

Computing



'At Ellington Primary School, computing is the use of technology to solve problems, create content and understand the digital world we live in, and how to stay safe in it.'

Computing Overview

At Ellington Primary School, we recognise the significant role that computing plays in the world, and in line with the National Curriculum, we believe that all the pupils we teach should have a broad and balanced experience of technology. In our computing lessons, pupils are encouraged to develop their computational thinking skills, providing them with the ability to approach problem solving activities with confidence across a range of other subjects, including maths, science and history. From the very youngest year groups, children are taught key skills within the different strands of computing: computing systems and networks, programming, data and information, and creating media. Through these strands, we ensure that pupils experience and become confident with a wide range of software and hardware, including physical computing components. Woven through this teaching and linking with our PSHE curriculum is a deep-rooted understanding of online safety, which is absolutely essential to ensure pupils' navigation through our digital world.

We cover the statutory aims of the National Curriculum for computing, which can be found [here](#).

Computing: Intent, implementation, impact

Intent

Our computing curriculum is underpinned by our curriculum drivers:

Aspirations

Engaging in a meaningful computing curriculum at primary school level undoubtedly raises aspirations amongst pupils. Understanding the principles of computer science and mastering a range of computational thinking skills by the time pupils leave year six opens up a world of possibilities as they progress through the education system, allowing them to engage with the modern world effectively. We believe that it is particularly important to ensure that all children have an equal opportunity to engage with computing at school, regardless of gender or social economic background.

Wider World

Developing children's digital literacy is essential to ensuring that they have an appreciation of the wider world. Children engage regularly in activities which help them to understand how their actions online can affect others and to take responsibility for their behaviour in the digital world, which extends across international borders. Computing helps children to connect with the wider world and gives them access to a wealth of information about different cultures, and we constantly strive to ensure that they are turning into responsible digital citizens as they explore this online content.

Independent Thinking

Independent thinking is constantly fostered through our computing curriculum. From a young age, children are presented with problem solving activities which they tackle either collaboratively or

independently. The very nature of engaging with technology in lessons means that children are frequently required to evaluate their own success in what they are aiming to achieve, and take responsibility for making progress.

Implementation

At Ellington Primary School, we follow a comprehensive computing curriculum that ensures that all pupils have access to quality computing lessons covering all of the objectives for their year group across the three terms, usually comprising of one dedicated hour-long computing lesson each week. From years one to six, each half term will include a unit of work which fits into one of the following primary themes: computing systems and networks, programming, data and information or creating media. In addition to this broad and varied coverage of computing skills, the units of work are based on a 'spiral curriculum', which means that every theme is revisited regularly. When pupils encounter a new unit, they will be consolidating and building on prior learning within that theme, either from earlier in their current year group or from previous years' work. Within every unit of work, each lesson is sequenced so that it builds on learning from the previous lesson, and where appropriate, tasks are appropriately scaffolded to ensure that all learners can access the information that they need to succeed in each lesson.

In **Nursery and Reception**, the children spend time exploring the digital devices that are available to them in different areas of the classrooms, for example I pads, PCs, digital cameras and simple programmable toys. They are introduced to the 'creating media' theme by using computer programs to create pieces of art and music, sharing these with their families via the School360 parents' app and evaluating their success by discussing challenges and achievements. They complete 'unplugged' activities away from the digital devices from the 'Barefoot Computing' resources which builds a foundation of computational thinking skills, preparing them for the programming units of work which they will encounter from year 1 upwards. To build on this even further before entering mainstream school, the children also experiment with programmable floor robots such as our Code-a-pillars. In addition to this groundwork in computing, the children also become familiar with online learning environments via their Early Years School 360 accounts, for example 'Busy Things' which includes a wealth of activities closely linked to their topics and areas of learning.

In **Key Stage One**, the vast majority of computing lessons are taught using the NCCE 'Teach Computing' scheme of work. The pupils build on foundations built in the Early Years, moving on to creating media via digital painting, writing, photography and music units of work, and developing the ability to compare digital work with non-digital. They are introduced to the 'data and information' theme by grouping data and making pictograms, linking closely with work in mathematics. Pupils are able to develop a more sophisticated understanding of programming by writing short algorithms and programs for Beebots and 'Doc' robots, and learning how to debug faulty programs. They will also use the block programming app 'Scratch Jr' on the I pads to create animations and quizzes. Alongside these themes, children will begin to formally identify the technology around us and discuss how it benefits us when used responsibly.

In **Key Stage Two**, all of these ideas are built upon further. Children's understanding of computing systems and networks continues to grow, and they explore vocabulary of networks, inputs, process and outputs as well as learning how to search the internet safely and communicate and collaborate with others effectively. In terms of creating media, they experience a vast range of different apps and pieces of software allowing them to innovate and create podcasts, videos, webpages and stop-frame animations. Specific lessons dedicated to data and information gives them an understanding of various styles of database and spreadsheet, invaluable when linked to the science curriculum. In programming lessons, the skills the children acquired in Key Stage One around Scratch Jr are

transferred to the full version of Scratch on the PC, and children learn the importance of sequencing, selection and variation within algorithms and programs they modify or write themselves. They also get a taste of physical computing by using Crumble kits and MicroBits in Upper Key Stage Two.

Online Safety

Developing responsible digital citizens is of utmost importance to us at Ellington Primary School, and with this in mind we teach dedicated online safety lessons within computing lessons each half term. These follow strands laid out by the resource Project Evolve, including online reputation, online bullying, managing online information, health, well-being and lifestyle, privacy and security and copyright and ownership. In addition, topics of self-image and identity and online relationships are visited each year as part of our PSHE curriculum. We also complete work as a whole school each year for Safer Internet Week, while recognising that Online Safety is a critical issue all year round. Each teacher works with their class on online safety issues as and when needs arise in particular year groups, in lessons across the curriculum.

What will I see if I visit a computing lesson at Ellington?

Knowledge Check: An opportunity at the start of the lesson to revisit prior learning to support with the recall and retention of key knowledge as well as addressing misconceptions.

Creative Quality First Teaching: Teachers use and adapt the 'Teach Computing' units of work to ensure that they are delivering high quality and inclusive computing teaching for all children in their class. SEND pupils are supported by strategies specific to computing lessons, such as supportive paired work, scaffolded resources and visual aids. Children take part in regular paired and group tasks which stimulates classroom dialogue, articulation of concepts and development of shared understanding.

Clear Instruction: Children are supported in each stage of learning via clear instruction from the teacher. Complex computing concepts are introduced in small steps, ensuring that terms and vocabulary are fully embedded before moving on to higher levels of understanding.

Skilful teacher questioning: Teachers use effective questioning to uncover misconceptions and address them as they occur.

Work we are proud of: Physical computing activities ensure children's understanding of applications of technology away from screens. Programming activities are often combined with arts and crafts to provide a creative and engaging context to explore and apply computing topics.

Creative, safe and supportive environment: Children and adults work together to make classrooms safe and happy places to be. Mistakes are celebrated and seen as opportunities to learn. Children are reminded of personal safety and risk assessment. We use the Zones of Regulation to support children in making positive choices around their behaviour and refer to class charters and school rules.

Links to our curriculum drivers and school values: Wherever possible, teachers highlight links to curriculum drivers and school values so that children recognise their importance and support their learning, for example links may be made to careers.

Lock It In: Completed in the plenary, this activity is an opportunity to assess key learning from the lesson and is used to support future planning.

Impact

Children at Ellington Primary School demonstrate their progress in computing by their engagement in lessons and their ability to apply skills from discrete computing lessons across the curriculum. Teachers assess pupils' understanding on a lesson-by-lesson basis, using targeted questioning and 'lock-it-in' tasks with the whole class, as well as having one-to-one discussions with pupils where this is helpful. After a half term unit of work, teachers reflect on the journey the children have taken over the course of the unit and assess what the children now know, or can do, which they couldn't before, according to a set of end points laid out for that particular unit. They will then make an assessment which is shared on Insight so that any areas of weakness can be addressed.

The impact of our computing curriculum is that children:

- Demonstrate the skills that they have acquired in the strands of computing systems and networks, programming, data and information and creating media through work evidenced on class Seesaw portfolios and summarised in floor books.
- Discuss their understanding of the main strands of computing and will know key vocabulary associated with these.
- Apply the skills that they acquire in computing lessons across many other lessons in the curriculum, demonstrating problem solving skills and elements of computational thinking.
- Be able to share their knowledge of how to be a responsible user of technology through discussion when questioned.
- Show that they are responsible digital citizens in the way that they interact with technology in and out of the classroom.
- Be prepared for the next stage in their lives, knowing how to be a responsible user of technology in the wider world and most importantly, know where to seek support.