Intent for the Year – GCSE Computer Science Curriculum 2020-2021

In Computer Science, we aim to provide an inspirational experience for every student in a safe and purposeful learning environment that is relevant, exciting and reflective in order for every student to be confident in their use of technology and equip them for future learning in the subject, and careers using technology.

Implementation:

Students experience opportunities to all increase their understanding of how computers work, the changes in modern technology, as well as to practice and improve their programming skills using python to support their programing section of this qualification. Students will work through improving their knowledge and understanding of how computers work in line with the GCSE Computer Science specification, focussing on key areas such as Cyber security, translators of languages and the ethical and legal sides of modern technology.

Term	Enquiry/Topic/Unit: *What is going to be taught?*	Key Outcomes: *What will students have achieved by completing this scheme of learning?*	Character Education: *How does this topic link to a sense of Self, Others and the World, in terms of Character Education?*	Assessment: *Will there be formative and/or summative testing? What role will interleaving play?*	Vocabulary: *What are the key words for this topic/unit that students must know?*	Home-Learning: *What homework will be set and why (e.g. consolidate/extend)?*
1a	Preparation for NEA System Security	Understand and create structure diagrams Create algorithms for subprograms including flowcharts and pseudocode Explain a user interface, test table, trace table. Use computational thinking – top-down v bottom-up Explain different types of malware and how to prevent. Understand phishing and pharming Explain how data is intercepted Explain the effects of DDOS and brute force attacks Understand what is meant by network forensics and penetration testing.	Resilient Confident Curious Reflective	Homework sheets checking on understanding / practising algorithms for coding. Mini test on System Security Interleaving activities NEA	Function Procedure Subprogram Algorithm Computational thinking Malware Virus Trojan horse Antivirus Firewall Hacker Penetration tester Network forensics User levels Network policy Password Legislation SQL	Homework sheets alternately checking on understanding of theory and practising algorithms for coding. Revision activities for HCSE assessment.

		Legislation How network policies, user levels, passwords help security Understand concept of SQL Carry out NEA				
	NEA					
1b	Ethical, legal, cultural, environmental concerns	Identify what is a key stakeholder How are key stakeholders affected by technology? Identify, understand and explain rules and implications of legislation. Understand open source and proprietary software Explain environmental, cultural and ethical issues through the use of technology.	Resilient Confident Curious Reflective	Homework sheets checking on understanding / practising algorithms for coding. Interleaving activities. Mini test on ethical, legal, cultural, environmental concerns NEA HCSE	Stakeholder Legislation Environment Culture Ethics Technology Precious metals Data protection act Creative commons Copyright Computer misuse act	Homework sheets alternately checking on understanding of theory and practising algorithms for coding. Revision activities for HCSE assessment.
	NEA	Carry out NEA				
2a	Translators and Facilitators of Languages	Describe different generations of programming languages including differences between high and low level languages Explain assemblers, compilers, interpreters and differences Describe facilities in an IDE	Resilient Confident Curious Reflective	Homework sheets checking on understanding / practising algorithms for coding. Interleaving activities. Mini test on translators and facilitators NEA	High level language Low level language Assembler Compiler Interpreter IDE Compression Lossy Lossless	Homework sheets alternately checking on understanding of theory and practising algorithms for coding. Revision activities for June assessment.
	Compression	Explain and justify the need for compression including types of compression for both lossy and lossless.				
	NEA	Complete NEA				

2b	Revision for GCSE's	Past exam papers.	Resilient Confident Curious Reflective	Past Exam papers		Past exam papers Revision activities for June assessment.
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Impact:
GCSE – to focus on students understanding topics for GCSE exam and understanding changes in technology relevant to their life choices.