GCSE Computer Science Revision Monday Sessions Lunchtime and After school in L2

22/09/2025 **CPU** von Neumann stored program concept and the role of main memory (RAM), CPU (control unit, arithmetic logic unit, registers), clock, address bus, data bus, control bus in the fetch-decode-execute cycle **Embedded Systems** understand the concept of an embedded system and what embedded systems are used for	29/09/2025 **Secondary storage** understand the role of secondary storage and the ways in which data is stored on devices (magnetic, optical, solid state)	06/10/2025 **Operating Systems** understand the purpose and functionality of an operating system (file management, process management, peripheral management, user management)	13/10/2025 **Utility Software** Understand the purpose and functionality of utility software (file repair, backup, data compression, disk defragmentation, anti-malware). **Robust Software** understand the importance of developing robust software and methods of identifying vulnerabilities (audit trails, code reviews)	20/10/2025 **Programming languages** understand the characteristics and purposes of low-level and high-level programming languages understand how an interpreter differs from a compiler in the way it translates high-level code into machine code	03/11/2025 **Binary** unsigned integers and two's complement signed integers be able to convert between denary and 8-bit binary numbers (0 to 255, -128 to +127) Binary Addition and subtraction
10/11/2025 **Binary Shifts** be able to add together two positive binary patterns and apply logical and arithmetic binary shifts **HEX** understand why hexadecimal notation is used and be able to convert between hexadecimal and binary	17/11/2025 **Character Sets** understand how computers encode characters using 7-bit ASCII **Bitmaps** understand how bitmap images are represented in binary (pixels, resolution, colour depth) **Sound** understand how analogue sound is represented in binary (amplitude, sample rate, bit depth, sample interval)	01/12/2025 **Data Storage** Understand that data storage is measured in binary multiples (bit, nibble, byte, kibibyte, mebibyte, gibibyte, tebibyte) and be able to construct expressions to calculate file sizes and data capacity requirements. **Compression** understand the need for data compression and methods of compressing data (lossless, lossy)	08/12/2026 **WAN and LAN** understand why computers are connected in a network understand different types of networks (LAN, WAN) **Internet** understand how the internet is structured (IP addressing, routers)	15/12/2025 **Network Connectivity** understand how the characteristics of wired and wireless connectivity impact on performance (speed, range, latency, bandwidth)	05/01/2026 **Network Speed** understand that network speeds are measured in bits per second (kilobit, megabit, gigabit) and be able to construct expressions involving file size, transmission rate and time
12/01/2026 **Network Protocols and Network Layers** understand the role of and need for network protocols (Ethernet, Wi-Fi, TCP/IP, HTTP, HTTPS, FTP) and email protocols (POP3, SMTP, IMAP) understand how the 4-layer (application, transport, internet, link) TCP/IP model handles data transmission over a network	19/01/2026 **Network Topologies** understand characteristics of network topologies (bus, star, mesh)	26/01/2026 **Network Security** understand the importance of network security, ways of identifying network vulnerabilities (penetration testing, ethical hacking) and methods of protecting networks (access control, physical security, firewalls)	02/02/2026 **Truth Tables** be able to apply logical operators (AND, OR, NOT) in truth tables with up to three inputs to solve problems	9/02/2026 **Computational Thinking** understand the benefit of using decomposition and abstraction to model aspects of the real world and analyse, understand and solve problems Write algorithms that use **variables and constants.** understand the benefits of using **subprograms** understand the need for and be able to follow and understand **types of errors** that can occur in programs (syntax, logic, runtime)	23/02/2026 **Flowcharting and programming constructs sequence and repetition** Be able to follow and write algorithms (flowcharts, pseudocode*, program code) that use sequence, selection, repetition (count-controlled, condition-controlled) and iteration (over every item in a data structure),
02/03/2026 **More writing algorithms** Write algorithms that use arithmetic operators (addition, subtraction, division, multiplication, modulus, integer division, exponentiation), relational operators (equal to, less than, greater than, not equal to, less than or equal to, greater than or equal to) and logical operators (AND, OR, NOT)	9/03/2026 **Data Structures** One- and two-dimensional data structures (strings, records, arrays)	16/03/2026 **Trace Tables** Be able to determine the correct output of an algorithm for a given set of data and use a trace table to determine what value a variable will hold at a given point in an algorithm.	23/03/2026 **Searching and Sorting Algorithms** understand how standard algorithms (bubble sort, merge sort, linear search, binary search) work	13/04/2026 **Cybersecurity** understand the threat to digital systems posed by malware (viruses, worms, Trojans, ransomware, key loggers) and how hackers exploit technical vulnerabilities (unpatched software and out-of-date anti-malware) and use social engineering to carry out cyberattacks understand methods of protecting digital systems and data (anti-malware, encryption, acceptable use policies, backup and recovery procedures)	20/04/2026 **Ethical Issues** Environmental issues associated with the use of digital devices (energy consumption, manufacture, replacement cycle, disposal) Collection and use of personal data (privacy, ownership, consent, misuse, data protection) the use of artificial intelligence, machine learning and robotics (accountability, safety, algorithmic bias, legal liability)
27/04/2026 **Legal Issues** understand methods of intellectual property protection for computer systems and software (**copyright, patents, trademarks, licencing**)	04/05/2026 **Last Minute Revision**	**11/05/2026** **Exam**	**18/05/2026** **Exam**		