



Workington Academy - Sixth Form

Subject: OCR A Level Computer Science

Why you should study Computer Science

Computer Science is relevant to the modern and changing world of computing. It 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, that can look at the natural world through a digital prism. Computer Science qualifications will value computational thinking, helping students to develop the skills to solve problems, design systems and understand the power and limits of human and machine intelligence. These are the concepts that lie at the heart of A Level Computer Science. This will be the best preparation for students who want to go on to study Computer Science at a higher level and will also provide a good grounding for other subject areas that require computational thinking and analytical skills.

Examination Board: OCR

Course Content

Computing Principles - This component will cover the characteristics of contemporary processors, input, output and storage devices - components of a computer and their uses, software and software development - types of software and the methodologies used to develop them, exchanging data - how data is exchanged between different systems, data types, data structures and algorithms - how data is represented and stored in different structures and the use of different algorithms, legal, moral, cultural and ethical issues - laws surrounding the use and ethical issues that can arise from the use of computers

Algorithms and Problem Solving - This component will involve elements of computational thinking - what is meant by computational thinking, problem solving and programming - how computers are used to solve problems and programs can be written to solve them, algorithms - the use of algorithms to describe problems and standard algorithms. There'll be a scenario/task contained in the paper, which could be an algorithm or a text page-based task, which will involve problem solving.

Programming Project – With guidance, students and/or centres select their own user-driven problem of an appropriate size and complexity to solve. This will enable them to demonstrate the skills and knowledge necessary to meet the Assessment Objectives. Students will need to analyse the problem, design a solution, implement the solution and give a thorough evaluation.

Assessment:

The course consists of 3 components studied over the course of two years of study and is a single award. Two components are externally assessed by an exam; each of these is worth 40% of the final mark. The programming project is assessed internally and moderated externally; this is worth 20% of the final mark.



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Skills Developed, Progression and Possible Future Careers

This qualification is suitable for students intending to pursue any career in which an understanding of technology is needed. The qualification is also suitable for any further study as part of a course of general education. It will provide students with a range of transferable skills which will facilitate personal growth and foster cross curriculum links in areas such as Maths; Science and Design and Technology. Computer Science is a very creative subject and skills such as problem solving and analytical thinking will all be refined and explored as students' progress through the learning and assessment programme.