Computing Policy

At Ellison Primary Academy we shape our computing curriculum to ensure it is fully inclusive to every child. Our aims are to fulfil the requirements of the National Curriculum for computing; providing a broad, balanced and adapted curriculum that encompasses the British Values throughout; ensuring the progressive development of computing concepts, knowledge and skills; and for the children to become creative, digitally literate and computational thinkers.

Our curriculum ensures that all lessons are accessible for all children with Special Educational Needs and Disabilities. Through carefully chosen learning and differentiation when required, lessons are designed to ensure that any barriers to learning are reduced, and all pupils can progress. Children with particular needs are specifically planned for within computing lessons so that their targets are considered across the curriculum. Learning is scaffolded to ensure children are given the correct challenge within lessons, with scaffolding removed as their understanding develops. Suitable challenge is also ensured through the use of challenge questions which are designed to link to the key concepts built within the curriculum.

Intent

At Ellison Primary Academy, we understand how vital computing skills, knowledge and understanding are in the daily lives and futures of our children; our aim is to develop children's fascination and curiosity by equipping them with skills to develop their computational thinking and creativity to understand the world around them. The progression of skills throughout the school allows our children to build upon prior knowledge and, as they progress through the curriculum and for them to express themselves.

Computing is part of the way in which we all work and entertain ourselves; almost everything we do at school involves the use of computing. At Ellison Primary Academy, the teaching of the computing curriculum has been carefully considered to enable our pupils to become digital citizens. At Ellison, we teach the curriculum using the Teach Computing scheme; we have created a progressive skills document in which objectives for each year group have been progressively mapped out to ensure that our children are given the require skills and knowledge that will further their educational journey and into life beyond the classroom.

Within computing, pupils will develop a deep understanding of key concepts and second order concepts. These key concepts have been carefully considered and identified as the core knowledge, skills and confidence to engage with technology required to successfully achieve in a digital world. The key concepts are revisited and developed as the pupils move through the school to ensure that the knowledge, skills and confidence to engage with technology are firmly embedded within the long term memory.

First order concepts:

1. Computing systems and networks: (systems, networks and how they are used, the internet, hardware and software)
2. Programming: (interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors)
3. Creating media: (design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content)

As part of the work on each key concept, children also explore and learn about:

- The effective use of tools
- The impact of technology
- Safety and security

Second order concepts:

- Responsibility: (being safe online, using social media responsibly and respectfully, privacy, cyberbullying)
- Similarity and difference: (making comparisons, finding patterns, noting differences and drawing conclusions)
- Cause and consequence: (inputs and outputs, programming)
- Significance: (significant inventions, significant figures from the world of computing)
- Chronology: (changes in technology over time, inventions, future technology)
- Written and oral expression: (Using computing terminology, using technology to support and improve communication, using technology to presenting and interpreting data, digital media)

Implementation

In ensuring high standards of teaching and learning in computing, we implement a curriculum that is progressive throughout the whole school. Computing is taught within the key concepts of computing systems and networks, programming and creating media; each concept is progressive whereby it is returned to at a deeper level of understanding throughout their computing journey with us. At Ellison Primary Academy, we ensure that our children are also taught how to keep safe online; this element of computing is intertwined within other curriculum areas and throughout the computing curriculum. We use a concept-based curriculum and ensure our units are planned with a clear intent and to include specific learning intentions, vocabulary and key characteristics. The school uses a variety of teaching and learning styles in computing lessons.

We strive to equip children with the technological skill to become independent learners, the teaching style that we adopt is as active and practical as possible. While, at times, we do give children direct instruction on how to use hardware or software, the main emphasis of our teaching in computing is for individuals or groups of children to use computers to help them to progress in whatever they are studying. We recognise that all classes have children with a wide range of computing abilities. This is especially true when some children have access to computing equipment at home, while others do not. Other ways we achieve this are:

- setting tasks which are open-ended and can have a variety of responses;
- providing resources and scaffolds of different complexity that are matched to the ability of the child;
- using classroom assistants to support the work of individual children or groups of children.
- ensuring that Gifted and Talented children and children with Special Educational Needs are provided with activities suited to their need.

Impact

The impact and measure of our computing curriculum is to ensure that children at Ellison Primary Academy are equipped with computational skills, knowledge and understanding that will enable them to be ready for the curriculum at Key Stage 3 and for life as an adult in the wider, ever changing, digital world. Carefully planned progressive curriculum ensures that:

By the end of EYFS children will be able to:
Recognise that a range of technology is used in places such as homes and schools. They will be able to select and use technology for particular purposes. This includes operating software and technology and completing a range of simple programmes with an understanding of what they can achieve.

By the end of KS1, children will be able to:
Develop the basic skills of computer science in order to create simple programmes which employ the use of algorithms with an understanding of what algorithms are. Pupils will be able to find errors in their programmes and predict outcomes. As digital citizens, pupils will know how to keep themselves safe online in a range of ways including how to respond to inappropriate contact and content. They will also understand how to keep their information private and also be able to identify cyber-bullying, knowing what actions to take if they encounter it. Pupils will have a secure understanding and range of information technology skills. They will be able to locate and handle information from a range of digital sources including the online world.

By the end of KS2, children will be able to:
As computer scientists, pupils will develop further skills to create and manipulate programmes, using elements such as variables and debugging and be able to talk about intended and specific outcomes. Pupils will have a secure understanding of the role of algorithms and be able to successfully use them. As digital citizens, pupils will have a secure understanding of how to keep themselves safe online. This includes identity and password security, identifying inappropriate and inaccurate content and being aware of cyber-bullying and knowing how to respond to it. It is essential that pupils have a sound knowledge of how to be a positive and responsible member of the online community. In the use of information technology, pupils will be able to select and manipulate software and online resources to create their own digital content. Pupils will have a range of skills including being able to analyse, evaluate and present information on a range of devices for specific purposes.

Any child working below their age-related expectation, will receive a tailored curriculum with personalised objectives. This will enable all children to build the skills and knowledge needed to bridge the gap between themselves and their peers, enabling them to reach their full potential.

Therefore by the end of the primary school education, pupils will:
1. Understand how to use algorithms to solve problems
2. Be able to use a computer programme to write code to perform a task
3. Be able to use mathematical and logical concepts to solve problems
4. Understand different networks and how they communicate
5. Understand how to work safely and responsibly online, how to recognise and report security issues and concerns
6. Be able to explain the different hardware in computers and how they work together
7. Be able to evaluate real world issues by using personal experiences and real life examples.

Assessment

Formative assessment is built into each computing lesson; for example;

- Questioning
- Observation
- Self-assessment/peer-assessment

At the end of each unit, all teachers use the assessment document as well as the national curriculum to support teacher judgements. In key stage 2 rubrics and summative assessments can be used to support teacher judgements at the end of each unit.

The computing subject leader keeps samples of children's work in a portfolio and uses these to demonstrate what the expected level of achievement is in computing for each age group in the school.