	Year 10 - Content of Computer Systems		
	Autumn 1	**Spring 1**	**Summer 1**
Subject Content	1.2.4 Data Storage 1.2.5 Compression 1.2.3 Units	1.1.1 Architecture of the CPU 1.1.2 CPU Performance 1.1.3 Embedded Systems 1.2.1 Primary Storage (Memory) 1.2.2 Secondary Storage	1.3.1 Networks and Topologies 1.3.2 Wired and Wireless Networks, Protocols and Layers 1.4.1 Threats to Computer Systems and Networks 1.4.2 Identifying and Preventing Vulnerabilities

Specification	Numbers
	  o How to convert positive denary whole numbers to binary numbers (up to and including 8 bits) and vice versa.
	  o How to add two binary integers together (up to and including 8 bits) and explain overflow errors which may occur.
	  o How to convert positive denary whole numbers into 2-digit hexadecimal numbers and vice versa.
	  o How to convert binary integers to their hexadecimal equivalents and vice versa.
	  o Binary shifts
	
	Characters
	  o The use of binary codes to represent characters.
	  o The term 'character set'.
	  o The relationship between the number of bits per character in a character set, and the number of characters which can be represented (e.g. ASCII and UNICODE).
	
	Images
	  o How an image is represented as a series of pixels, represented in binary
	  o Metadata
	  o The effect of colour depth and resolution on:
	The quality of the image
	The size of an image file
	
	Sound
	  o How sound can be sampled and stored in digital form
	  o The effect of sample rate, duration and bit depth on:
	The playback quality
	The size of a sound file
	
	Compression
	  o The need for compression
	  o Types of compression:
	Lossy
	Lossless
		The purpose of the CPU:
		  o The fetch-execute cycle
		
		Common CPU components and their function:
		  o ALU (Arithmetic Logic Unit)
		  o CU (Control Unit)
		  o Cache
		  o Registers
		
		Von Neumann architecture:
		  o MAR (Memory Address Register)
		  o MDR (Memory Data Register)
		  o Program Counter
		  o Accumulator
		
		How common characteristics of CPUs affect their performance:
		  o Clock speed
		  o Cache size
		  o Number of cores
		
		The purpose and characteristics of embedded systems
		  o Examples of embedded systems
		
		Primary Storage (Memory)
		  o The need for primary storage
		  o The difference between RAM and ROM
		  o The purpose of ROM in a computer system
		  o The purpose of RAM in a computer system
		  o Virtual memory
		  o Cache
		
		The need for secondary storage
		  o Common types of storage:
		Optical
		Magnetic
		Solid state
		
		Suitable storage devices and storage media for a given application
		The advantages and disadvantages of different storage devices and storage media relating to these characteristics:
		  o Capacity
		  o Speed
		  o Portability
		  o Durability
		  o Reliability
		  o Cost
			Types of network:
			  o LAN (Local Area Network)
			  o WAN (Wide Area Network)
			
			Factors that affect the performance of networks
			The different roles of computers in a client-server and a peer-to-peer network
			
			The hardware needed to connect stand-alone computers to a Local Area Network:
			  o Wireless access points
			  o Routers o Switches
			  o NIC (Network Interface Controller/Card)
			  o Transmission media
			
			The Internet as a worldwide collection of computer networks:
			  o DNS (Domain Name Server)
			  o Hosting
			  o The Cloud
			  o Web servers and clients
			
			Star and Mesh network topologies
			
			Modes of connection:
			  o Wired
			Ethernet
			  o Wireless
			Wi-Fi
			Bluetooth
			
			Encryption
			IP addressing and MAC addressing
			Standards
			
			Common protocols including:
			  o TCP/IP (Transmission Control Protocol/Internet Protocol)
			  o HTTP (Hyper Text Transfer Protocol)
			  o HTTPS (Hyper Text Transfer Protocol Secure)
			  o FTP (File Transfer Protocol)
			  o POP (Post Office Protocol)
			  o IMAP (Internet Message Access Protocol)
			  o SMTP (Simple Mail Transfer Protocol)
			
			The concept of layers
			
			Forms of attack:
			  o Malware
			  o Social engineering, e.g. phishing, people as the 'weak point'
			  o Brute-force attacks
			  o Denial of service attacks
			  o Data interception and theft
			  o The concept of SQL injection

Intent	This unit intends to develop pupils' understanding of fundamental digital concepts, including binary and hexadecimal number systems, character encoding, image representation, sound sampling, and data compression	This unit intends to build foundational knowledge about computer architecture, including the function and structure of the CPU, primary and secondary storage, and embedded systems.	This unit intends to equip pupils with a comprehensive understanding of network concepts, structures, and security, which are essential in today's connected world.

	Column 1	Column 2	Column 3
	to provide pupils with essential knowledge of how computers represent and process different types of data.

By mastering these foundational topics, pupils will develop skills to solve computational problems, gain insights into the workings of digital devices, and understand the significance of data compression in managing resources.

This knowledge will not only prepare them for the OCR GCSE exam but also help them understand the role of binary and data representation in real-world applications. | Pupils will gain an understanding of the key components within a computer system, their roles, and how they work together to process information.

By learning about these core components, pupils will develop analytical skills to evaluate the performance of computer systems based on various characteristics. This unit will also provide a strong technical foundation that will prepare pupils for more advanced computing concepts and real-world applications of computer hardware. | By the end of this unit, pupils will have a strong foundation in the types and roles of networks, network hardware, modes of connection, and protocols that enable internet communication.

Additionally, they will develop an awareness of common network security threats and the importance of secure communication. This knowledge will help them understand how digital devices connect, communicate, and stay secure in both personal and professional environments, preparing them for the OCR GCSE exam and real-world applications. |
| **Implementation** | This unit will be taught through theoretical lessons, interactive demonstrations, and practical activities. Key elements of implementation include:

- They will perform binary arithmetic, focusing on overflow errors, and convert binary numbers to hexadecimal, deepening their understanding of number bases.
- Lessons on character sets (ASCII and Unicode), exploring the relationship between bits and the number of characters represented.
- Pupils will learn how images are represented in binary form as pixels and explore metadata's role.
- Analysis of colour depth and resolution effects on image quality and file size and colour depth, helping pupils see the effect on quality and file size.
- Introduction to digital sound sampling, including sample rate, duration, and bit depth.
- Discussion on the need for compression, contrasting lossy and lossless methods with examples. | This unit will be delivered through theoretical explanations, hands-on activities, and practical experiments. Key elements of implementation include:

- Pupils will be introduced to the fetch-execute cycle, learning each step. They will examine each CPU component's function, including the ALU, CU, cache, and registers.
- Lessons will cover the roles of specific components like the MAR, MDR, program counter, and accumulator. Pupils will label and annotate diagrams, connecting each component's function to the overall architecture.
- Pupils will cover how clock speed, cache size, and the number of cores impact CPU performance.
- Lessons on the purpose of RAM, ROM, virtual memory, and cache. Pupils will learn the differences between RAM and ROM through practical comparisons.
- Introduction to different types of secondary storage (optical, magnetic, solid-state) and their characteristics. Pupils will study the advantages and disadvantages of each storage type.
- Real-world scenario tasks, where pupils propose storage solutions for different needs, such as data centres, portable devices, and archival storage. | This unit will be delivered through theoretical instruction, practical demonstrations, and interactive projects. Key elements of implementation include:

- Introduce pupils to the characteristics and differences between LAN and WAN, with real-world examples (e.g., school network as LAN, the internet as a WAN).
- Pupils will examine the roles of computers in different network models and explore the benefits and limitations of each setup.
- Introduce the purpose of routers, switches, wireless access points, NICs, and transmission media.
- Cover DNS, hosting, the cloud, and web servers/clients. Pupils explore how domain names translate into IP addresses, and how data is hosted and served online.
- Explain star and mesh topologies, with diagrams and examples.
- Discuss wired vs. wireless connections, including Ethernet, Wi-Fi, and Bluetooth, with practical examples of each in everyday life.
- Explain the basics of encryption, IP, and MAC addresses.
- Introduce protocols (e.g., TCP/IP, HTTP, HTTPS, FTP and SMTP) and explain their roles in communication.
- Cover common network threats, including malware, phishing, brute-force attacks, and SQL injection. Explain social engineering and why people are often the weak link in security. |
| **Impact** | Upon completing this unit, pupils should:

- Be proficient in binary and hexadecimal conversions and understand binary arithmetic and overflow errors.
- Comprehend character encoding and its importance in computing, differentiating between ASCII and Unicode.
- Understand image representation in digital form, including how resolution and colour depth impact image quality and file size.
- Recognise how sound is sampled, and how variations in sample rate and bit depth affect audio playback quality and file size.
- Appreciate the importance of data compression, identifying situations where lossy or lossless methods are preferable.

The impact of this unit will be assessed through quizzes, mock exams, and project-based assessments. These will gauge their comprehension and practical application of digital data representation and manipulation.

Pupils will leave this unit with foundational skills and knowledge critical for more advanced topics in computer science and the OCR GCSE Computer Science course. | Upon completing this unit, pupils should:

- Have a clear understanding of how the CPU and memory work together to execute instructions and describe the functions of various CPU components and the steps of the fetch-execute cycle.
- Understand the concept of Von Neumann architecture and the purpose of different registers within this model.
- Evaluate CPU performance characteristics (clock speed, cache size, cores) and apply this knowledge to assess which specifications best suit different computing needs.
- Be able to distinguish between primary and secondary storage, understanding the roles of RAM, ROM, and virtual memory.
- Compare different types of secondary storage and explain the pros and cons of each based on capacity, speed, durability, and other characteristics.

The impact of this unit will be assessed through quizzes, mock exams, and scenario-based questions that test pupils' ability to apply their knowledge.

Pupils will also complete a project-based assessment where they recommend computer specifications for a given application, justifying their choices based on the characteristics of CPUs, storage, and memory.

Long-Term Impact
This unit provides pupils with a foundational understanding of computer systems, preparing them for further study in Computer Science and related fields. The practical skills they develop will allow them to make | Upon completing this unit, pupils should:

- Have a strong understanding of different types of networks (LAN and WAN) and the factors affecting network performance.
- Be able to explain the roles of client-server and peer-to-peer networks and recommend scenarios where each model is most suitable.
- Know the key hardware required for setting up a network, including routers, switches, NICs, and transmission media.
- Understand internet basics, including DNS, hosting, and cloud storage, and explain how the internet is a global network.
- Be able to design network topologies and compare wired vs. wireless connections, understanding the pros and cons of each.
- Have knowledge of encryption, recognising their roles in network security and data integrity.
- Understand various protocols and the concept of layers in network communication, with knowledge of how data moves through these layers.
- Recognise common network security threats and understand basic countermeasures to protect against forms of attack.

The impact of this unit will be assessed through quizzes, mock exams, and scenario-based questions that test pupils' comprehension and application of networking concepts.

Pupils will complete a network design project where they create a simple network, choose protocols, and recommend security measures based on their knowledge. |

		informed decisions about computer hardware in everyday life, as well as potential careers in IT, engineering, and data management.	**Long-Term Impact** This unit provides pupils with foundational skills in networking that are critical for further study in Computer Science, as well as everyday digital literacy. The awareness of network security threats will make them more responsible and knowledgeable internet users. This knowledge also provides a basis for careers in IT, cybersecurity, network engineering, and other fields reliant on networking.
Digital Enrichment	o Understanding pixels, resolution, and colour depth directly connect to graphic design and photo editing, fields where professionals optimise images for quality and file size. o Games rely on pixel-based graphics, colour depth, and resolution adjustments. This links image representation with career paths in game development. o Sound sampling knowledge underpins technologies like speech recognition, allowing pupils to explore how machines understand and transcribe spoken language. o Compression is key in reducing file sizes for storage and transfer in cloud-based systems, connecting the classroom to real-world cloud applications. o Pupils use services like YouTube, Spotify, and Netflix daily, where data compression (lossy and lossless) is critical to delivering high-quality content with minimal bandwidth.	o Pupils will learn how cloud services like Google Drive and Dropbox use solid-state drives in data centres to provide fast and reliable storage. o Understand how capacity, speed, and durability are critical in fields like photography and video production, where storage requirements vary greatly depending on the application. o To understand the origins of Von Neumann architecture and its evolution over time, comparing early computers to modern systems to show how fundamental ideas persist in new technologies. o They will learn about cloud computing infrastructure and discuss how CPUs in massive data centres execute processes at scale, connecting their theoretical knowledge to real-world applications like Google or Amazon Web Services.	o Use examples of network infrastructures, like a school's LAN or a corporate WAN, to show pupils how these networks function in real environments. o Pupils will learn how streaming services and online gaming companies manage network performance and bandwidth, providing pupils with real-world examples of the importance of managing latency and bandwidth. o They will discuss how transmission media impacts the design of smart homes, businesses, and public Wi-Fi, helping pupils understand why different hardware and transmission media are chosen for specific settings. o Understand how encryption protects personal data online, linking to real-world scenarios like online shopping, banking, and secure communication.
SMSC	Spiritual Development The lessons on image and sound representation allow pupils to explore their creativity. By learning how data like images and sound are represented, they can experiment with digital art, music, and design, fostering spiritual growth through creative self-expression. Social Development Learning about character encoding (ASCII and Unicode) introduces pupils to the global nature of technology, as Unicode supports multiple languages and characters. This lesson promotes inclusivity and an appreciation for different cultures in the digital world, fostering respect for diversity. Moral Development With image representation, pupils can discuss the ethical implications of digital media manipulation, such as retouching photos on social media or using compression to obscure details. This encourages pupils to consider honesty and integrity in digital spaces.	Spiritual Development The concept of memory in computers (e.g., short-term vs. long-term) can be an analogy to human memory, sparking pupils' reflection on the similarities and differences between human and machine processing. Moral Development Secondary storage devices have environmental impacts when discarded. Discussing e-waste and recycling can help pupils consider the ethical responsibility they have to dispose of technology responsibly. Social Development Discuss how access to high-quality storage devices affects access to information, especially in remote areas or developing countries, promoting empathy and understanding of global digital inclusion challenges.	Spiritual Development Understanding the physical hardware that enables networks to function helps pupils develop an appreciation for the unseen infrastructure that supports modern life, inspiring curiosity about the technical world around them. Moral Development Understanding concepts like DNS, hosting, and the cloud introduces discussions on the ethical responsibility of data storage, security, and privacy in cloud-based services. Cultural Development Cybersecurity is a global concern, and discussing threats like phishing and malware helps pupils appreciate the international efforts needed to maintain secure digital environments.

Year 11 – Content of Computer Systems

	Autumn 2	Spring 2	Summer 2
Subject Content	1.2.3 Units 2.4.1 Boolean Logic	1.5.1 Operating Systems 1.5.2 Utility Software 1.1.3 Embedded Systems	1.6.1 Ethical, Legal, Cultural and Environmental Impact
Specification	The units of data storage: ○ Bit ○ Nibble (4 bits) ○ Byte (8 bits) ○ Kilobyte (1,000 bytes or 1 KB) ○ Megabyte (1,000 KB) ○ Gigabyte (1,000 MB) ○ Terabyte (1,000 GB) ○ Petabyte (1,000 TB) How data needs to be converted into a binary format to be processed by a computer Data capacity and calculation of data capacity requirements Simple logic diagrams using the operators AND, OR and NOT Truth tables Combining Boolean operators using AND, OR and NOT Applying logical operators in truth tables to solve problems	The purpose and functionality of operating systems: ○ User interface ○ Memory management and multitasking ○ Peripheral management and drivers ○ User management ○ File management The purpose and functionality of utility software Utility system software: ○ Encryption software ○ Defragmentation ○ Data compression The purpose and characteristics of embedded systems Examples of embedded systems	Impacts of digital technology on wider society including: ○ Ethical issues ○ Legal issues ○ Cultural issues ○ Environmental issues ○ Privacy issues Legislation relevant to Computer Science: ○ The Data Protection Act 2018 ○ Computer Misuse Act 1990 ○ Copyright Designs and Patents Act 1988 ○ Software licences (i.e. open source and proprietary)
Intent	This unit intends to introduce pupils to fundamental concepts of data storage, binary representation, data capacity, and logical operations. Pupils will gain an understanding of how data is stored, measured, and processed in computer systems and how logical operations are used in computing to solve problems. This unit is designed to equip pupils with foundational knowledge about data and logic, which are essential for understanding how computers handle and process information. By the end of this unit, pupils should be able to calculate data storage requirements, convert data into binary format, and apply Boolean logic to problem-solving, preparing them for both the OCR GCSE exam and practical computing applications.	This unit intends to deepen pupils' understanding of fundamental system software concepts, including operating systems, utility software, and embedded systems. Pupils will explore the critical role these components play in managing and optimising computer performance and functionality. Through studying operating systems, pupils will gain insight into how computers handle tasks such as user interaction, memory management, multitasking, peripheral and file management, and user management. This unit is designed to: ○ Develop a solid understanding of how operating systems function as the backbone of computer systems, supporting both hardware and software. ○ Equip pupils with knowledge of essential utility software that enhances computer performance and security. ○ Introduce pupils to embedded systems, fostering awareness of how these specialised systems are integrated into everyday devices. By the end of this unit, pupils should be able to explain the purpose and key functionalities of system software and appreciate the role of embedded systems in the modern world.	This module aims to ensure that pupils develop a comprehensive understanding of the multifaceted impact of digital technology on society. Pupils will learn about the ethical, legal, cultural, environmental, and privacy-related issues associated with technology and its use. By exploring these themes, pupils will be encouraged to think critically about the responsibilities and consequences of digital technology, both as users and as future creators of Computer Science, enabling them to understand the framework within which digital technologies operate. By the end of this module, pupils should have a balanced understanding of the positive and negative impacts of technology and be aware of their role in fostering a safe and responsible digital environment.
Implementation	This unit will be delivered through a combination of theoretical instruction, hands-on activities, and problem-solving exercises. Key elements of implementation include: ○ Pupils will learn about the hierarchy of data storage units, from bits to petabytes, with real-world examples (e.g., how much storage is needed for a text file vs. a video). ○ Teach pupils to calculate data capacity requirements based on file types, file sizes, and storage media. They will learn to estimate storage needs for text, image, audio, and video files. ○ Introduction to basic logic gates (AND, OR, NOT) and how they function. Pupils will build simple logic diagrams that illustrate each operator. ○ Explain truth tables and how they are used to visualize the outputs of different logic gate combinations. Pupils will create truth tables for AND, OR, and NOT gates.	This unit will be delivered through a blend of theoretical lessons, practical exercises, and group discussions. Key elements of implementation include: ○ To understand the five primary functions of an operating system: user interface, memory management, peripheral management, file management, and user management. ○ Research different operating systems (Windows, macOS, Linux) to illustrate their unique interfaces and functionalities. ○ Introduction to utility software functions with practical tasks involving encryption software, defragmentation tools, and data compression software. ○ To learn about the relevance of utility software in cybersecurity and system maintenance, emphasizing its importance in protecting personal and professional data. ○ Introduction to embedded systems, including their purpose, characteristics and common applications.	This unit will be delivered through a blend of theoretical lessons, practical exercises, and group discussions. Key elements of implementation include: ○ Explore real-world case studies on data privacy, AI ethics, and automation. Discuss scenarios involving cybersecurity, data leaks, and misuse of technology. ○ Introduce key legislation such as the Data Protection Act 2018, Computer Misuse Act 1990, and the Copyright, Designs and Patents Act 1988. ○ Examine the cultural impact of digital technology, including globalization, digital divides, and accessibility. Discuss how technology shapes identity, culture, and societal norms. ○ Discuss the environmental costs of technology, including electronic waste, carbon footprints, and energy consumption.

	o Teach pupils how to combine Boolean operators using AND, OR, and NOT to solve complex problems. They will learn to create expressions that combine multiple logic gates.		o Cover the concepts of privacy, surveillance, and personal data security. Discuss the balance between data collection and user privacy. o Discuss the difference between open-source and proprietary software, highlighting the pros and cons of each.
Impact	Upon completing this unit, pupils should: o Understand the hierarchy of data storage units (bit, byte, kilobyte, etc.) and be able to explain the differences between them. o Be able to convert between binary and decimal formats, understanding how computers store and process data in binary. o Calculate data capacity requirements for different file types and storage media, applying this knowledge to real-life scenarios. o Recognize and use simple logic gates (AND, OR, NOT) to solve logical problems and create basic logic diagrams. o Create truth tables for individual and combined Boolean operators, applying logical reasoning to solve problems. o Develop problem-solving skills by using truth tables and Boolean operators to work through scenarios, building a foundation for more complex computing concepts. The impact of this unit will be assessed through quizzes, mock exams, and scenario-based questions that test pupils' understanding of data storage, binary conversion, and logical operations. Pupils will complete a project-based assessment where they solve a complex problem using logic diagrams and truth tables, demonstrating their understanding of Boolean logic in practical applications. Long-Term Impact This unit provides pupils with essential skills in data representation, binary conversion, and logic, which are foundational for understanding more advanced computing topics. These skills will help pupils in computer science and related fields, as well as in everyday decision-making and problem-solving. Additionally, these concepts support logical reasoning and analytical thinking, skills that are beneficial across academic and professional disciplines.	Upon completing this unit, pupils should: o Comprehend and articulate the core functions of operating systems, understanding how they manage resources, support multitasking, and provide a user interface for seamless interaction with computers. o Can identify key utility software to enhance system security, performance, and data management, with practical skills in using encryption, defragmentation, and compression tools. o Identify and explain the role of embedded systems in various devices, understanding their specialised functions and reliability in specific applications. The impact of this unit will be assessed through quizzes, mock exams, practical exercises, and project-based assessments. Pupils' understanding will be tested through scenario-based questions that challenge them to apply knowledge to real-world problems, such as recommending suitable utility software for system maintenance or identifying embedded systems in specific devices. Long-Term Impact This unit equips pupils with essential knowledge about operating systems, utility software, and embedded systems, forming a foundation for advanced computing studies. The skills and understanding developed here will support pupils' digital literacy, helping them make informed decisions about technology in personal, academic, and professional contexts. The unit also introduces concepts relevant to careers in IT support, cybersecurity, systems administration, and engineering, encouraging pupils to consider future opportunities in these fields.	By the end of this module, pupils will be able to: o Pupils will understand the ethical and moral implications of digital technology, showing empathy and responsibility toward technology use. o Understand and apply key legislative frameworks related to digital technology, including the rights, responsibilities, and potential consequences of non-compliance. o They will be able to describe the cultural, environmental, and privacy issues that arise from technology use, displaying awareness of technology's broader societal impact. o Make informed decisions regarding their digital behaviour and projects, understanding the potential global effects of their choices. o Appreciate diverse perspectives and consider global and local implications of technology, fostering a well-rounded, socially responsible mindset. Pupils will emerge with a solid foundation in understanding not only how technology works but also how it impacts society. This curriculum will prepare them to navigate the complexities of the digital world ethically and responsibly, whether they pursue careers in technology or use digital tools in other fields.
Digital Enrichment	o Explain how social media platforms manage data storage, discussing things like image compression and how data storage is optimised to allow fast, accessible services. o Introduce pupils to cloud storage platforms (e.g., Google Drive, Dropbox) and discuss the challenges and costs of data storage on a large scale. o Use logic circuit simulators (like Logicly) that allow pupils to experiment with AND, OR, and NOT gates, helping them see how gates operate in real digital circuits. o Explain how logic gates are fundamental in electronics and hardware design, such as in designing CPUs or microcontrollers. Discuss how Boolean logic helps control everything from simple household electronics to complex computers.	o Discuss the differences between mobile and desktop operating systems, allowing pupils to explore features unique to mobile platforms like Android and iOS. o Pupils can explore real-life tools for maintaining personal devices, such as antivirus software, system clean-up, and storage management applications. This enriches their knowledge of practical digital skills, promoting digital responsibility and independence. o Introduce pupils to the operating systems of gaming consoles like PlayStation, Xbox, and Nintendo Switch, which are specialised for gaming performance. This connection shows the relevance of OS concepts in a context many pupils find engaging and familiar.	o The focus on ethical and privacy issues teaches pupils about their rights and responsibilities online. Pupils will reflect on their own digital footprints or consider the impact of their online behaviour, connecting these activities to privacy, ethics, and legal concerns. o
SMSC	Moral Development Discuss the environmental impact of large-scale data storage, such as the energy demands of data centres. This can encourage pupils to think about their responsibility to use and store data responsibly, highlighting the importance of data efficiency and sustainable practices in technology. Cultural Development Logic gates rely on Boolean logic, which is universally applicable across cultures and systems. Pupils can appreciate that logical thinking and reasoning are universal principles, connecting people globally through shared ways of understanding and solving problems.	Moral Development The study of utility software, particularly encryption and data compression, provides a platform to discuss data privacy and security. Pupil's discussions on privacy rights, ethical hacking, and the balance between convenience and security. Cultural Development Examining how embedded systems and operating systems influence modern culture, such as through smartphones, wearable devices, and smart home technology, can foster awareness of how technology shapes cultural norms and social behaviours.	Spiritual Development Encouraging pupils to explore ethical issues in technology, such as data privacy, artificial intelligence, and environmental impact, allows them to reflect on the deeper implications of technological advancements on humanity and society. Moral Development Topics on legal issues (such as data protection, copyright, and misuse laws) help pupils recognise the importance of following laws and ethical guidelines in the digital world. They learn the consequences of unethical behaviour (e.g., hacking, data breaches) and the moral responsibility to use technology in positive ways.