COMPUTING

Our intention at KS3 Computing is to provide a high-quality computing education that equips pupils to use computational thinking and creativity to understand and change the world. We believe computing is important economically, socially and culturally. Our curriculum aims to empower children to be active producers of technology rather than passive consumers.

The core of Computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content.

Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

The key principles that underpin our curriculum

- Computer Science - understanding how computers work. This includes writing code and developing computational thinking skills.

- Creative media - creating products such as graphics, animations and websites using multimedia applications. This is a good insight into the KS4 BTEC in Creative Media Production

- Digital literacy - using technology in a functional and safe way. Covering the basic skills that we all need to be able to participate fully in the digital world, including using and communicating with technology in a safe and appropriate way.

We study KS3 Computing to

- Develop pupils as Computer Scientists
- Provide pupils with the skills to analyse, deconstruct and solve real-world problems in computational terms, looking at them from a logical stance
- Enable pupils to evaluate and apply information technology to solve problems
- Develop pupils as responsible, competent, confident and creative users of information and communication technology
- Allow pupils to explore the social, moral, legal and ethical impact
- Provide pupils with an insight into how computing and the skills, knowledge and understanding you gain will be useful in next steps
- Complement and enhance employability skills
- Prepare pupils to be an active participant in a rapidly developing digital world

The skills and knowledge we develop are that all pupils

- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- Are responsible, competent, confident and creative users of ICT
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem
- Use 2 or more programming languages to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions
- Understand simple Boolean logic and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers
- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems

- Understand how instructions are stored and executed within a computer system; understand how data types can be represented and manipulated digitally, in the form of binary digits
- Undertake creative projects that involve combining multiple applications, to achieve challenging goals
- Create, reuse, revise and repurpose digital artefacts for a given audience
- Understand a range of ways to use technology safely, respectfully, responsibly, and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns