



Computer Science

“Computer Science is fast becoming one of the most important subjects in our modern, digitized world.”

Purpose and Vision:

Computer Science equips students with real world skill and knowledge to succeed in a digital world.

From KS3 to KS5 the computer science curriculum looks at the fundamental principles of computing and systems architecture; computational thinking, problem solving and algorithmic design; and practical programming.

Students will gain very desirable problem solving skills that will help them succeed in other subjects and later employment. Students will also gain practical programming skills in an age where the number of Computer Science graduates are not meeting the demand of employers.

KS3:

At KS3 students explore the fundamentals of e-safety and develop their digital literacy. This is to support them with using technology safely and efficiently both inside and outside of school. From KS3 students are expected to think computationally and with ability to break down problems in a logical and use algorithmic thinking to create solution to both computing and real world problems. This skill set prepares them for GCSE.

KS4:

At KS4 students study two component of computer science in depth. The first is computer systems, that looks at systems architecture, networks and ethics. The second component explore computational thinking, algorithms and programming. This include learning a high level programming language such as python. Students also complete a non-examine programming project where students independently analyze, design, code, test and evaluate and set problem.

KS5:

KS5 computer science will enable students to develop an understanding of the fundamental principles and concepts of computing: including abstraction, decomposition, logic, algorithms, and data representation to solve problems. Students will develop the ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs. Students will develop the capacity to think creatively, logically and critically.

Programme of Study:

Year 7					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
E-Safety	Scratch	Python	Efficiency in IT	Spreadsheet	Computational Thinking
Year 8					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Using technology efficiently and safely	Programming: Scratch	Programming: Python	Coding a game	Modelling data	Algorithmic thinking
Year 9					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Computational Thinking	Programming theory	Computer Systems	Systems architecture	Data representation	Programming project
Year 10 – OCR					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Components of a computer system	Networks	Issues	Algorithms	Programming	Programming Project
Year 11- OCR					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Programming NEA	Programming NEA	Design, Testing and IDE's	Data Representation	Course review	Exams
Year 12- OCR					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Components of a computer system and their uses	System software	Exchanging data	Networks	Data types	Data structures
Year 13- OCR					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Boolean algebra	Legal and cultural issues	Computational thinking	Programming techniques	Algorithms	Exams