

## GCSE Computer Science

**Syllabus:** Edexcel  
**Number of Lessons per Week:** 3  
**Teaching Groups:** Mixed Ability (Strong Mathematical skills required)

The Computer Science qualification is relevant to the modern and changing world of computer science, it is an intensely creative subject that involves invention and excitement. Computer Science is a practical subject where learners can apply the knowledge and skills learned in the classroom to real-world problems. The Computer Science GCSE will value computational thinking, helping learners to develop the skills to solve problems and design systems that do so. These skills will be the best preparation for learners who want to go on to study Computer Science at AS or A Level and beyond. The qualification will also provide a good grounding for other subject areas that require computational thinking and analytical skills.

The computer science specification is split into two units:



### Unit 1: Principles of Computer Science

This unit is a written exam and makes up 50% of the assessment total. It focuses on various topics of computer science, such as computational thinking, algorithms, binary and data representation, data storage and compression, hardware and software components, characteristics of programming languages, computer networks and network security, impact of computing on individuals, society and the environment, including ethical, legal and ownership issues.

### Unit 2: Application of Computational Thinking

This unit is a practical examined unit and makes up 50% of the assessment total. It requires students to design, write, test, refine and evaluate programs in order to solve problems. This unit will assess problem solving with programming. The main focus of this unit is for students to understand what algorithms are, what they are used for and how they work in relation to creating programs and to understand how to decompose and analyse problems.

### GCSE Computer Science Content Overview

#### Unit 1: Principles of Computer Science

- interpret, amend and create algorithms
- construct truth tables
- requirements for writing program code
- binary and data representation
- data storage and compression
- hardware and software components of computer systems
- characteristics of programming languages
- computer networks
- network security
- emerging computing technologies trends
- impact of computing on individuals, society and the environment
- ethical, legal and ownership computing issues

#### Unit 2: Application of Computational thinking

- understand what algorithms are, what they are used for and how they work in relation to creating programs
- develop program code and constructs, data types and structures
- understand how to decompose and analyse problems
- ability to read, write, refine and evaluate programs.

