A-level Computer Science

Board and Specification: **OCR AS-level H046, A-level H446 Computer Science**
Head of Department: **Mrs A Benjamin** (a.benjamin@cwlc.email)

Subject specific entry requirements:

- Essential: at least grade 5 in Mathematics.
- Grade 5 in English Literature and/or English Language
- Desirable: at least 5 grade computing GCSE.

Students do not need any previous experience of programming, although it would be useful

What skills are required of students?

- Logical thinking skills
- Ability to practise programming skills in their own time
- Ability to work independently.
- Problem solving skills

What the A-level is like - what kind of topics and texts are studied over the two years?

Building on the skills acquired at GCSE, A-level Computing emphasizes the importance of computational thinking as a discipline. Topics covered during the course will include:

- Thinking procedurally and logically, looking at pattern recognition, abstraction and decomposition.
- Understanding algorithm design and efficiency.
- Exploring the power (and limits) of human and machine intelligence.
- Network and internet technology.
- The ethical and cultural issues that surround the topics.

Modules titles and codes:
Computer systems (01) A-level H446

- The characteristics of contemporary processors, input, output and storage devices
- Software and software development
- Exchanging data
- Data types, data structures and algorithms
- Legal, moral, cultural and ethical issues

Assessed by written paper 40% of total A-level

Algorithms and programming (02) A-level H446

- Elements of computational thinking
- Problem solving and programming
- Algorithms

Assessed by written paper 40% of total A-level

Programming project (03) A-level H446
The candidate will choose a computing problem to work through according to the guidance in the specification.

- Analysis of the problem
- Design of the solution
- Developing the solution
- Evaluation

Non- exam assessment 20% of total

What kinds of work will you do in class and at home?

Students will be expected to analyse, design, develop, test, evaluate and document a program written in a suitable programming language.
Work on developing knowledge of algorithms and programming.
Students will develop their theory knowledge including the internal workings of the Central Processing Unit (CPU), the exchanging of data and also look at software development, data types and legal and ethical issues.

What other A/AS-levels does your subject connect well with?

Anything requiring creativity, problem solving and analytical thinking. For example, A-levels in: Mathematics, Science and Business Studies.

What types of university course will be helped by this A-level?
Computing, computer science, mathematics, sciences