West Kirby Grammar School

Curriculum Map – Year 9 – Computer Science (2023-24)

Topic Name	Term	Skills Developed	Link to NC Subject Content	Next link in curriculum	Other Notes
Computer Systems 3	Autumn 1	• The function of the CPU. • The Fetch Decode Execute cycle. • Basic CPU assembly language instructions/programs to carry out simple tasks.	• Understand the hardware and software components that make up computer systems and how they communicate with one another and with other systems. • *Understand how instructions are stored and executed within a computer system* • *Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;*	• *1.1 System Architecture (Year 10 – Autumn 1)*	Links to Prior Learning: Year 8 – Computer System 2
Data Representation 3	Autumn 2	• *Digital representation of sound.* • *Basic Compression algorithms.*	• *Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in*	• *1.2 Memory / Storage (data representation) – (Year 10 Autumn 2)*	Links to Prior Learning: Year 8 Data Representation 2

			the form of binary digits.		
Computer Networks 2	Spring 1	• *Wide Area Networks* • Packet switching • How the Internet works.	• Understand the hardware and software components that make up computer systems and how they communicate with one another and with other systems.	• *1.3 Networks, Protocols and Layers (Year 10 – Spring 2)*	Links to Prior Learning: Year 8 Computer Networks 1
Programming with Python 3	Spring 2	• *Using subroutines in coding (Procedures and functions)* • *Graphical User Interfaces*	• *Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions* • *Design, use and evaluate computational abstractions that model*	• 2.2 Programming Techniques (Year 10 – Autumn 1)	Links to Prior Learning: Year 8 – Programming with Python 2

			the state and behaviour of real-world problems and physical systems		
Sorting Algorithms	Summer 1	• *Understanding and compare the bubble, merge and insert sort algorithms.*	• *Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem*	• *2.1 Algorithms (Year 11 – Autumn 1)*	Links to Prior Learning: Year 8 – Searching Algorithms Year 7 – Computational Thinking
Computing Impacts Project: Digital Divide	Summer 2	• *Causes of the Digital Divide both within the UK and across the world.* • *Impacts of the divide on society.*	• *Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability* • *Undertake creative projects that involve selecting, using, and combining multiple applications.*	• *1.6 Social, Ethical and Legal Factors (Year 11 – Autumn 1)*	Links to Prior Learning: Year 8 – Impacts of Computing Project – Social / Ethical Impacts