

OCR A Level Computer Science

Why study Computer Science?

Computer Science is a practical subject where students can apply the academic principles learned in the classroom to real-world systems. It's an intensely creative subject that combines invention and excitement, and can look at the natural world through a digital prism.

The aims of this qualification are to enable you to develop:

- An understanding and ability to apply the fundamental principles and concepts of computer science, including: abstraction, decomposition, logic, algorithms and data representation
- The ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so
- The capacity to think creatively, innovatively, analytically, logically and critically
- The capacity to see relationships between different aspects of computer science
- Mathematical skills

What are the entry requirements?

You must have Grade 6 or above in GCSE Computer Science

Grade 6 in GCSE Mathematics

Grade 5 or 6 in GCSE English Language or Literature

What will I study?

- The characteristics of contemporary processors, input, output and storage devices
- Software and software development
- Exchanging data
- Data types, data structures and algorithms
- Legal, moral, cultural and ethical issues
- Elements of computational thinking
- Problem solving and programming
- Algorithms to solve problems and standard algorithms

You will choose a computing problem to work through according to the guidance in the specification.

- Analysis of the problem
- Design of the solution
- Developing the solution
- Evaluation

You will enjoy this course if...

- You have an active interest in programming and development.
- You have good analytical skills and are creative in your problem solving.
- You possess the mind set to deal with challenges.
- You have good independent research skills and effectively manage your time.
- You have an interest in understanding how businesses use software to solve problems.
- You enjoy using programming languages to create and manipulate programmed solutions.
- You have an interest in factors related to cyber security and considering solutions to effectively manage or eliminate threats posed on a system.

How will my work be assessed?

The A Level in Computer Science is a linear qualification with 100% terminal external assessment.

This qualification consists of two examined components (01 and 02), externally assessed by OCR and one internally assessed and moderated non exam assessment component (03 or 04).

Both examinations are of 2 hours and 30 minutes duration, each with a 40% weighting. The non-exam assessment component weighted at 20%.

Computer systems (Component 01)

You answer all the questions. There will be a mix of questions including short answer, longer answer and some higher tariff questions that will test the quality of extended responses. Marks for these responses are integrated into the marking criteria.

Questions may contain, for example, following and correcting algorithms and programs, software development and legal and moral issues.

Algorithms and programming (Component 02)

You will answer all the questions in Section A and all questions in Section B. There will be a mix of questions including short answer, longer answer and some higher tariff questions that will test the quality of written responses via a level of response mark scheme.

Section A will contain questions which may cover writing algorithms and computational methods, programming and programming techniques and problem solving. These questions may contain some shorter answer questions.

Section B will have a scenario set at the start of the section; this will contain information that will be used for the questions that follow. The questions will be largely of a higher tariff with problem solving algorithms and programming again forming the basis.

Programming project (Component 03 Repository or 04 Postal)

The programming project will be submitted in the form of a report that will contain the solution to a problem, selected by the learner or centre, written in a suitable programming language.

Within the report the learner must demonstrate their ability to analyse, design, develop, test and document using the principles learnt in computational thinking. The report will be marked internally by the centre using the Programming project content in section 2c, in conjunction with the marking criteria in section 3e of this specification.