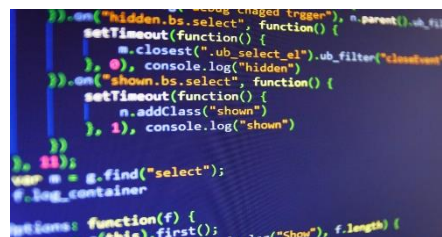


Woodrush Sixth Form – Excellence Through Endeavour



Computer Science



Overview

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 learners 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.

Assessment

Unit 1- Computer Systems (01) - 140 marks – 40% of total A level - 2 hours and 30 minutes written paper

This component will introduce learners to the internal workings of the Central Processing Unit (CPU), the exchange of data and will also look at software development, data types and legal and ethical issues

Unit 2- Algorithms and Programming (02) – 140 marks – 40% of total A level – 2 hours and 30 minutes written paper

This component will incorporate and build on the knowledge and understanding gained in the Computer systems component (01).

In addition, learners should:

- Understand what is meant by computational thinking
- Understand the benefits of applying computational thinking to solving a wide variety of problems
- Understand the principles of solving problems by computational methods
- Be able to use algorithms to describe problems
- Be able to analyse a problem by identifying its component parts.

Unit 3 – Programming Project (03) 70 marks – 20% of total A level

Learners will be expected to analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The underlying approach to the project is to apply the principles of computational thinking to a practical coding problem. Learners are expected to apply appropriate principles from an agile development approach to the project development.

Requirements

Learners must display a strong work ethic and have an interest for the subject. Students are required to have coded using any relevant computer coding language (C+, Java, Python).

The course requires the minimum GCSE grades of a 7 in Math's or a GCSE grade 6 for Computer Science.

Exam Board



OCR Computer Science
A level (H446)

<https://www.ocr.org.uk/Images/170844-specification-accredited-a-level-gce-computer-science-h446.pdf>

Progression and Career Opportunities

Computer Science is a practical subject where learners can apply the academic principles learned in the classroom to real world systems. It is 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. 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 learner is able to tailor their project to fit their individual needs, choices and aspirations.