



Computing KS4 Curriculum Overview 2021–22

Technology allows students the opportunity to be creative and understand how ideas can be developed into everyday products. It aims to prepare students for an ever-increasing technological world and gain important skills for life!

Exam board and syllabus name: AQA GCSE Computer Science 8525				Final examination 100% (2 papers, 50% each)
Year 9				
Term	Unit/topic	Knowledge	Skills	Assessment
Summer 2	2. Programming	Programming constructs and terminology: Variables Iteration Selection Arrays/Lists/Dictionarys Functions/Procedures Inputs/Outputs File Handling	Program Construction. Reiteration of key terms and meanings outside of programming activities. High level programming skills and application development.	Programming challenges
Year 10				
Autumn term 1	1. Fundamentals of Algorithms	Computational Thinking (<i>Decomposition, Abstraction, Pattern Recognition</i>) Pseudocode and Flowcharts Searching and Sorting Algorithms Hierarchy structuring	Problem Solving. Algorithmic Thinking. Performing complex operations using arithmetic and programming skills.	100% End of Unit Test
Autumn term 2	3. Data Representation	Data and information Number Bases Conversions between bases Units of information Binary Arithmetic Character Encoding (ASCII and Unicode) Representing Images and Sound Compression methods	Arithmetic skills to develop an understanding of Pixels and soundwaves through a digital system. Explanation of how compression methods work within a computer system using Huffman. logic and Character Encoding.	100% End of Unit Test



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Spring term 1	4. Computer Systems	Boolean Logic (AND/OR/NOT) Software Classification (Application/Utility/System Software) Systems Architecture (Von Neumann/CPU/Memory/Storage/Advances in technology/Embedded Systems)	Demonstration of schematics within a Central Processing Unit and explaining what affects a computer's performance when using applications or system software. Theories of Moore's law and Von Neumann's architecture put into practice when explaining technological advances within computing and future technologies.	100% End of Unit Test
Spring term 2	5. Networking	Network Types Network Topologies Bandwidth and IP Addressing Protocols Network Hardware Network Security TCP/IP Model	Constructing a private virtual network using hardware assembly and software engineering data packets from one system to another.	100% End of Unit Test
Summer term 1	6. Cyber Security	Cyber threats (Malware and Human errors) Social Engineering Techniques Security and Prevention Methods Encryption Techniques	Explaining how malware can affect a user's computer whilst also providing preventative and measured strategies in recovery.	100% End of Unit Test
Summer term 2	Consolidation, revision, Mock Exam and Feedback.	Python programming. All units covered to date: Algorithms, Data Representation, Computer Systems, Networking and Cyber Security.	Understand how to revise for examinations, Python skills, examination practise.	100 % Mock examination Paper. Will be a mix of Paper 1 and Paper 2.



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Year 11				
Term	Unit/topic	Knowledge	Skills	Assessment
Autumn term 1	7. Relational Databases and SQL	Concept of a database. Concept of a relational database. SQL query language	Use SQL to retrieve data from a minimum of two tables. Use SQL to insert, delete and edit data into a database.	100 % End of unit test.
Autumn term 2	Recap of Units 1-3	Preparation for Nov/Dec Mock Paper 1 (Computational Thinking and problem Solving) for Units 1-3. Recap of previous Units (1-3).	Revision techniques in preparation for Mock Paper 1	Mock Paper 1 (Units 1-3)
Spring term 1	8. Ethical, Legal and Environmental impacts of Digital Technology	Privacy issues Risks of Digital Technology Cybersecurity Mobile Technologies Wireless Networking Cloud Storage Legislation and Laws of Computing Hacking wearable technology Computer Based Implants Autonomous Vehicles	Debating and case study analysis. Interpretation and evaluation of key scenarios within computing.	100% End of unit test. Mock Paper 2 (Units 4-8)
Spring term 2	Recap and Recall tasks (Units 1-8)	Preparation for March Mock Examination (Written Assessment)	Preparation for Examination papers. Comprehension analysis through Socratic quizzes and past paper questions.	Mock Paper 2 (Units 4-8) Past papers, in class assessments
Summer term 1	Revision of Units 1-7	General revision in preparation for May 2020 examinations. Past papers and analysis of high mark band questioning.	Preparation for Examination papers.	Past papers and new style 8252 papers.
Summer term 2	Most of this half term is made up of study leave and GCSEs.			