

COMPUTER SCIENCE



Skills

Mastery in Year 11

- Understanding how databases and SQL are used to store, organise and interrogate data.
- The ability to identify and analyse the impact of technology in the modern world.
- Practice exam technique and complete extensive revision.

Mastery in Year 10

- Applying problem-solving and computational thinking skills.
- Developing knowledge in data representation, computer systems, computer networks and cyber security.
- Learning the methods used to protect the privacy and identity of individuals and organisations

Mastery in Year 9

- Detecting and preventing cyber threats.
- Understanding the characteristics of data and using data manipulation methods.
- Developing programs on Python and understanding algorithms.

Mastery in Year 8

- Learning about different types of devices, hardware and software, components of a computer and their suitability for different users and scenarios.
- Studying computers, creating networks and how computers are becoming more sophisticated through machine learning.
- Developing computational skills and starting the basics of Python programming.

Mastery in Year 7

- Learning how to use, create and edit in Google Classroom and Google Drive.
- Understanding how to use online technology safely.
- Breaking down tasks and applying computational thinking.
- Being introduced to new skills in Excel spreadsheets and programming.

Knowledge

Revision and exam techniques

Revision and exam techniques paper 1

Ethical, legal and environmental issues

Revision and exam techniques paper 2

Students in Year 11 will have two more units to cover which are Databases and SQL and Ethical and Environmental issues. Students will learn about the importance of databases, their creation and manipulation through SQL statements. Students will also cover the impact of technology, its affect on society and the potential harmful and toxic substances created if not disposing of hardware correctly. Thereafter students will focus on revising the topics they will be tested on at the end of Year 11. Teachers will teach, support and advise on various techniques and methods that can be used to ensure that students make the best possible progress and attain the best possible grades at the end of their journey.

Databases and SQL



Cyber Security

Programming techniques

Data representation

Computer systems

Computer networks

Year 10s are introduced to GCSE Computer Science where their computational thinking and creativity are developed. Units delivered during this year will have deep links with Mathematics and Science. Students will be equipped with the necessary concepts and skills related to information technology and creating programs in preparation for the future workplace and as participants in the digital world. Students will study about the CPU, images, sound, different topologies when connecting computers, the internal and external threats to an organisation and a range of other topics to develop their knowledge in Computer Science.

Programming basics



Fundamentals of algorithms

Understanding Computers

Advanced spreadsheets

Python programming

Data representation

Year 9 will cover units related to Computer Science and Digital Information Technology. Students will have an opportunity to understand how software is created, designed, and used in addition to how systems detect and prevent security threats. This will provide students with important information and skills as well as giving them the opportunity to think about choosing one of the subjects that the Computing departments offers at Key Stage 4. Both the GCSE Computer Science and the Level 2 Tech Award in Digital Information Technology will be a great addition to their qualifications at the end of Year 11.

Cyber security



Modern technologies

Al and machine learning

Networks

Python basics

Computational Thinking

Year 8 students will explore a variety of topics related to modern technology. The students will learn how systems work, how computers are connected and the impact of this connectivity on individuals and organisations. The units covered during this year will discuss how hardware and software have transformed the way that we use technology. This year will also build on programming concepts studied in Year 7 and applying them to a text-based programming language.

Computer Systems



Swift Programming

Computational Thinking

Binary

Spreadsheets

Year 7 students will study fundamental topics, skills and concepts that will help them grasp the deeper units in the years to come. Their skills in problem solving, understanding how computers work, how to use and create software and how to stay safe online will be built and developed through the units taught this year. This year will ensure that students are digitally literate and are able to use and express themselves using digital media and information technology.

E - Safety

Introduction to Computing

Y7