Computer Science

This exciting GCSE gives you an excellent opportunity to investigate how computers work, how they're used and to develop computer programming and problem-solving skills. You'll also do some fascinating in-depth research, build computers from their core components and practical programming in languages such as Python or Java Script. The course will help you learn about critical thinking, analysis and problem solving.

Aims:

o Understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation.

o Analyse problems in computational terms through practical experience of solving such problems including designing, writing and debugging programs.

o Think creatively, innovatively, analytically, logically and critically.

o Understand the components that make up digital systems, and how they communicate with one another and with other systems.

o Understand the impacts of digital technology to the individual and to wider society.

o Apply mathematical skills relevant to Computer Science.

o Have fun and leave school with a Computing qualification of the highest level, essential for whatever career path you choose.

How will I be assessed?

Computer systems

You will become familiar with the impact of Computer Science in a global context through the study of the ethical, legal, cultural and environmental concerns associated with Computer Science.

Content: Systems architecture; memory, storage; wired and wireless networks; network topologies, protocols and layers; system security; system software; ethical, legal, cultural and environmental concerns. There will be practical activities, including the chance to construct computers and explore the world of V.R.

1 hour 30 minutes, written paper (50% of the total GCSE).

Computational thinking, algorithms and programming

You will be introduced to algorithms and programming, learning about programming techniques, how to produce robust programs, computational logic, translators and facilities of

computing languages and data representation. You will become familiar with computing related mathematics.

Content: Algorithms; programming techniques; producing robust programs; computational logic; translators and facilities of languages; data representation.

1 hour 30 minutes, written paper (50% of the total GCSE).

Programming Project

You must think computationally to solve a series of real world scenarios and while doing so create a report detailing the creation of your solution, explaining what you did and why you did it.

Content: Programming techniques; analysis; design; development; testing and evaluation and conclusions.

Controlled assessment programming task: Design, develop and test a solution to a problem within the OCR-set scenario. Although there are no marks awarded for completion of the project, it is a core component that is submitted to OCR.

Further Information

If you take a GCSE in Computer Science and then go on to study Computer Science at A-level or university, you'll have an advantage over fellow students who are picking up the subject at these higher levels. The increasing importance of information technologies means there is already a growing demand for professionals who are qualified in this field. This GCSE is very highly regarded and will be useful to you, whatever career you eventually embark upon.

The course is also an excellent preparation if you want to study or work in areas that rely on the skills you'll develop, especially where they're applied to technical problems. These areas include engineering, financial and resource management, multimedia, games design, science and medicine.

Exam Board: OCR Syllabus J276
www.ocr.org.uk/qualifications/gcse-computer-science-j276-from-2016/