Alder Grange Sixth Form Centre

Computer Science

A-LEVEL

EXAM BOARD OCR

COURSE CONTENT

Component 1: Computer Systems

Students are introduced to the internal workings of the (CPU), data exchange, software development, data types and legal and ethical issues. It covers:

- The characteristics of contemporary processors, input, output and storage devices
- Types of software and the different methodologies used to develop software
- Data exchange between different systems
- Data types, data structures and algorithms
- Legal, moral, cultural and ethical issues

Component 2: Algorithms and programming

This builds on component 01 to include computational thinking and problem-solving. It covers:

- What is meant by computational thinking
- Problem solving and programming – how computers and programs can be used to solve problems
- Algorithms and how they can be used to describe and solve problems.

Component 3: Programming project

Students are expected to apply the principles of computational thinking to a practical coding programming project. They will analyse, design, develop, test, evaluate and document a program written in a suitable programming language. Students typically produce a fully working game, although other real-world programs can be developed if this is preferred.

ASSESSMENT

Component	Assessment	Duration	Weighting
1.	Computer Systems	2 ½ hours	40%
2.	Algorithms and Programming	2 ½ hours	40%
3.	Programming Project	N/A	20%

CAREER OPPORTUNITIES

A-level Computer Science provides excellent opportunities to either:

- Enter the job market
- Start an apprenticeship at a company
- Continue on to higher education at university or a degree apprenticeship

Careers in Software Development, Technical Support, Project Management, Network Management, Cyber Security, and Website Development are just some of the IT Sector careers.

Due to the pace of change within the IT sector, university courses often include an industrial placement year. This provides real world experience as well as a potential job once you have finished university. Previous AG6 students have gone on to opportunities working in London, Belfast and USA.

Other sectors also highly value the computational thinking and programming skills you will develop, for example programming is used in Physics degree courses and statistical analysis based careers utilise computer algorithms to solve problems.

A-Level Computer Science complements Maths, Further Maths, Physics, Business Studies, ICT and Social Sciences.