

Science: Intent, Implementation, Impact



'At Ellington Primary School, science is a way to understand our world by carefully thinking about it and testing our guesses with observations and experiments.'

Introduction and Aims

We plan our science curriculum to cover the aims of the National Curriculum. Our adopted scheme of work enables pupils to meet the end of key stage attainment targets. The National Curriculum for science can be found [here](#).

At Ellington Primary School, we have adopted The White Rose Science scheme of work, which uses a “small steps” approach to science teaching, and closely follows the national curriculum for science for years 1 - 6. It gives specialist and non-specialist teachers a one stop solution as they help children develop scientific understanding and grasp scientific ideas. The Science Curriculum at Ellington Primary School is further bolstered by STEM Learning Solutions Ltd. Resources including Assessment Boards to help teachers to formatively assess children’s work. Teachers adapt these supporting resources to help make planning and resourcing bespoke to the needs of their children.

Intent

Underpinning the curriculum at Ellington Primary School are our curriculum drivers which are:

Aspirations

Throughout our science curriculum, we promote the opportunities provided by STEM subjects. We explore Key Scientists and Class Heroes, and aim to inspire curiosity in our pupils to enable them to make links with STEM subjects and careers.

Wider World

Our definition of science links to how we make sense of the world around us through scientific research and discoveries. We aim to harness the children’s natural sense of ‘awe and wonder’ and natural curiosity. Sustainability and environmental issues are addressed in each year group through two dedicated units. We also have an Eco Council who tackle environmental and sustainability issues within our school environment and wider community.

Independent Thinking

We want our children to think critically about their learning and ask questions to dive deeper and make connections. Children are taught the enquiry types and the accompanying skills to enable them to work scientifically.

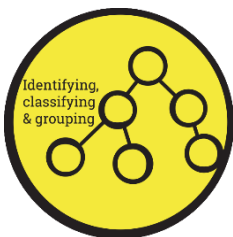
Implementation

Essential aspects of key stage science into easily digestible chunks. Through experiment, practice and discussion, children gain core knowledge around:

- Scientific vocabulary
- 'Working scientifically' skills including systematic and careful observations and following practical scientific methods
- The gathering and interpretation of straightforward scientific evidence
- The use of everyday materials and scientific equipment to solve science problems
- Articulating scientific concepts and using five types of science enquiries

| | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 |
|-------------|---------------------------|------------|----------------------------------|--------|--------|-----------------|------------|----------|--------|---------------|----------------|---------------|
| Autumn term | Animal needs for survival | | | | Humans | | Materials | | | | | Plastic |
| Spring term | Plants (light and dark) | | Living things and their habitats | | | | | | | | Light and dark | Consolidation |
| Summer term | Plants (bulbs and seeds) | Growing up | | | | Bulbs and seeds | Growing up | Wildlife | | Consolidation | | |

Units have been carefully sequenced to build knowledge and skills. Some units are split to enable observations to take place (eg growing plants). Two units of sustainability have been planned for each year group to address topical environmental issues. Our whole school overview for science can be found [here](#).



At Ellington Primary School we utilise Dual Objectives so each lesson has a Knowledge Objective in the form of an enquiry question and a Working Scientifically Objective so there is a focus in the lesson around the teaching of a working scientifically target.

Monday 9th October 2024

KO: To explore the life cycles of mammals.

WSO: Use relevant scientific language to justify scientific ideas



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

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

Creative, quality-first teaching: Class teachers use medium term plans (adapted from Kapow Primary) to bring history alive for their children. Lessons incorporate various teaching strategies from independent tasks to paired and group work, including practical hands-on, computer-based and collaborative tasks. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Differentiated guidance is available for every lesson to ensure that all pupils can access learning, and opportunities to stretch pupils' learning are available when required.

Clear instruction: Teachers will deliver lessons which have been carefully planned and modelled to provide the best possible teaching and support for the children.

Skillful questioning: Questioning is carefully planned into the curriculum to aid discussion with children about their work. Short-term planning includes 'key questions' which staff can use to support them. Teachers use a mix of strategies to make sure all learners are engaged for example no hands up and cold calling techniques.

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.

Work we are proud of: Children are encouraged to do their very best in all lessons and produce work they take pride in. Work is celebrated and shared.

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

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 with careers relevant to that subject or unit of work.

Impact

The impact of our science curriculum is monitored through both formative and summative assessment opportunities. Medium term plans provide teachers with specific assessment opportunities and misconceptions to be aware of.

In addition to Knowledge Checks and Lock It In tasks, children complete a summative assessment at the end of each block of learning. Working Scientifically skills are also assessed formatively on the Dual Objective for each lesson.

Regular monitoring by the subject leader makes sure that teaching and learning is consistent. This includes: pupil voice, staff voice as well as book scrutiny and learning walks.

Evidence of the impact of the subject can be found in Ellington Primary School achieving the Primary Science Quality Mark in May 2024.

The Primary Science Quality Mark is a comprehensive, one-year, evidence-informed, professional development and school improvement programme. The aim of the mark is to equip primary science subject leaders with the knowledge, confidence, and expert support they need to transform the quality and profile of science education across the school, for all children.

Schools achieve a Primary Science Quality Mark following a rigorous process of self – evaluation.

The science subject lead is supported by compulsory CPD and expert mentoring. The subject leader works with colleagues across the school to:

- audit existing provision in science and agree appropriate quality mark to work towards
- create and implement an action plan to develop all aspects of science teaching and learning
- complete a reflective submission with key pieces of evidence to demonstrate the impact of science leadership in the school

The Primary Science Quality Mark is led by the University of Hertfordshire.

Helen Sizer, PSQM Co-Director said: 'By enabling effective science leadership, PSQM is powering the potential of all children to see the relevance and importance of science in their lives, now and in the future. Schools that have achieved a Primary Science Quality Mark have demonstrated a significant commitment to science leadership, teaching and learning and the profile and quality of science in each accredited school is very high. Science subject leaders, their colleagues, headteachers, children, parents and governors should be very proud.'

You can read a review of the evidence that the school submitted to achieve the award on the school website.