



## WHAT WE AIM TO ACHIEVE

Computer Science GCSE is a highly interesting and challenging subject that opens up a wide range of highly skilled and highly paid career opportunities. It aims to develop the creative and logistical skills of students and it also encourages them to build patience and perseverance. It teaches problem solving skills, mental arithmetic and how to be an independent learner. It teaches students how to program in Python and perhaps also in MySQL, but it also encourages them to do so much more.

Computer Science GCSE aims to foster learners' ability to:

- Understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation.
- Analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs, thinking 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 OUTLINE

The course has three key areas:

- Computer Systems (J276/01) in which students learn about systems architecture, memory, storage, the fundamentals of computer systems, networks, security, software and consider the ethical, legal, cultural and environmental issues affecting computing.
- Computational Thinking, Algorithms and Programming (J276/02) which analyses algorithms and relates them to programming techniques, forming robust programming techniques. This also introduces computational logic, the hierarchy and features of computer languages and data representation.
- Programming Project (J276/03) in which students learn how to program in Python; they develop programming techniques and use these to design, test and develop three simple and practical programming solutions.

## HOW WILL I BE ASSESSED?

Computer Science GCSE consists of two equal 90 minute written examinations that will be worth 100% of your overall examination. These will focus on Computer Systems and Computational Thinking, Algorithms and Programming. The exams will have a mixture of short and long answer questions; some of which will require students to write program code.

Students will also need to spend 20 hours completing a programming project. They will design, analyse, code, develop, test and evaluate a solution to a computational problem.

## WHAT SKILLS DO I NEED?

Computer Science is not the same as ICT. Students who achieve good grades in Computer Science need to be good at Mathematics. Students with a target of less than 5 at Key Stage 4 find this subject very demanding. You need to be able to persevere. Problem solving requires a lot of patience, an analytical brain and clear thought. You also need to be able to think around projects. Many people find programming challenging. If you are not sure whether you have what it takes to study Computer Science then visit [www.codecademy.com](http://www.codecademy.com) and try to complete the basic tasks in Java Script, SQL or Python and talk to your Computing teachers Mrs Blanch or Mr Burrows.