

Computer Science Department - Year 9: Digital Literacy

 Shirley High Curriculum Map	<i>The Skilled Learner will be introduced to digital concepts and principles of the hardware architecture , understand how they can be used to model and solve problems.</i>	
	Term Digital Literacy is taught in a termly carousel	
	Theme/Topic/Skill:	Theme/Topic/Skill:
	Spreadsheet- Modelling	Computer Systems
Why Now?	The learners will learn how the use of spreadsheets advances key skills on organising, calculating, creating graphs, analysing, representing and manipulating data to solve practical problems.	This unit ties together all topics covered in KS3. It develops an understanding of the key concepts and principles of the hardware and system software. The learners will learn how the various hardware components, such as CPU, RAM, ROM, Inputs and Outputs, are controlled by the System Software or other high-level languages such as Python, and Java. The learners will enhance their understanding of the functions that the computer provides (input, output, storage, memory).They will investigate how computers can form a network and the importance of encrypting data using Ciphers.
Fundamental Concepts	The four basic mathematical operations: addition, subtraction, multiplication, and division.	- o Hardware such as CPU, hard drive, RAM, - o Input and Output - o iOS , Windows is a type of Operating system software. - o The difference of a Operating system and an application software.
Students will learn	• Spreadsheet design. • The basics of spreadsheet (cell, grid, column, row, cell reference, cell absolute) - o • The basics of adding formulae, formulae and formatting a spreadsheet. - o • What spreadsheet is and how it can be use - o • To use more complex formulae (if statement, count if, average, etc.) - o • To develop spreadsheet models. - o • To test and document spreadsheet models. - o • To create Macros and automate keyboard sequences.	• What a computer is. - o • Identifying the various components of a computer and understanding their function. - o • Fetch-Decode-Execute cycle and understand how instructions flow between input, processor (CPU) and output and how they are stored. - o • What Encryption is and demonstrates an ability to decrypt and encrypt data. - o • Understanding how the devices work together (CPU, RAM, Hard Drive, IO Devices) - o • Introduction to the Von Neumann Architecture. • What Encryption is and demonstrates an ability to decrypt and encrypt data. • What a network is, and the 3 basic topologies used to set up a network (bus, star and ring).
Language for Life (Key terms/ Vocabulary)	• Formula writing • Formatting • Design • Formulae • Value • Macro	• Software • Hardware • Computer Architecture • Fetch, decode, Execute cycle • Von Neumann Architecture.
Extended writing Opportunities	Description of the main features of the software	Learners can expand their knowledge on the 6 marks questions by describing how computer systems work.
Maths Across the Curriculum	Use of formulae Specific Formulae (SUM, SUB, COUNT, AVERAGE, MIN, MAX, etc) Data Handling Data Representation Multiplication and Division	Vectors , Coordinates
Links to careers/ aspirations	Data Analysis Data Administrator	Cryptographer
Cultural Capital	Learners can use spreadsheets to calculate simple day-to-day operations such as shopping and budgeting, as well as quite complicated problems such as mathematical analyses of trends and represent the results using various charts. Apply real diverse scenarios to the modelling and consider the impact they may have on environmental aspects as well as cultural ones.	Understand what hardware and software are, what they do, and their relationship. Consider the environmental impact they have at the end of their useful lives.
Practical Application of Skills	Assessment will be based on the task set.	A written assessment made up of exam style questions covering all aspects of the unit. This will be carried out at the end of the unit.