NORTH BROMSGROVE HIGH SCHOOL & SIXTH FORM
Abeunt in Studius Mores
Studies Determine Character

Key Stage 5 Curriculum Overview

A Level Computer Science

Staff List

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Curriculum Intent

A Level Computer Science helps students understand the core academic principles of computer science. Learning that takes places inside the classroom is related and transferred into creating real-world systems through programming. The technology in the world that we live in is ever advancing, by studying Computer Science, you will put yourself in the best position to not only adapt to that change, but also be a part of it. The course will develop student's ability to; think creatively, innovatively, logically, and creatively, it will develop the ability to apply skills in and an understanding of computing in a range of contexts to solve problems.

Exam Board and Link to Specification

We follow the **OCR** specification.

• Here is the link to the specification: OCR Specification

Curriculum Implementation

OCR Computer Science is split into two sections.
1. Computer Fundamentals
2. Programming Techniques and Logical Methods

	Autumn Term	Spring Term	Summer Term
Year 12	Programming Refresher 1.1 The characteristics of contemporary processors, input, output and storage devices	1.2 Software and Software Development 1.3 Exchanging Data	DeFold Programming 2.1 Elements of Computational Thinking 2.2 Programming Techniques 2.3 Algorithms
Year 13	Unit 3 – Programming Project Introduction 1.4 Data Types. Data Structures and algorithms	1.5 Legal, Moral, Cultural and Ethical issues Programming Project	Revision

Assessment Overview

The A Level course is linear – thus, the externally examined material is undertaken at the end of year 13. In class, topics are regularly assessed using past exam papers' questions, and in the news stories when relatable.
The A level course is broken down into 3 units, all of which are assessed at the end of Year 13.

In Year 13 students will undertake 2 exam papers and submit a programming project, all which account towards the final A Level grade.

- Paper 1: Computer Systems (01) 140 Marks (2 Hours and 30 minutes, 40%)
- Paper 2: Algorithms and Programming (02) 140 Marks (2 Hours and 30 Minutes, 40%)
- Programming Project (03) 70 Marks – 20% (Roughly 20 hours)

How we build on prior learning

Links to retrieval and how the curriculum is sequenced to support prior learning and make learning memorable.

- Interleaving assessment activity
- Retrieval practice of content and course material
- Key word vocabulary testing
- Development of exam technique throughout the course
- Build on and improve programming skills in Python and other languages

Cross-curricular links with other subjects

- IT
- Maths

Enrichment opportunities

Students are given the opportunity to attend a trip to Bletchley Park to visit the National Computing History Museum and see the prestigious site where a team of code breakers including Sir Alan Turing were based when breaking the enigma code.
Students are encouraged to take part in the 'Bebras' challenge which can see successful students attend another day of programming at Oxford University.
We are also looking to plan some exam booster and theory sessions led by educational authors and experts in the local area and potentially Disneyland Paris where they run exam board specific sessions with a variety of leading experts in the field invited to present to students over a number of days.

Useful links and resources to support learning.

- Isaac Computer Science is a website for staff and students where they can study a variety of topics and attend "booster sessions". All free of charge.
- Craig 'n' Dave. A YouTube playlist consisting of a video for every aspect of the specification. Made by existing teacher.
- Code Academy. Programming is a detrimental skill for the A level computer science. There are many courses available for free via Code Academy.
- OCR Course Page. A useful resource as it displays a variety of teaching activities, access to sample assessments and more.

How can parents/carers support learning at home?

- Engage in your child's life at school and discuss what they are doing.
- Regularly discuss the importance of positive studying.
- Encourage them to watch or read news associated with developments in the computing world.
- Ensuring study time is effectively used to expand understanding on topics.

Studying Computer Science is helpful if you are thinking about:

- Progressing from this qualification to a number of different higher education courses such as Games Design, Computer Science, Software Development, Network engineering, etc.
- A level Computer Science can also lead students into joining a variety of different computing apprenticeships, ranging from web design, programmer to database design.

- A level Computer Science provides a strong foundation for employment, with students progressing into a wide range of potential careers such as:

- Further Study at University
- IT Technician
- Teaching
- Junior Programmer
- Web Design
- Game Design
- Network Engineer
- Systems Analyst
- Software Developer
- Cyber Security
- Database Administrator
- Multimedia Programmer
- Technical Writer
- IT Consultant
- Information Systems Manager
- Application Designer