

Computer Science

Subject content

Students will develop:

- An understanding of the fundamental principles and concepts of computer science.
- The ability to analyse and solve problems, including by writing original program code.
- The capacity for thinking creatively, innovatively, analytically, logically and critically.
- Mathematical skills in Boolean algebra, complex algorithms and data representation.
- An awareness of the moral, social, legal and cultural consequences of digital technology.

AQA Computer Science course specifications

[<http://filestore.aqa.org.uk/resources/computing/specifications/AQA-7516-7517-SP-2015.PDF>]

Specific entry requirements

GCSE Grade 6 or above in Mathematics is essential. There will also be an induction test for programming aptitude. It is recommended that A Level Computer Science is taken alongside other science subjects and/or Mathematics. GCSE Computer Science is not compulsory, but experience of coding is very helpful, especially for non-science students.

Learning methods

You will be taught using a variety of methods, including presentations, lectures and group work. There will be regular programming sessions where you will learn and practice independent coding skills. Weekly assessments include worksheets and online quizzes.

Assessment

At the end of the course, there are two formal examinations:

Paper 1 – Practical – on-screen programming

Tests a student's ability to write code, as well as theoretical knowledge, covering: Fundamentals of programming, data structures, algorithms and computation theory.

Paper 2 – Theory – written

Tests a student's ability to answer questions covering: data representation, computer systems, architecture, effects of use of computers, communication and networking, databases, Big Data and functional programming.

Non-exam assessment – Coursework

During the second year, students will produce an individual project which demonstrates their problem-solving and coding ability. They will use the knowledge and skills gained throughout the course to create software on a subject of personal interest. Students will work independently over an extended period and present their results as a programmed solution and accompanying formal technical report.

Progression opportunities

Computer Science will prepare you for a range of specialist degrees including Computing and Software Engineering. It also provides transferable skills for a range of other scientific and technical subjects. Career pathways could include: network administrator, database analyst/designer, website developer, technical support, and programmer.

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