
COMPUTER SCIENCE

Exam board: AQA

Aims of the Course

- Computer Science teaches problem-solving, programming basics, data structures, algorithms, and computation limits.
- Demonstrate knowledge and understanding of the principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- Apply knowledge and understanding of the principles and concepts of computer science, including to analyse problems in computational terms.
- Design, program and evaluate computer systems that solve problems, making reasoned judgements about these and presenting conclusions.

Types of Learning Experience:

Students of A Level Computer Science will develop the ability to apply the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms and data representation.

Additionally students will analyse problems in computational terms through the practical experience of solving such problems, including writing programs to develop the capacity for thinking creatively, innovatively, analytically, logically and critically the capacity to see relationships between different aspects of computer science.

Learners will acquire mathematical skills related to Boolean algebra; comparison and complexity of algorithms as well as number representations and bases.

Finally, learners will enhance their ability to articulate the individual (moral), social (ethical), legal and cultural opportunities and risks of digital technology.

Link Subjects:

Computer Science is complimented by study of Maths A Level though it is not necessary to study it alongside. It works well with most other A Levels including modern foreign languages.

Progressing to Higher Education:

This A Level is relevant to many HE destinations and valuable can lead on to a computer science degree.

Careers:

Digital copywriter
IT sales professional
IT trainer
IT trainer
Nanotechnologist
Network engineer
PPC specialist
Social media manager
Supply chain manager
Technical author

Content:

1. Fundamentals of programming
2. Fundamentals of data structures
3. Fundamentals of algorithms
4. Theory of computation
5. Fundamentals of data representation
6. Fundamentals of computer systems
7. Fundamentals of computer organisation and architecture
8. Consequences of uses of computing
9. Fundamentals of communication and networking
10. Fundamentals of databases
11. Big Data
12. Fundamentals of functional programming
13. Systematic approach to problem solving

Weighting of assessment:

<u>Paper component</u>	<u>Mark</u>
Paper 1	100
Paper 2	100
NEA	75

Entry requirements:

A minimum of 5 GCSE grades at 9-4 including English is required along with a grade 6 in Maths. GCSE grade 4 in Computer Programming is desirable.

