



COMPUTER SCIENCE CURRICULUM OVERVIEW

Key Stage 3

Transition Stage

Foundation Stage

Key Stage 4

Examination Stage

Key Stage 5

Advanced Stage

The guiding principles underpinning Computer Science during the Transition and Foundation stages is to develop students who are confident users of ICT and able to be critical thinkers, who understand the digitally connected world. As students join us from primary school, they are taught to become familiar with the school network and there is a continuous focus on ensuring that students understand the implications of using ICT safely. This is taught first to make sure students understand the need for e-Safety and can use the IT systems we provide.

During Year 8, students learn how to plan, develop, code and test programs using a range of programming techniques and coding languages. Seeing the common programming structures across a range of languages reinforces the principles. In addition, students learn about data representation and designing and creating websites using HTML and CSS.

Year 9 topics include include: computational thinking including decomposition and abstraction, creating algorithms, program development with Python, hardware and software of computer systems.

During this course, students learn and de-velop further knowledge of topics such as: computational thinking including abstraction, decomposition, logic, algorithms, and data representation. Students also analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs. This allows students to think creatively, innovatively, analytically, logically and critically.

At A Level Computer Science, students understand the core academic principles of computer science. These include computation and algorithms, computer programming, machine data representation, computer systems (hardware and software), computer organisation and architecture, communications and networking, databases and the consequences of using computing.

Students will develop further skills of thinking creatively, innovatively, analytically, logically and critically as well as developing the capacity to see relationships between different aspects of computer science.