



Computing Department Curriculum and Assessment Map

	Half Term 1	Half-Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Year10	Theme/Focus					
Fundamenta l Knowledge	Components Covered 1.1 – Systems architecture 2.2 – Programming fundamentals (as part of Python programming) Sub-Topics: How data is input into a computer system (1.1) The architecture of a computer system (1.1) How data is represented in a computer system (1.2) How data is validated by a computer system (2.3) How data can be secured in a computer system (1.5) How data security can be enforced by computing legislation (1.6) 2.2.1 Programming fundamentals 2.2.2 Data types Introduces: - Von Neumann architecture - CPU registers - Basic Python	Components covered: 1.2 – Memory and storage 2.2 – Programming fundamentals (as part of Python programming) Sub-Topics: 1.2.1 Primary storage (Memory) 1.2.2 Secondary storage 1.2.3 Units 1.2.4 Data storage 1.2.5 Compression 2.2.1 Programming fundamentals How data is stored by computer systems, ready for processing (1.2) How data is processed by computer systems (1.1) The architecture used by a computer system to process data (1.2) How data is converted to a format suitable for processing (2.5) The computational logic involved in processing data (2.4) The purpose of computer programs and software in processing data (2.5, 2.2) The purpose of program design (2.1) The purpose of robustness in the design of programs (2.3)	Components Covered: 1.3 – Computer networks, connections and protocols 2.2 – Programming fundamentals (as part of Python programming) Sub-Topics: 1.3.1 Networks and topologies 1.3.2 Wired and wireless networks, protocols and layers 2.2.3 Additional programming techniques Introduces: The Internet as a worldwide collection of computer networks: - DNS (Domain Name Server) - Hosting - The Cloud - Web servers and clients - Star and Mesh network topologies - Encryption - IP addressing and MAC addressing Networking Standards Common protocols including: - TCP/IP (Transmission Control Protocol/Internet Protocol) - HTTP (Hyper Text Transfer Protocol) HTTPS (Hyper Text Transfer Protocol Secure) - FTP (File Transfer Protocol) - POP (Post Office Protocol) - IMAP (Internet Message Access Protocol) - SMTP (Simple Mail Transfer Protocol) - The concept of layers	Components covered: 1.4 – Network security 2.2 – Programming fundamentals (as part of Python programming) 2.4 – Boolean logic Sub-Topics: 1.4.1 Threats to computer systems and networks 1.4.2 Identifying and preventing vulnerabilities 2.2.3 Additional programming techniques 2.4.1 Boolean logic Introduces: - Types of networks: - LAN (Local Area Network) - 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 into a Local Area Network: - Wireless access points - Routers - Switches	Components Covered: 2.2 – Programming fundamentals (as part of Python programming) 2.5 – Programming languages and Integrated Development Environments Sub-Topics: 2.2.3 Additional programming techniques 2.5.1 Languages 2.5.2 The Integrated Development Environment (IDE) Introduces: - The use of basic string manipulation - The use of basic file handling operations: - Open - Read - Write - Close - The use of records to store data - The use of SQL to search for data - The use of arrays (or equivalent) when solving problems, including both one-dimensional (1D) and two-dimensional (2D) arrays - How to use subprograms (functions and procedures) to produce structured code - Random number generation	Components Covered: 2.2 – Programming fundamentals (as part of Python programming) Sub-Topics: 2.2.3 Additional programming techniques Introduces: - The use of basic string manipulation - The use of basic file handling operations: - Open - Read - Write - Close - The use of records to store data - The use of SQL to search for data - The use of arrays (or equivalent) when solving problems, including both onedimensional (1D) and two-dimensional (2D) arrays

		How robust programs and software can be supported by computing legislation (1.6) Introduces: Different type of secondary storage Python programming		• NIC (Network Interface Controller/ Card) • Transmission media • The Internet as a worldwide collection of computer networks: • DNS (Domain Name Server) • Hosting • The Cloud • Webservers and Clients • Star and Mesh network topologies	• Characteristics and purpose of different levels of programming language: • High-level languages • Low-level languages • The purpose of translators • The characteristics of a compiler and an interpreter • Common tools and facilities available in an integrated development environment (IDE): • Editors • Error diagnostics • Run-time environment • Translators	• How to use subprograms (functions and procedures) to produce structured code • Random number generation
Learning Checkpoint Tasks	Learning checks will take place after each unit. Programming tasks	Learning checks will take place after each unit. Programming Tasks	Learning checks will take place after each unit.	Learning checks will take place after each unit.	Learning checks will take place after each unit.	Learning checks will take place after each unit.
Common Assessment Task	TA1		N/A		TA2	
Interleaved Knowledge	Hardware and Networks unit covered in Year 8 python programming covered in year7, 8 and 9	Data Representation unit covered in Year 9 Hardware and Networks unit covered in Year 8 python programming covered in year7, 8 and 9	Hardware and Networks unit covered in Year 8 .	Hardware and Networks unit covered in Year 8	Python programming covered in year 7, 8 and 9	Python programming covered in year 7, 8 and 9