BISHOP LONSDALE CHURCH OF ENGLAND PRIMARY SCHOOL AND NURSERY

Computing

Intent

At Bishop Lonsdale, we want all pupils to have the chance to succeed, regardless of their starting points. Computers are a fundamental part of everyday life, so we want our pupils to have the confidence and skills they need to understand the computer networks and systems that surround them, to access and use information technology successfully, and to stay safe and thrive in a digital world.

Computing is taught across all Key Stages at Bishop Lonsdale, introducing important concepts and vocabulary in EYFS before moving on to more formal units of work in KS1 and KS2. We use a bespoke curriculum for Computing which has been developed using a mixture of high-quality units of work researched and evaluated by the Computing subject leader. It includes unit planning from leading organisations such as NCCE (National Centre for Computing Education), CAS (Computing at Schools), and the national e-safety framework, Project Evolve. This has been done to ensure up-to-date and comprehensive coverage and progression for the subject, as well as to ensure the curriculum uses resources that are actually available and accessible by our school with the IT equipment we currently have. This curriculum has been, and will continue to be, refined over time; resources can become obsolete and it is important for schools to keep up with rapid changes and trends in IT and online safety seen in the wider world.

Implementation

The Computing curriculum at Bishop Lonsdale has been designed to provide a progression in skills, knowledge and understanding through three main strands, as recommended and used by CAS and the NCCE:

- Computer Science (how computers work; programming; the internet)
- Information Technology (using IT for tasks, e.g. writing, presentations, media, games)
- Digital Literacy (using technology safely and respectfully; protecting data privacy)

Throughout our Computing curriculum, children are encouraged to use their problem-solving skills, think creatively and develop skills that will benefit them in different contexts. They will encounter concepts and learn new skills through the use of a range of hardware, software and activities, which will enable them to transfer those skills, build a secure understanding of the concepts and vocabulary over time, and make meaningful connections to practical examples of how computing is used in the wider world.

Early Years Foundation Stage

In EYFS, children will encounter the foundations of computing concepts and skills, both formally and informally, through structured activities or their continuous provision. Children will have opportunities to use their problem-solving skills to understand how devices and technology work and what they can be used for. They will be introduced to initial computer science concepts, such as pattern-spotting, instructions and rules, and simple IT skills, such as using digital technology to create art and how to control simple machines or robotic toys. They will learn that there is technology all around us that we can use to help us with everyday tasks, and that we can use digital devices and technology to talk, share and find things out. Following the Project Evolve framework, they will be introduced to the foundations of e-safety, such as understanding personal privacy and knowing that we should tell a trusted adult if we are worried about anything we encounter online.

Key Stage 1

Children enter Key Stage 1 with the foundational skills developed in EYFS and these will be further developed in Year 1. Children will learn about the common uses of technology around us and be introduced to more formal IT skills, including typing and digital art. They will be introduced to algorithms and how to control robots to perform specific tasks. In Year 2, children will broaden their knowledge of how to use the internet safely, create simple presentations and take digital photographs. They will also develop their understanding of how algorithms are applied as computer programs, using rules, sequences and logic to create and debug simple programs. Across both year groups, the Project Evolve framework is followed to develop their understanding of digital literacy and e-safety.

Lower Key Stage 2

Children in Year 3 will move on to exploring how devices can connect to form networks. They will learn about new computational concepts and skills, such as decomposition and repetition, and be able to apply these using a wider range of technology and resources, including Scratch programming. They will also have opportunities to use develop their word processing skills and create stop-frame animations. In Year 4, children will learn in more depth about the different functions and uses of the internet and World Wide Web, and how to evaluate the quality of online information. They will have opportunity to design, test and debug more complex programs, to further develop their problem-solving skills, as well as use Micro:Bits as data loggers. They will explore photo editing and consider issues of trust and reliability related to this. Across both year groups, the Project Evolve framework is followed to develop their understanding of digital literacy and e-safety.

Upper Key Stage 2

In Year 5, children will learn about how computer and physical systems interact, how data is shared across the internet and how search engines operate. They will learn how and why simulations are used, use and evaluate simulations to replicate and test real-world scenarios and design their own simulations. They will learn how to make programs more efficient using loops and procedures, and apply this in different contexts, including robots and game design. They will be introduced to Computer Aided Design, using 3D modelling software to design digital structures and environments. In Year 6, children will learn about the design and applications of databases, as well as website design and the use of HTML. They will have the opportunity to program and control robots to complete more complex tasks. They will consolidate their prior learning of programming concepts and begin to include selection and variables, using these to design programs in Scratch and for Micro:Bits. Across both year groups, the Project Evolve framework is followed to develop their understanding of digital literacy and e-safety.

Impact

Our Computing curriculum is designed to enable our pupils to understand the computer systems, tools and networks that they will then be able to use to their advantage, as well as giving them opportunities to acquire powerful knowledge and build cultural capital.

Being able to think like computer scientists will help our pupils to develop logic and problem-solving abilities, perseverance and teamwork – invaluable skills for later life.

We teach a range of digital literacy and IT skills, to help our pupils to become empowered, creative users and makers of technology, the internet and digital media.

Pupils will learn creative IT skills to help them express their ideas, whether through digital writing, programming games, controlling robots or making animations.

We also want our pupils to become responsible, kind and respectful online communicators. This will help them to stay in control of their digital lives and, most importantly, to stay safe.

Disadvantaged pupils, in particular, will gain cultural knowledge and modern skills that will enable them to build self-confidence, access more opportunities and to become successful, active contributors to society.