

## Computer Studies

### Key Stage 3

It is imperative that students are provided with the opportunity to explore computer science and ICT so that they are prepared for the modern world in which we live in. The aim is therefore to expose students to as many fundamental aspects of computer science and ICT as possible. The motive behind this is to provide students with a range of experiences that allow them to make healthy decisions today and in the future when using technology. During lessons, we create links to career, apprenticeship and further education opportunities, locally, nationally and worldwide, in order to allow them to make an informed decision about their futures. We provide contextual examples and links to a range of subjects outside of the computer studies curriculum, such as Art, Photography, Maths, Science, Business studies, Prep for Adult Life and Physical Education to further embed and contextualise learning. Our curriculum also helps students to develop high standards of literacy and numeracy skills, whilst encouraging communication and problem solving skills.

By the end of Year 7 students will:

- be confident users of computers
- be able to understand a range of ways to use technology safely and respectfully
- be able to use basic programming techniques
- be able to understand how data travels over the internet
- be able to develop skills in spreadsheet development
- create animations
- be able to gain an understanding about how data is used responsibly and securely
- use a range of programmes to record and review work

By the end of Year 8 students will be able to:

- understand the fundamentals of hardware and software components, including how they communicate with one another with other systems
- develop their programming skills using Python, including computational thinking and data structures
- use Photoshop and understand the impact it has
- collect and analyse data
- build basic databases
- record findings in appropriate software

By the end of Year 9 students will be able to:

- understand how to use a range of technology, including how to protect themselves online
- develop and understand how business studies can play a role with technology
- develop skills to build website using HTML and CSS
- evaluate and review programmes

### Key Stage 4

The knowledge, skills and experiences at key stage 3 are further developed in key stage 4. The key stage 4 curriculum aims to provide students with the necessary skills should they decide to pursue computer science or ICT when they leave Astrea Dearne. The courses are selected carefully to best support students with future prospects.

## **Computer Science: KS4**

Our computer science curriculum is designed to be engaging and practical, encouraging creativity and problem solving, allowing students to develop their understanding and application of the core concepts in computer science. Students will be able to analyse problems in computational terms and devise creative solutions by designing, writing, testing and evaluating programs.

### By the end of year 11 students will know:

- how computers work. Including, CPU, memory and storage
- how computers communicate
- networking infrastructure
- how to use technology safely, respectfully and how to protect their digital footprint. Including system security and Ethical, Legal, Cultural and Environmental concerns
- continue to develop their programming skills
- develop and apply their analytic, problem solving and computational thinking skills
- apply mathematical skills relevant to Computer Science
- to develop and apply key programming techniques

## **Digital Information Technology: KS4**

### By the end of year 11 students will know:

Learners will develop sector-specific knowledge and skills in a practical learning environment. The main focus is on four areas of equal importance, which cover the development of key skills such as:

- how technology is used to communicate in the modern world, including virtual teams
- how to use project planning techniques, design and creating user interfaces,
- create dashboards to present and interpret data
- develop an understanding of the iterative design process
- cyber security and legal and ethical codes of conduct
- how different user interfaces meet user needs,
- how organisations collect and use data to make decisions

## **Business Studies: KS4**

Students at Astrea Dearne will leave school with a wide variety of business knowledge that allow them to join the world of work.

The business curriculum will provide students with the skills and knowledge to be able to:

- understand the purpose of the organisations they will work for and the role they hold within it.
- understand the economic world around them and will make informed decisions and contribute towards business success including; Operational, Human Resources and Marketing aspects
- learn and acquire the necessary skills and knowledge to allow opportunities for success within a company
- have the confidence to become a self-sufficient entrepreneur; remembering how each topic will contribute to their success in the world of work
- understand the impacts of external influences of businesses
- how businesses grow
- how finances are used in business