Objectives

• To understand the fundamental principles and concepts of Computer Science.

• To be able to analyse problems in computational terms through practical experience.

• To be able to think creatively, innovatively, analytically, logically and critically.

• To develop an understanding of the impacts of digital technology to the individual and to wider society.

Overview

Students will continue to develop the skills learnt at KS3. They will further develop their computer programming skills as well as the theory behind how computers are used in our society to solve a wide range of problems.

Skills

Students will develop critical thinking, analysis and problem solving skills which can help in many other subjects and be applied to real World situations. This way the course will stimulate interest and engagement with technology and technology related careers.

Course content

The course is made up of two units. These are theory based. You will cover topics such as:

The CPU and Memory

Wired and wireless networks

Network topologies, protocols and layers

System security

Systems software

Ethical, legal, cultural and environmental concerns

Algorithms

Programming techniques

Computational logic

Data representation

Assessment

Two written exams at the end of Year 11, each one and a half hours long.

Exam 1: Computer Systems 50%

Exam 2: Computational Thinking 50%

Opening doors

Understanding how to use computing is important for a huge range of jobs. Because computers are used so widely in all types of careers and work settings - including offices, call centres, warehouses, hotels, hospitals and industry - employers will expect you to have developed computing skills. If you have a particular interest in computers, you could consider becoming a computer specialist - such as software developer (programmer), or a provider of technical support to computer users. This would mean taking your computing skills to a high level. Being able to program is a highly sought after skill and there are a variety of programming languages that you can learn ranging from database control and web design to game coding and app building.