

# Computer Science A Level



**Exam Board:** AQA

**Entry requirements:** Grade 5 in GCSE Maths

## Intent

### Structure

The aim of this course is to teach students about ideas and techniques in Computer Science which can be described as the science of problem solving. If you love solving an equation or enjoy a sudoku this course contains plenty of logical techniques and problems that will challenge you. This course will also appeal to people who want to understand more about the technology that surrounds us every day as it also includes learning about computer systems and how they work. Students also practice and develop their programming skills so if you already enjoy coding or if it is a skill you'd like to develop, you should consider Computer Science.

There are two exam papers: Paper 1 – Problem Solving and Programming and Paper 2 - Computer Systems. Students are taught knowledge and skills for each of these papers while practicing and developing their programming skills. Programming skills are assessed in the Paper 1 exam and also in the Programming Project which is carried out in the second year of the course. There are a very large number of topics in the course including examples below:

#### Year 1 includes

- Data structures
- Systematic approach to problem solving
- Theory of computation
- Data representation
- Computer organisation and architecture
- Consequences of uses of computing
- Communication and networking

#### Year 2 includes

- Programming, including object oriented
- Computer organisation and architecture
- Consequences of uses of computing
- Communication and networking
- Databases
- Big Data
- The programming Project
- Preparation for the programming exam

## Implementation

### Content & Sequencing

Computer Science is currently taught by Mr Isaacs who has an excellent track record of teaching the subject, backed up by industry experience in programming, networking and infrastructure.

### Assessment Methods

Exams: Two exams, each accounting for 40% of the overall marks.

**Paper 1:** Problem Solving and Programming. This exam includes programming tasks and also data structure and problem solving techniques.

**Paper 2:** Computer Systems. This is about how computer systems and networks work and how information is represented in digital systems.

There is also a programming project which accounts for 20% of the final marks. In this project the students work independently to complete a programming project. The brief specifies the level of complexity that they should aim for but the actual purpose of the programs is decided by the students, supported by the teacher.

### Further information contact

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## Impact

### Onward Progression

The Computer Science course teaches about how computer systems and communications and networks work. It also teaches programming to a higher level than GCSE including object oriented programming in year 13. The students also learn about computer scientists' (e.g. Alan Turing) work in the science of problem solving.

The Programming Project in Year 13 encourages students to spread their wings and develop coding skills in order to complete and document a project. This is their opportunity to demonstrate their ability to work independently.

Strongly recommended for those who are planning either to study Computer Science at degree level and also for those who are planning to work in any field where a deeper understanding of computing is required.

This is also an ideal course for those who are aiming for a career in technology, engineering whether they intend to go to university or take an apprenticeship.

People with the right skills in computing are in high demand by employers in every sector and this is likely to remain the case. An A-Level in Computer Science is valuable preparation for further study and for a wide range of exciting careers.