

Year 12 & 13 Computer Science Paper 2 – Outline Programme of Study

	Year 12 Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Big ideas/ topics	3.6 Fundamentals of computer systems	3.5 Fundamentals of data representation 3.8 Consequences of uses of computing	3.7 Fundamentals of computer organisation and architecture	3.7 Fundamentals of computer organisation and architecture 3.9 Fundamentals of Communication & Networking	Revise/Recap	Revise/Recap Examinations NEA
Key Knowledge	Hardware and software, Classification of programming languages, Types of program translator, Logic gates, Boolean algebra.	Number systems, Number bases, Units of information, Binary number system, Information coding systems, Representing images, sound and other data, Individual (moral), social (ethical), legal and cultural issues and opportunities	Internal hardware components of a computer, The stored program concept, Structure and role of the processor and its components, External hardware devices,	Internal hardware components of a computer, The stored program concept, Structure and role of the processor and its components, External hardware devices, Communication, Networking,		
	Year 13 Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Big ideas/ topics	4.6 Fundamentals of computer systems 4.13 Systematic approach to problem solving NEA – Analysis	4.10 Fundamentals of Databases 4.8 Consequences of uses of computing - REVISION NEA - Design	4.5 Fundamentals of data representation 4.9 Fundamentals of communication and networking NEA – Development	4.7 Computer Architecture & Organisation 4.11 Big Data 4.12 Fundamentals of functional programming NEA – Testing and Evaluation.	Revise/Recap	Examinations
Key Knowledge	Hardware and software, Types of program translator, Logic gates, Boolean algebra, Aspects of software development,	Individual (moral), social (ethical), legal and cultural issues and Opportunities, Conceptual data models and entity relationship modelling, Relational databases, Database design and normalisation techniques, Structured Query Language (SQL), Client server databases,	Number systems, Number bases, Units of information, Binary number system, Representing images, sound and other data, Communication, Networking, The Internet, The Transmission Control Protocol/Internet Protocol (TCP/IP) Protocol,	Internal hardware components of a computer, The stored program concept, Structure and role of the processor and its components, External hardware devices, Big Data, Functional programming paradigm, Writing functional programs, Lists in functional programming,		

Further information and reading list

- Exam board:** AQA A Level Computer Science 7516/7517: <https://www.aqa.org.uk/subjects/computer-science-and-it/as-and-a-level/computer-science-7516-7517>



Textbook: AQA AS and A Level Computer Science: <https://www.pgonline.co.uk/resources/computer-science/a-level-aqa/aqa-as-and-a-level-textbook/>

- **Useful websites:** Physics and Maths Tutor: <https://www.physicsandmathstutor.com/computer-science-revision/a-level-aqa/> , Isaac Computer Science: https://isaacomputerscience.org/topics/a_level?examBoard=all&stage=all#aqa
- , AQA subject specific vocabulary: <https://www.aqa.org.uk/resources/computer-science-and-it/as-and-a-level/computer-science-7516-7517/teach/subject-specific-vocabulary> and AQA command words: <https://www.aqa.org.uk/resources/computer-science-and-it/as-and-a-level/computer-science-7516-7517/teach/command-words>
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Ways to support and extend student learning in this subject

- **Support guidance:**
- All lessons and resources are posted to the students Google Classroom for Computer Science. The assignments should be revisited to consolidate knowledge and to revise.
- Learn the subject specific vocabulary: <https://www.aqa.org.uk/resources/computer-science-and-it/as-and-a-level/computer-science-7516-7517/teach/subject-specific-vocabulary>
- Use the Craig 'n' Dave YouTube tutorials on Physics and Maths Tutor to revisit topics and consolidate learning: <https://www.physicsandmathstutor.com/computer-science-revision/a-level-aqa/>
- **High-achieving guidance:**
- Previous exam papers with corresponding answers and commentary are available for students to work through independently on the AQA website: <https://www.aqa.org.uk/subjects/computer-science-and-it/as-and-a-level/computer-science-7516-7517/assessment-resources>
- Further reading and revision tasks can be found with Isaac Computer Science: https://isaacomputerscience.org/topics/a_level?examBoard=all&stage=all#aqa
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