

## COMPUTER SCIENCE (AQA: A-Level 7517)

The course enables development and understanding of how computers work on a technical level. The course is focused on the fundamental aspects of computer architecture and has an emphasis on the use of programming languages to write programs and applications for real world use. Tuition is split between classroom based theory and computer-based practical skills to prepare the student for a substantial coursework project in Year 13. The course is split into the following 3 modules:

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### Module 1 - Programming

- Fundamentals of programming
- Fundamentals of data structures
- Fundamentals of algorithms
- Theory of computation
- Assessed by a 2.5 hour practical programming test (40%) focused on a pre-learnt skeleton program

### Module 2 - Computer Systems

- Fundamentals of data representation
- Fundamentals of computer systems
- Fundamentals of computer organisation and architecture
- Consequences of uses of computing
- Fundamentals of communication and networking
- Big Data
- Fundamentals of functional programming
- Assessed by a 2.5 hour written paper theory paper (40%)

### Module 3 - Programming project (coursework / Non-exam assessment)

- User-driven systems lifecycle project
- Analyse a problem and design a solution
- Implement the solution
- Test and evaluate the solution
- Assessed by a practical programming project (20%) where students choose their own project scenario.

## Expectations of Students and Career Implications

The ability to work independently; the ability to keep up with current trends in ICT and computing; the ability to work to deadlines; a technical interest in computing and programming. Students will be expected to have at least a B grade in both Computer Science and Mathematics at GCSE.

With current growth in the requirement for computing specialists (such as software developers and network administrators) across industry this course should enhance career opportunities and provide an excellent platform for a specialist computing role in future.



### WHERE NEXT?

**Millie Norton**

Computer Science at the University of Glasgow

Studied Design Technology, Maths, Economics and Spanish