A Level **Specification:** AQA 7517

COMPUTER SCIENCE

Contact:

JMS: Mrs G Green
FZ: Mrs Okeke

What will I study?

Computers and technology are at the heart of almost everything we do. Entertainment, business, transport and education all rely on computers.

Understanding computing technology is a vital skill for the 21st century. Studying Computer Science will equip you with problem solving skills and technical insights that you can also apply to a broad range of other disciplines.

The new specification has introduced theory topics very relevant today, such as "Big Data" (how large organisations process huge amounts of information collected) and "Consequences of uses of computing" (looking at the moral, legal and cultural implications of the massive role that technology plays in today's society).

- Fundamentals of programming
- Fundamentals of data structure
- Systematic approach to problem solving
- Theory of computation
- Fundamentals of data representation
- Fundamentals of computer systems
- Fundamentals of computer organisation and architecture
- Consequences of uses of computing
- Fundamentals of communication and networking
- Fundamentals of algorithms
- Big Data
- Fundamentals of functional programming
- Systematic approach to problem solving

How will I be assessed?

- Paper 1: An on-screen exam testing a student's ability to program, as well as their theoretical knowledge of computer science, focusing on programming fundamentals and theory of computation (40% of A-level)
- Paper 2: A written exam testing a student's knowledge of other aspects of computer science, such as data representation, computer systems and architecture, communications and networking, big data, function and systematic programming, databases and consequences ofcomputing. (40% of A-level).
- A practical project assessing the student's ability to use the knowledge and skills gained through the course to solve or investigate and practical problem (20% of A-level).

How will I learn?

Content is delivered via lecture-style lessons, investigations, self-directed research and self-learning exercises (especially related to programming). Preparation for the practical programming component of Paper 1 is largely self-directed, based on learning throughout the course.

Various on-line learning systems are used to support study. The Practical Project in Year 13 is self-managed, with deadlines set by the teacher.

What skills will I need?

- Self-motivation
- Interest in the basic functioning of computers; how they work, how they are programmed and the underlying logic.
- Independent learning and self-organisation
- Problem-solving
- Critical analysis
- Aptitude for Maths

Computer Science at GCSE is not a requirement for this course.

Careers & Progression

A good grade in Computer Science at A level is valued by universities and employers since it requires the development of analytical thinking and problem-solving skills.

While Computer Science graduates have among the highest starting salaries of all degree subjects (The Times, 24/9/2017), the course also lays an appropriate foundation for further study of Computer Science, Engineering, Physics or related subjects in higher education and beyond.