Computer Science

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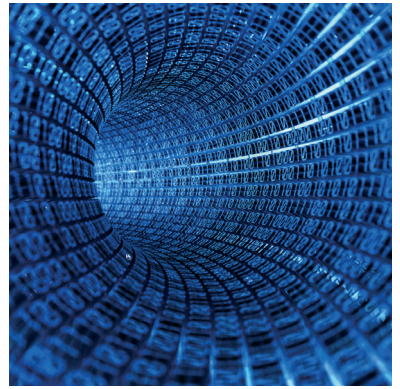
Examination Board: OCR

■ What is the course about?

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.

■ For the two-year linear A Level you will 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.

■ How is the course assessed?

The course is assessed by two written exams worth 40% each and a programming project worth 20%.

■ What skills will I need and develop in this course?

The aims are to encourage students to:

• Have an expanded maths focus, much of which will be embedded within the course.
• Put computational thinking at its core, helping students to develop the skills to solve problems, design systems and understand human and machine intelligence.
• Allow students to apply the academic principles learned in the classroom to real-world systems in an exciting and engaging manner.
• Develop an ability to analyse, critically evaluate and make decisions. The project approach is a vital component of 'post-school' life and is of particular relevance to further education, higher education and the workplace. Each student is able to tailor their project to fit their individual needs, choices and aspirations.

■ Subject combination advice

Computer science combines well with all subjects. If you plan to develop programming, you may wish to study mathematics and physics.

■ What can the course lead to in terms of higher education and future careers?

This course lends itself to the business world, helping young learners understand the use and role technology can play in supporting and improving businesses.

It may also help students investigate further pathways into computer science, vocational courses such as programming, networking, computer systems and further specific computer science avenues. It can support applicants aiming for higher education; universities can differentiate between applicants through a strong basis of technological competencies as well as a recognised Level 3 academic qualification.

■ What are the formal entry requirements?

GCSEs in English and mathematics at Grade 6 or above.

■ What activities enrich this subject?

The department aims to take students on relevant industry visits. Database design, web design, spreadsheet modelling, graphic design, animation, discussion of the future implications and applications of computer science all enrich the subject.