COMPUTER SCIENCE

"Whether you want to uncover the secrets of the universe, or you just want to pursue a career in the 21st century, basic computer programming is an essential skill to learn."
Stephen Hawking

OCR
Oxford Cambridge and RSA

WHY STUDY COMPTUER SCIENCE ?

Almost every aspect of our lives is affected by computers, from how we travel to school and manage our social lives to vast networks that control global communication, trade, finance and transportation. Computers have become so integral to our daily lives, it would be difficult to imagine life without them.

Studying Computer Science will empower students to solve complex, challenging problems, enabling them to make a positive difference in the world. The future possibilities for people with Computer Science skills are unlimited and these are only going to become more important as our digital world grows.

HOW WILL BUSINESS STUDIES HELP ME? WHAT SKILLS WILL I DEVELOP?

Computer Science will allow you to develop many different skills that can be used in every part of your every day life. You will develop skills such as:

- Analytical skills – being able to analyse problems and trace them to their cause
- Problem Solving skills – being able to solve problems in a systematic and logical way
- Creative skills – this skill goes hand in hand with problem solving. You will use this skill to ensure you are delivering the most innovate and effective solution to a problem
- Resilience – programming doesn't always work straight away so by building your resilience, you will be able to try out different elements of code until you find the best solution

COMPUTER SCIENCE

WHAT DOES THE COURSE INVOLVE? WHAT WILL I STUDY?

The OCR GCSE Computer Science course will encourage students to understand and apply the fundamental principles and concepts of Computer Science such as abstraction, decomposition, logic, algorithms and data representation.

It will also teach students how to develop their analytical skills to be able to analyse problems in computational terms through practical experience of programming, including designing, writing and debugging their own computer programs.

Students will be encouraged to think creatively, innovatively, analytically, logically and critically. They will understand the components that make up digital systems and how they can communicate with each other as well as learning about the impact of digital technology on society.

HOW WILL I LEARN?

GCSE Computer Science lessons will be a mixture of theory- based lessons and practical, programming lessons.

The practical programming lessons will encourage students to enhance and develop the Python programming knowledge and skills that they started building in Key Stage 3 including sequencing, selection and iteration.

Lessons will include group work, especially when students are given a problem to think about and try and creatively come up with a solution. Students will build on knowledge that they have learnt in Key Stage 3 as well as learning addition new topics.

They will learn the theory of computers and be able to link them to real life scenarios so they are able to establish context of the topics learnt.

HOW WILL I BE ASSESSED?

✓ **Component 01 - Computer Systems - 90 minute exam - 50%**

System Architecture

Memory and Storage

Computer networks, connections and protocols

Network Security

System Software

Ethical, legal and environmental impacts of digital technology

✓ **Component 02 - 90 minute exam - 50%**

Computational Thinking, Algorithms & Programming

Algorithms

Programming fundamentals

Producing robust programs

Boolean logic

Programming languages and Integrated Development Environments

HOW CAN I PROGRESS?

Experience in this qualification will benefit you in any employment as you learn and develop many transferable skills.
Specialist roles can include:

- Computer Programmer
- Engineer
- Financial Management
- Games Designer
- Network Manager
- Product Designer
- Researcher
- Resource Management
- System Analyst
- Cybersecurity Technologist