

# Computer Science – Aims/Intent

A high-quality computing education equips Students to understand and change the world through logical thinking and creativity, including by making links with mathematics, science, and design and technology. In computer science, students are taught the principles of information and computation and how digital systems work.

**Our intent is to provide opportunities for students so they:**

1. Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
2. Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
3. Can evaluate and apply information technology, including new or unfamiliar technologies, analytically, to solve problems
4. Are responsible, competent, confident and creative users of information and communication technology.

## Implementation

Key stage 4:

### OCR Specification:

Aim of the course:

OCRs GCSE (9–1) Computer Science will encourage learners to:

- Think creatively, innovatively, analytically, logically and critically
- Understand the components that make up digital systems, and how they communicate with one another and with other systems
- Understand the impacts of digital technology to the individual and to wider society
- Apply mathematical skills relevant to Computer Science.

Course content:

(J276/01) Computer systems

- Systems architecture
- Memory
- Storage
- Wired and wireless networks
- Network topologies, protocols and layers
- System security
- System software
- Ethical, legal, cultural and environmental concerns

(J276/02) Computational thinking, algorithms and programming

- Algorithms
- Programming techniques
- Producing robust programs
- Computational logic
- Translators and facilities of languages
- Data representation

(J276/03/04) Programming project

- Programming techniques
- Analysis
- Design
- Development

Testing, evaluation and conclusions.

## Impact

Computing equips pupils to use information technology to create programs, systems and a range of media. It also ensures that students become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

### Enrichment opportunities-

We run Code Club at lunch time for students that enjoy computer science and problem solving. Students are offered programming workshops in school. They also get the opportunity to visit Bletchley Park – the home of the codebreakers.