A Level Computer Science

Exam Board: OCR

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.

OCR's A Level in Computer Science will value computational thinking, helping learners to develop the skills to solve problems, design systems and understand the power and limits of human and machine intelligence. Learners will develop an ability to analyse, critically evaluate and make decisions.

Course Summary:

Learners will gain...

• **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**

• **The ability to articulate the individual (moral), social (ethical), legal and cultural opportunities and risks of digital technology**

• **Mathematical skills.**

• **Practical skills to develop a programming project of your own design.**

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Assessment:

Paper 1:

2.5 hours – 140 marks – 40% of grade

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

Paper 2:

2.5 hours – 140 marks – 40% of grade

• Elements of computational thinking

• Problem solving and programming

• Algorithms to solve problems and standard algorithms

NEA Project – 80 marks – 20% of grade

• The learner will choose a computing problem to work through analysis, design, development and evaluation of the project.

Entry requirements:

6+ GCSE Computer Science (if taken), 6+ GCSE Mathematics due to the technical nature of the subject.

Who is the course for?

The course is suited to logical thinkers, problem solvers and those with an interest in technology. A good understanding of mathematical principals is important. Students with a keen interest in STEM subjects tend to do well. While it is advantageous to have studied Computer Science at GCSE, it is not essential.

Career pathways

Further study, including apprenticeships or university degree in Computing/IT upon successful completion of post-16 study. Employment opportunities in STEM fields such as; Software development, Cyber security, Engineering, Data analyst, Web design, or AI.

"Computer Science allows you to learn how the mind of a machine works, through interesting and interactive lessons. It provides practical skills that are useful in today's technological world."