GCSE Computer Science - Curriculum Map

AQA

Year	Term	Topic Overview	Focus	Assessment
Year 10	Autumn 1	Specification Point 3.1 – Algorithms	Within this section students will learn about what is meant by the term algorithm and what different algorithms exists within the field of Computer Science to carry out a variety of different operations. Students will learn how to represent these algorithms as flowcharts and pseudocode and will learn how to hand-trace through algorithms using a trace table.	• 3.1 – Algorithms Assessment • Assessed Flowcharts • Assessed Pseudocode
	Autumn 2	Specification Point 3.2 – Programming	In this section students will begin to develop their skills using the Python 3 programming language. They will learn about the essential programming foundations of Sequence, Selection and Iteration and will learn to apply these skills across a variety of different programming scenarios.	• Assessed Program Scenarios (various)
	Spring 1	Specification Point 3.2 – Programming	In this section students will continue to develop their skills by looking at the use of a wide variety of different data types and data structures including the use of Arrays, Tuples and Dictionaries. Students will learn how to apply these skills across a series of different, more advances programming scenarios.	• Assessed Program Scenarios (various)
	Spring 2	Specification Point 3.2 - Programming	Students will conclude their programming skills by learning about how to bring everything they have learned so far and combine this with the use of subroutines looking at the difference between Procedures and Functions. Students will learn about parameter passing and return values. Students will conclude this section with a large programming assessment and a subroutine-based story program.	• 3.2 – Programming Assessment • Assessed Program Scenarios (various)
	Summer 1	Specification Point 3.3 – Data Representation	In this section students will develop their knowledge about different data can be represented within a computer. This section starts by learning about Binary, Denary and Hexadecimal conversions, then moves onto looking at image and sound representation. This section concludes with students looking at data compression techniques including Run-Length Encoding and Huffman Coding.	• Binary/Hexadecimal Conversion Quiz • 3.3 – Data Representation Assessment
	Summer 2	Specification Point 3.4 – Computer Systems	In this section students will learn about the essential hardware and software required to create a functional computer system. They will learn about key components including the Motherboard, The CPU, RAM, ROM and Secondary Storage. They will also learn about the different categories of software and some of the key functions of the operating system.	• 3.4 – Computer Systems Assessment • Secondary Storage Assessed Timelines • Year 10 Mock Exam

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Year 11	**Autumn 1**	Specification Point 3.5 – Fundamentals of Computer Networks	In this section students will start to build an understanding of how computers can be networked together to perform tasks and to share data and resources. They will build an understanding of different network topologies then develop their understanding of how the internet works including the different stages of the TCP/IP protocol stack.	• 3.5 – Computer Networks Assessment
	Autumn 2	Specification Point 3.6 – Cyber Security	In this section students will learn about a variety of different cyber security threats which computer users face on a daily basis. They will learn about the different categories of threats and about how organisations and businesses can directly address and prepare for these threats during their system development. Students will also learn about social engineering techniques used to gain access to users' personal data and some of the techniques used to avoid these.	• 3.6 – Cyber Security Assessment • Year 11 Mock Exam
	Spring 1	Specification Point 3.7 – Databases and SQL	In this section students will develop their understanding of how databases can be used to store information in an organised way. They will learn about how different entities must be stored in appropriate data tables and how keys can be used to identify and relate these tables together. Students will learn about the use of Structured Query Language (SQL) to carry out database operations on SQL databases.	• 3.7 – Database Assessment
	Spring 2	Specification Point 3.8 – Ethical, Legal and Environmental Issues	In this section students will build an understanding of the different ethical issues which surround the use of computers including the digital divide and appropriate use of computers. They will also learn how this links into specific legislation regarding the safe and legal; use computers e.g. GDPR, The Computer Misuse Act. Students will conclude this section by discussing the environmental issues surrounding the development of technology from the mining or raw materials up to the consumption of energy used to charge and use these devices.	• 3.8 – Ethical, Legal and Environmental Assessment
	Summer 1	Revision and Exam Preparation	At this point students will be preparing for their summer assessments looking specifically at exam technique and utilising existing resource such as past exam papers to develop their skills and knowledge across the breadth of their specification.	• Exam Practice Papers • Past Exam Questions
	Summer 2	N/A	N/A	• N/A