Curriculum Map – Computer Science - Year 11

Immanuel College
Church of England Academy

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Key focus	• Programming languages • Networks / Network security • Python programming		• Environmental, ethical, and legal issues • Cybersecurity • Python programming •		• Exam preparation	
Key knowledge and skills	• 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. • Understand why computers are connected in a network. • Understand different types of networks (LAN, WAN). • Understand how the internet is structured (IP addressing, routers). • Understand how the characteristics of wired and wireless connectivity impact on performance. • Understand that network speeds are measured in bits per second. • Understand the role and need for network protocols. • Understand how the 4-layer (application, transport, Internet, link). • Understand characteristics of network topologies. • Understand the importance of network security, ways of identifying network vulnerabilities.		• Understand environmental issues associated with the use of digital devices (energy consumption, manufacture, replacement cycle, disposal). • Understand ethical and legal issues associated with the collection and use of personal data. • Understand ethical and legal issues associated with the use of artificial intelligence, machine learning and robotics. • Understand methods of intellectual property protection for computer systems and software. • Understand the threat to digital systems posed by malware. • Understand methods of protecting digital systems and data. • Be able to write programs that make appropriate use of sequencing, selection, repetition (count-controlled, condition controlled), iteration (over every item in a data structure) and single entry/exit points from code blocks and subprograms. • Create high level coding that uses local and global variables, a range of functions and procedure as well as reading and writing data from external text files.		• Recap and recall all knowledge in preparation for Exam 1. • Demonstrate ability to correct errors in code, adapt code to improve the programming functionality. • Write new blocks of code that complete required functionality.	
Key words/ vocabulary	High level language / low level language / penetration testing / ethical hacking / protocols		Computer misuse act 1990 / Data protection act 2018 / Copyright, design, and patents act 1988 / Invasion of privacy / malware			
Assessment method	Question and answering / practice exam questions / homework / topic assessments / Mock exams					
Wider links	Mathematics					

“**Perseverance** produces **character,** and character, **hope**” (Romans 5:4)

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Enrichment opportunities	Code breaker
Careers links	Programmer / Ethical hacker / Software engineer / Networking consultant / Computer scientist

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