



Broxbourne School

Achievement & Opportunity for all

Welcome to

OCR A-Level Computer Science



Department Staff

Mrs A Mountain: Head of Department

Mrs L Boyle: A-Level Computer Science Teacher

Miss D Hawkins: A-Level Computer Science Teacher

Key information

Exam Board: OCR **Spec Code:** H446

Ideal for Students who:

- Are looking to develop an advanced understanding of Computer Science
- Want to apply their coding ability to solve real-world problems
- Are looking at a Computing Oriented degree
- Are aiming to work in the Computing industry

Progress to: University, employment, Level 4 higher Apprenticeships.

The qualification

A Level Computer Science qualification splits learning into 3 sections:

- Computer Fundamentals
- Programming Techniques and Logical Methods
- Programming Project.

This A Level develops the ability to:

- Think creatively, innovatively, analytically, logically and critically.
- Apply skills in and understanding of computing (including programming) in a range of context to solve problems.
- Delve into producing graphical user interfaces and object - oriented programming solutions.

Assessment

Computer Systems (01)

140 marks

2 hours and 30 minutes **written paper** (no calculators allowed)

40% of total A level

Algorithms and Programming (02)

140 marks

2 hours and 30 minutes **written paper** (no calculators allowed)

40% of total A level

Programming Project (03)

70 marks

Coursework based assessment

20% of total A level

Course content

Exam Content (Paper 1 and Paper 2)

- 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
- Elements of computational thinking
- Problem solving and programming
- Algorithms to solve problems and standard algorithms

Programming Project Content

You 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

The programming project

- 20% of the total A-Level
- Students will be taught to program in Python.
- There is an expectation that students have some prior experience in coding, whether it's self taught over the summer or through completing previous qualifications.
- Students will be taught the main constructs of programming, building upon their current knowledge.
- Students will choose their own project title. Teachers will advise students to ensure what they propose allows them to access the top mark bands.
- Other high-level programming languages, apart from Python, can be used to create the project (if within the shortlist provided by OCR) but this does mean less technical support can be offered by teachers.
- The programming project is completed independently by students within set deadlines, there is no allocated time restrictions when completing the project.
- There are almost no restrictions on the types of project that are allowed to create, as long as they demonstrate students programming abilities to an advanced level.

What Students will need

- **A folder, lined paper & necessary stationary for notes**
- **Access to a Computer at home, either PC or laptop.**
Chromebooks can be used for theory work and some coding in online environments such as Repl.it, but access to functionality could be limited.
- **Repl.it account - free online coding environment**
- **Books & revision guides (to be confirmed during the course)**

Our expectations of students

- To have some prior coding experience
- Weekly homework task will be set
 - exam style questions
 - peer or teacher assessed
- Independent learning
 - coding & theory tasks
 - must show evidence of prior learning
 - examples and questions based on this learning covered in lesson

Our expectations of students

- End of unit tests
 - No use of support material during tests to avoid a false sense of security.
 - Students must speak to staff if they get stuck or require additional support.
 - If staff recognise students are underperforming or are not completing work inline with school expectations, they will be required to attend rehab or other necessary intervention will be introduced.
- Good organisation
 - equipment / work / punctuality / attendance

Support for students

- Access to Computer Science labs after school
- Rehab
- Email staff for support
- Support websites
 - Teach - ICT.com
 - Computer Science UK
 - You tube clips (i.e.Craig 'n' Dave)
- Work & support material will be posted on Google classroom
- Revision guides