Year 10 Computer Science

	Topic	Key concept – what do I want the students to learn from this unit?	What knowledge will they acquire?
Year 10 Computing			
Autumn 1	2.1 Algorithms and 2.2 programming techniques	**How searching and sorting algorithms can be used in programming and how to develop functions and procedures**	**Binary, linear searches, bubble merge and insertion sorts, interpret, correct and complete algorithms, file handling, functions and procedures and use of arrays**
Autumn 2	1.4 Wired and wireless networks	**How networks are structured and transfer data**	**LAN and WAN and factors affecting networks, peer-to-peer and client networks and hardware, the internet, virtual networks**
Spring 1	1.5 Network topologies, protocols and layers	**The 5 levels of network protocols and how they work**	**Star and mesh topologies, Wi-Fi, Ethernet and IP addressing, TCP.IP and HTTP.HTTPS, FTP, POP, IMAP and SMTP**
Spring 2	2.3 Producing robust programs	**Re-visiting 2.1 and 2.2 core programming techniques**	**Binary, linear searches, bubble merge and insertion sorts, interpret, correct and complete algorithms, file handling, functions and procedures and use of arrays**
Summer 1	2.4 computational logic and 2.5 translators and facilities of languages	**Re-visiting 2.4 programming techniques and identify the different levels of programming language and purpose of translators**	**Transistors, logic gates, different levels of programming language, purpose of translators, characteristics of assembler, complier and interpreter**
Summer 2	1.6 systems security and 2.2 programming techniques	**Identify threats and how to prevent vulnerabilities to computer systems, whilst using SQL to search for data**	**Forms of attack, threats posed, identifying and preventing vulnerabilities, how to use SQL to search for data**