West Kirby Grammar School

Curriculum Map – Year 7 – Computing (2021-22)

Topic Name	Term	Skills Developed	Link to NC Subject Content	Next link in curriculum	Other Notes
E-Safety and File Management	*Autumn 1*	• *Basic knowledge of file management with Windows 10. Creating directory structures.* • *Safe and responsible use of technology and social media.* • *Online threats such as virus, spyware and ransomware.* • *Online privacy issues.*	• *Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.*	• *Impacts of Computing (Year 7 Summer 2)*	*Taught over a series of individual lessons at the start of Year 7 along with how to log in to school network, use the school VLE and email.*
Computer Systems	*Autumn 1*	• Understanding the difference between input, output and storage devices. • Role of internal components of a computer (CPU/RAM hard disk) • The function of the CPU. • The difference between local and cloud storage and advantages / limitations of each.	• *Understand the hardware and software components that make up computer systems.* • *Understand how instructions are stored and executed within a computer system*	• *Computer Networks (Year 8 Spring 1)* • *Computer Architecture (Year 9 – Autumn 1)*	Foundations for GCSE sections 1.1/1.2/1.3
Data Representation	*Autumn 1*	• How computers represent and add/subtract numbers using binary. • The hexadecimal number system. How to convert between denary-binary-hexadecimal.	• *Understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal*	• *Representing Data – Text / Images / Sound – (Year 8 Summer 1)*	

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Computational Thinking and Designing Algorithms (Flowchart and Pseudocode)	*Spring 1*	• Key aspects of Computational Thinking: Abstraction, decomposition and pattern recognition. • Basic flowchart symbols (terminators/input/output/process etc). • Combining symbols to create algorithms (showing sequence, selection and iteration). • Simple pseudocode commands for input/output/selection and basic iteration.	• *Understand several key algorithms that reflect computational thinking.* • *Use logical reasoning to compare the utility of alternative algorithms for the same problem.* • *Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems.*	• *Algorithms – Searching and Sorting (Year 8 – Spring 2)* • *Introduction to Programming with Python (Spring 2 Year7)*	Some of the algorithms designed / created will be coded in the next year 7 unit. Foundations for GCSE section 2.1
Introduction to Programming with Python	*Spring 2*	• Simple Python input and output commands • Programs involving user input. • Data types • Sequences • Selection and nested selection. • Implementing some of the algorithms developed in the Computational Thinking/Designing Algorithms topic.	• *Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems.* • *Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems* • *Understand several key algorithms that reflect computational thinking* • *Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming*	• *Next Steps with Python – Year 8 Spring 2)*	Foundations for GCSE section 2.2 and 2.3

Web Design – HTML/CSS	*Summer 1*	• Basic structure of websites. • HTML tags • HTML tag attributes • Cascading Style Sheet (CSS) use. • Application of skills to develop a website of their own choice.	• *Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems.* • *Undertake creative projects that involve selecting, using, and combining multiple applications.*	• *Computer Networks (how the Internet works) - Year 8 Spring 1* • *Next steps with Python (Year 8 – Spring 2)*	
Impacts of Computing	*Summer 2*	• Environmental impact on the growth of computing technology. • Social issues arising – Changing jobs market, digital divide etc.	• *Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability*	• *AI and Machine Learning (ethics and impacts of AI) – (Year 8 Summer 2)*	Online research and data analysis used here. Foundations for GCSE section 1.6