Computing

"Computer science empowers students to create the world of tomorrow." – Satya Nadella

Technology and the way we use it is changing and becoming more integral every day. We believe that all of our students should have access to a broad and balanced computing curriculum that encompasses digital literacy, computer science and information technology. Students are given opportunities to design, implement and document computing solutions to problems, develop their digital literacy skills and an awareness of the wider applications and effects of computing. We feel it is important for there to be a balance between computer science topics and the skills that the majority of students will require when they leave the school. We aim to create an environment where students enjoy computing and are not afraid to make mistakes and learn from them by developing their problem solving skills. Computing will continue to shape the future and in the words of Alan Turing *"We can only see a short distance ahead, but we can see plenty there that needs to be done."*

What is studied at KS3

Year 7:
- Introduction to the school network
- Email
- Introduction to hardware, software, input, output and storage devices
- Producing digital artefacts for a target audience
- Spreadsheet modelling unit
- Online Safety
- Introduction to game design/programming using Scratch
- Turtle Academy
- Dragon's Den style group project

Year 8:

- Game Design – create own pacman game
- Introduction to sorting and searching algorithms
- Introduction to binary
- Control unit using FlowOl (awareness of flowcharts, logic, sensors)
- Text based programming using Python
- Online Safety – ending in a group project

Year 9:

- Introduction to networks
- Web design project
- Computational thinking
- System Security
- Data representation
- Logic gates
- Number systems (Binary/Decimal/Hexadecimal)
- E-waste
- Text based programming using Python
- Online Safety

What is studied at KS4

In KS4, we offer OCR GCSE Computer Science J276, there are 3 components to the course:

- Component 1 – Computer Systems
  - Systems Architecture
  - Memory and storage
  - Wired and wireless networks
  - Network topologies, protocols and layers
  - Systems security
  - Systems software
  - Ethical, legal, cultural and environmental concerns
- Component 2 - Computational thinking, algorithms and programming
  - Algorithms
  - Programming techniques
  - Producing robust programs
  - Computational logic
  - Translators and facilities of languages
  - Data representation
- Programming Project (20 hours)