



Key Stage 4 Computing Curriculum Maps

Intent of Computing Curriculum at Littleover Community School

To provide a high quality and ambitious subject curriculum in line with the exam board requirements. Our intent is to provide a challenging, ambitious and knowledge-rich curriculum that equips students with a detailed understanding of how computer systems work and how computational thinking can be applied to solve real-world problems. The curriculum is designed to develop students into confident, independent and creative thinkers who can adapt to rapidly changing digital technologies.

	AUTUMN															SPRING											SUMMER													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	
Year 10	Topic – Networking						Topic – Cyber Security					Topic – Ethical, legal & Environmental factors				Topic – Data Representation 1				Topic – Data Representation 2							Topic – Mock preparation				Topic – Hardware					Topic – Python Programming				
	Assessment – End of unit test.						Assessment – End of unit test.					Assessment – End of Unit test.				Assessment – End of unit test.							Assessment – Mock Exam				Assessment – Mock Exam					Assessment – End of unit test.								
	<i>S – Networks, Protocols, Security, TCP/IP</i>						<i>S – What is Cyber Security</i>					<i>S – What is In class via teacher & discussion.</i>				<i>S – Number systems Binary, Hexadecimal, Decimal. Final sizes.</i>				<i>S – Representation of Text, sound & images. Compression</i>							<i>S – All topics up to this point.</i>				<i>S – Boolean Logic & Algebra, Systems Architecture, Memory</i>					<i>S – Programming Theory, Computational thinking.</i>				
	<i>P – Understand different network topologies, Protocols and Security Methods, Understand TCP/IP stack</i>						<i>P – Different methods of Attack & how we can prevent them. Some Ethical discussion over hackers & piracy.</i>					<i>S – What are Ethical, legal & Environmental factors</i>				<i>P – How to convert between the various number bases, File sizes and conversions.</i>				<i>P – How Computer store text, sound images, algorithms for calculating file sizes. Run Length and Huffman encoding.</i>							<i>P – Be able to apply anything potentially learnt so far.</i>				<i>P – Be able to understand the various logic symbols and equations.</i>					<i>P – Understand how to use Sequence, selection, iteration.</i>				
	<i>Sk – Be able explain what a network is, suggest which protocol is suitable, explain different network security vulnerabilities and how to prevent</i>						<i>Sk – Be able to explain the</i>					<i>P – How do these factors effect Computer</i>				<i>P – How to convert between the various number bases, File sizes and conversions.</i>				<i>Sk – Be able to calculate the size of an image, sound or text file. Be able to convert between different file size. Interpret and apply both Huffman & Run Length encoding compression methods. Compare different encoding schemes and their effect on file sizes.</i>							<i>Sk – Work on exam technique & revision techniques. Recap areas of improvement.</i>				<i>Sk – Be able to understand the various logic symbols and equations.</i>					<i>Sk – Apply decomposition, pattern matching, abstraction and algorithms design, to create algorithms, which can be represented as program code. Be able to</i>				
																							Yr 10 Mock																	

	them. Be able to explain what happens at each stage of the TCP/IP stack.	different type of cyber security threats & their mitigation methods.	Science as a whole. Sk – Answering longer written style exam question. Be able to discuss the various factors of each.	Sk – Learn and be able to apply the different conversion algorithms. Understand the importance of binary.			Sk – Create logic circuits & from Boolean expression and Boolean expressions from Logic circuits, be able to complete truth tables, understand and explain the operation of the different types of memory (RAM, ROM & Secondary storage).	perform basic error checking when encountering problems writing programs.
Year 1	Topic – Programming 2 Assessment – Greenfly Summer task & end of unit test. S – Programming Theory, Computational thinking, P – Understand how to use Sequence, selection, iteration, procedures & functions in algorithms. Python syntax. Sk –Apply decomposition, pattern matching, abstraction and algorithms design, to create algorithms, which	Topic – Program Development Assessment – Complete tasks in class. S – Programming Theory, Computational thinking, Pseudocode, Flowcharts, trace tables. P –understand Python syntax & how to create Algorithms, different flowchart symbols, understand the use of pseudocode.		Topic – Algorithms Assessment – In class S – Algorithm theory, Trace tables P – Bubble & Merge Sorts. Linear & Binary Searches. Sk – Be able to complete algorithms & trace tables for all the listed	Topic – Mock preparation Assessment – Mock Exam S – All topics up to this point. P – Be able to apply anything potentially learnt so far. Sk – Work on exam technique & revision. Recap areas of improvement.	Topic – Low Level Assessment – In class S – Compilers & interpreters P – Understand their use Sk – Be able to discuss which type of translator is most suitable.	Topic – Revision Assessment – In class S – Revision Techniques P – Find their most suitable technique. Sk – Revise and cement understanding.	Study Leave & Exams.

	can be represented as program code. Produce High level using procedures & functions. Be able to perform basic error checking when encountering problems writing programs.	Sk – Be able to complete trace tables and flow charts for algorithms. Be able to suggest a suitable test plan for a given scenario.		searching & Sorting algorithms.					
					Yr 11 Mock				