

COMPUTER SCIENCE AT STANBOROUGH

Our aim is to help students gain a comprehensive understanding of the digital world that we live in and to gain valuable digital literacy skills. We provide students with the best of both IT and Computer science.

Students have grown up with technology around them and may naturally develop into competent operators. However, that will not give them the awareness of the underlying processes involved and will not help them to understand how best to apply their skills safely and ethically. We aim to do just that!

Students at Stanborough will gain valuable transferable skills, that they will apply throughout their education and the workplace. They will have a clear understanding on whole process, including any social, moral, ethical and environmental aspects when using digital technology.

CURRICULUM KS3

Students will study a range of topics at Key Stage 3 in order to broaden and deepen their digital literacy and programming skills.

Students begin with studying the nature, purpose and uses of different digital communication media through the context of online safety. Subsequent units are:

- Computer Graphics and Design - students are able to develop digital graphics skills
- Computer systems and Coding - in this unit students can build on the programming skills and begin to write programs
- Game Design - always a favourite, as this gives students the opportunity to plan, design and program a game for others to test, play and evaluate
- Data Modelling - allows students to model scenarios and make predictions, using spreadsheets and databases
- App Design - design and program their own apps
- eCommerce - a study of how transactional websites are designed and implemented
- Programming Fundamentals - building on their programming knowledge through coding games and small interactive systems that mimic the real world
- Animation and Movie Maker - allows students to develop their creative side, using digital media to create animations, videos and adverts
- Enterprise - this unit brings together a range of skills from previous units. Students work collaboratively to pitch ideas, before embarking on developing a product launch, supported by promotional resources and financial analysis

CURRICULUM KS4

Students can choose to study GCSE Computer Science at Key Stage 4. This course will build on the knowledge, understanding and skills established through the Computer Science elements studied in Year 7 to Year 9. The course will develop students' computational thinking skills, building on a sound base of conceptual learning and understanding.

Students will study the following aspects:

- understanding and applying the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation
- analysing problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs
- thinking creatively, innovatively, analytically, logically and critically
- understanding the components that make up digital systems, and how they communicate with one another and with other systems
- understanding the impacts of digital technology to the individual and to wider society
- applying mathematical skills relevant to Computer Science.

There are 2 areas of assessment:

- Component 1: Computer systems (written exam)
- Component 2: Computational thinking, algorithms and programming (written exam)

Practical Programming — All students are given the opportunity to undertake programming tasks, to solve different problems, during their course of study.

This will support students with their final written assessments.

CURRICULUM KS5

Computer Science

Computer Science allows students to apply the academic principles learned in the classroom to real-world systems. It's an intensely creative subject, that combines invention and excitement, and can look at the natural world through a digital prism.

The aims of this course are to enable learners to develop:

- An understanding and ability to apply the fundamental principles and concepts of computer science, including: abstraction, decomposition, logic, algorithms and data representation
- The ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so
- The capacity to think creatively, innovatively, analytically, logically and critically
- Mathematical skills

RESOURCES AND FACILITIES

The department is well resourced with a number of computer suites and a wide range of software, ranging from website and graphics design software to programming languages and programming software. Computer rooms have access to mono and colour printers, scanners and additional hardware such as graphics tablets.

EXTRA CURRICULAR ACTIVITIES IN IT & COMPUTING

Extra-curricular opportunities include:

- Lego Robotics
- VEX Robotics
- Digital Leaders
- KS3 Programming Club

STANBOROUGH SCHOOL

Curriculum Leaflet 2025

Computer Science