Year 10 Subject Curriculum Overview by Term

Subject: Computer Science		Year Group: 10	AUTUMN TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Systems Architecture	• Know the purpose of the CPU • Understand the Von Neumann architecture • Know common CPU components and their function • Know the function of the CPU as fetch and execute instructions stored in memory • Understand how common characteristics of CPUs affect their performance	CPU MAR MDR Program counter ALU CU Cache Embedded system Clock speed Cores	Students will be assessed formatively through the completion of recall homework tasks along with a formal end of unit assessment completed under exam conditions. The assessment will be based on past paper questions. Testing on 60% of content from the unit just covered and 40% of all other topics covered in the subject to date.
Memory & Storage	• Know the difference between RAM and ROM • Know the purpose of ROM in a computer system • Know the purpose of RAM in a computer system • Know the need for virtual memory • Understand what flash memory is and how it works • Know the need for secondary storage • Be able to calculate the data capacity requirements • Know common types of storage • Know suitable storage devices and storage media for a given application, the advantages and • Disadvantages of these and characteristics • Know the purpose of cloud storage, the advantages and disadvantages of this storage type.	RAM ROM Volatile Non-volatile Bootstrap Virtual memory Secondary storage Optical Magnetic Solid state SSD HDD BIOS	

Year 10 Subject Curriculum Overview by Term

Subject: Computer Science		Year Group: 10	SPRING TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Wired and wireless networks	• Know types of networks (LAN, WAN) • Know factors that affect the performance of networks • Understand the different roles of computers in a client-server and a peer-to-peer network • Know the hardware needed to connect stand-alone computers into a Local Area Network • Understand the concept of virtual networks. • Understand that a collection of wide area networks makes the internet. • The purpose of a DNS and hosting server.	LAN WAN Fibre optic DNS IP address MAC address Packets Bandwidth Peer-to-peer Client server Switch Router NIC	Students will be assessed formatively through the completion of recall homework tasks along with a formal end of unit assessment completed under exam conditions. The assessment will be based on past paper questions. Testing on 60% of content from the unit just covered and 40% of all other topics covered in the subject to date.
Network topologies, protocols and layers	• Describe star and mesh network topologies and Wifi • Explain the uses of IP addressing, MAC addressing, and protocols (TCP/IP, HTTP, HTTPS, FTP, POP, IMAP, SMTP) • Understand the concept of layers • Know the details of packet switching.	Mesh WIFI POP HTTP FTP SMTP TCP/IP	
System Security	• Know the different forms of attack • Know the threats posed to networks • Be able to identify and prevent vulnerabilities	Malware Phishing Social engineering Brute force SQL injection Network Policy Denial of service	

Year 10 Subject Curriculum Overview by Term

Subject: Computer Science		Year Group: 10	SUMMER TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
System software	• Know the purpose and functionality of systems software. • Describe operating systems: • Describe User interface • Describe Memory management/multitasking • Describe Peripheral management and drivers • Describe User management • Describe File management • Describe utility system software: • Describe Encryption software • Describe Defragmentation • Describe Data compression • Describe The role and methods of backup, Full Backup, Incremental Backup	System software Utility software User interface Drivers Encryption Defragmentation Backup File management	Students will be assessed formatively through the completion of recall homework tasks along with a formal end of unit assessment completed under exam conditions. The assessment will be based on past paper questions. Testing on 60% of content from the unit just covered and 40% of all other topics covered in the subject to date.
Ethical, Legal, Cultural, Environmental	• Consider ethical issues, legal issues, cultural issues, environmental issues • Know privacy issues and legal issues (The Data Protection Act 1998, Computer Misuse Act 1990, Copyright Designs and Patents Act 1988, Creative Commons Licensing, Freedom of Information Act 2000) • Understand open Source Software. • Understand proprietary software.	Ethics Cultural issues Data protection Copyright Creative Commons Licensing Proprietary software Trolling Piracy Computer Misuse Act	

Year 10 Subject Curriculum Overview by Term

How parents can support learning in the subject this academic year
Students can be supported at home by encouraging them to undertake programming projects on topics that interest them. That could be making mods for a game, or randomiser for what outfit to wear.
Recommended Reading
• Revision of theory topics covered - https://www.bbc.co.uk/bitesize/examspecs/zmtchbk • Beginner Python concepts - https://www.w3schools.com/python/ • Advanced Python concepts - https://www.w3resource.com/python/python-tutorial.php • Step by step guide to Python - https://www.programiz.com/python-programming
Points to note
All students are provided with a “GCSE OCR Computer Science Complete revision and practice guide” at the start of the year, for them to take home for revision purposes. Throughout the year students will have lessons that continue to build their Python programming skills that they learnt in Year 9.