Sandwell Academy

Advanced General Certificate of Education
Computer Science

WHY COMPUTER SCIENCE?

Students who choose to study Computer Science have the ability to move into many different studies at university and careers in a wide range, due to the range of skills that will be learnt. Students can move on to Higher Education courses and careers in the following areas:

Computer Forensics	Cryptology	Education
Engineering	IT/Computing	Science
Electronics	Networking	System Developers

Our Computer Science specification will above all else be relevant to the modern and changing world of computing. The new specification will:

- Focus on programming, building on our GCSE Computing and emphasise the importance of computational thinking as a discipline.
- Have an expanded maths focus, much of which will be embedded within the course.
- Put computational thinking at its core, helping students to develop the skills to solve problems, design systems and understand human and machine intelligence.
- Allow students to apply the academic principles learned in the classroom to real world systems in an exciting and engaging manner.
- Give students a clear progression into higher education, as the course was designed after consultation with members of BCS, CAS and top universities.

SPECIFIC ENTRY REQUIREMENTS

- Grade 6 in GCSE Computer Science if studied at GCSE, if not:
- Grade 7 in GCSE Maths and Grade 6 in GCSE English Language
- Preferably some knowledge in text based programming languages such as Python, C, C+, C# and Java

COURSE DETAILS

OCR Specification Computer Science (H046/H446)

Subject Content Includes

- The characteristics of contemporary processors, input, output and storage devices
- Software and software development
- Data structures
- Exchanging data
- Data types, data structures and Algorithms to solve problems, including searching and sorting algorithms and their efficiency
- Legal, moral, cultural and ethical issues
- Elements of computational thinking
- Problem solving and programming
- The fundamentals of networking and how the Internet infrastructure was built and is maintained
- Use of and creation of databases using SQL

In Year 1 you will study 2 Units as follows:

Paper 1: Computing Principles

- Written exam: 1hour 15 minutes
- 70 Marks
- 50% of final AS grade

Paper 2: Algorithms and Programming

- Written exam: 1hour 15 minutes
- 70 Marks
- 50% of final AS grade

In Year 2, continuing from the first year, you will study 3 Units as follows:

Paper 1: Computer Systems

- Written exam: 2 hour 30 minutes
- 140 marks in total
- 40% of final grade

Paper 2: Algorithms and Programming

- Written exam: 2 hour 30 minutes
- 140 marks in total
- 40% of final grade

Programming Project:

- Analysis of the problem
- Design of the solution
- Developing the solution
- Evaluation
- 70 Marks
- 20% of Level