugging, is that normal, boundary, invalid or erroneous? Refine it! Create code which is easy to maintain. Know the purpose of testing and types used for validation. What are the characteristics of languages; high and low-level. What is the purpose of translators, compilers, interpreters? What is Little Man Computer? Tools in an IDE; editors, error diagnostics, run-time environments & translators	

	attacks, DoS and Interception & theft? How to prevent attacks. What is an SQL injection, firewalls, password encryption and security?		
Assessment week and content	**1.3 Computer Networks, connections and protocols** End of Unit test wb 23/10 **1.4 Network security** End of Unit test wb 13/12	**2.3 Producing robust programs** End of Unit test wb 12/02 **2.5 Programming languages and IDEs** End of Unit test wb 12/02	**Final Exam:** Component 1 – Computer Systems Component 2 – Computational thinking, algorithms and programming

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