

How will pupils build upon what they have learnt in Key Stage Two?

Based on the Ks2 national curriculum pupils should have access to understanding the concepts of computer science through abstraction, logic and data representation. Pupils should be able to understand a problem and use computational thinking to solve a given task. Pupils should be able to write programs using program languages and to test to ensure they meet the user's needs. Pupils should also be able to use information technology including unfamiliar technologies to solve problems. Pupils working at Key stage 2 should have access to lessons where they are taught to design, write and debug programs, use sequencing, selection and repetition in programs, use logical / simple programs and create and use variables. Create and correct programs using algorithms. Pupils are expected to apply their computer science skills in different situations.

Why do we teach our pupils Science?

In the Computer Science Department at Woodlands School, we aim to empower students to have the confidence to use computers to the best of their ability and to meet not only today's demands in the computing industry, but also the future demands, where jobs that are currently unknown to us will be created, and your child will become the leading experts in this new vision of technology.

Our targets are to embed the skills and knowledge required to not only pass our Computer Science course at Woodlands School with the highest possible aspirations, but also enter the Computing Industry with the highest chance of success.

Currently, our Computer Science students are studying the OCR course. This is a 2 year course, where students will study:

- Systems Architecture, Memory and Storage
- Systems Security and Software
- Computer Networking
- Ethical, Legal, Cultural and Environmental concerns
- Algorithms and Computational Logic
- Programming Techniques
- Programs, Translators and Languages
- Data Representation

How will Science at Woodlands prepare pupils for the future?

With a successful GCSE in Computer Science, the list of possible further education and employment is almost endless. You can pursue A-Levels, BTEC vocational qualifications or Apprenticeships. Local colleges offer A-Level Computer Science and BTEC Level 3 Extended Certificate in Computing, and many more choices. There are countless University courses linked to Computer Science skills and an impressive list of potential career paths with jobs such as Computer Programmer, Systems Analyst, Computer Systems Engineer, Games Designer, Database manager, etc. could be possible.

What is the key knowledge pupils will gain in Science at Woodlands?

Key Stage 3

During Years 7 and 8, all students will be provided an opportunity to experience both Computer Science and ICT modules. Each student will have one hour a week of study.

In **Year 7**, students will study:

- Introduction to Computer Systems
- Small BASIC programming
- Algorithms in Scratch
- HTML web development
- Algorithms and Flowcharts

In **Year 8**, students will study:

- Computer Crime and Cyber Security
- Programming in Python
- History of Computing
- Introduction to Communications
- MicroBit physical computing

Key Stage 4

For those who select Computer Science as an option course, they will experience two hours a week of study. During Year 9, students will gain a deeper understanding of Computational Thinking, by programming in many different languages. Students will study all elements of a computing system, understand how computers are built, the various complexities of data requirements and of course be fully prepared for the two External Exams in Year 11; Computer Systems (50%) and Computational Thinking (50%).