Moreland Primary School

Science Policy

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At Moreland Primary School we are committed to delivering exciting and stimulating Science lessons with strong cross curriculum links where appropriate.

Science is a core subject because it opens up our understanding of what the world is made of and how it works. It encourages discovery and questioning – building hypothesis and challenging commonly held beliefs, using evidence based approach. It gives children hands on experiences which develop their team work and thinking and questioning skills.

Aims

Science is good at our school when:

- It inspires and develops curiosity about the world, encouraging children to think for themselves as capable scientists
- Practical learning is taking place and children are involved in decision making
- Lessons develop children's independence in investigating and promotes good team work skills
- Children are able to experiment and experience new things, which might lead to new questions, investigations, discoveries and even inventions
- Children confidently learn and use new vocabulary
- It is fun and hands on, developing a love of science
- It is linked to and reinforced by cross-curricular activities
- There are opportunities to work in a variety of environments and settings
- Children can relate their learning to real life situations and experiences including meeting scientists and going on science related visits
- Children are given responsibility and trusted to use materials and equipment safely
- Children are engaged in discovering science learning
- Children can test out their own ideas and record their own data
- Pupils can reflect on and evaluate what they have learnt

Intent

Vision for Science at Moreland

At Moreland we want children to develop a lifelong curiosity and fascination with the world around them. We aim to inspire our children to develop an interest in scientific knowledge, processes and investigation and a love of science.

Across the school, we teach Science using the CUSP curriculum, which pays close attention to guidance provided by the National Curriculum sequence and content. Our ambitious Science

curriculum has the intention of increasing children's ability to think scientifically, enriching children's vocabulary and wider view of the world, and putting what they learn into practice so they can solve problems and become confident with scientific knowledge and ideas. Through high quality science teaching we will equip all children to generate and answer their own scientific questions using investigation, observation and research.

We recognise that 'our children are the future' and they need to be equipped with the necessary skills to take risks, become resourceful, innovative, and questioning in order to become capable citizens. We also recognise that Science encompasses a broad range of subject knowledge and draws on disciplines from the wider world such as mathematics, engineering, computing, geography, DT and global citizenship. We believe making these curriculum connections are essential and help to engage and connect our children with the opportunities Science provide. Children will also learn about significant and diverse scientists and their contribution to the body of knowledge and understanding of the world we live in and we regularly invite STEM professionals into school. We make links between these professions and the scientific research the children are involved in with the aim of building aspiration and goal setting related to future study and careers in STEM subjects.

Environmental education is a core component of our curriculum. We believe that scientific understanding of complex issues such as global warming and pollution is key to engaging children in environmental sustainability. We will give them the knowledge and skills they need to thrive in the green economy and to help protect and restore our natural environment. Through hands on activities, field work, investigations and social action projects we will give children hope that they can be positive agents of change .

Implementation

The following core concepts underpin our teaching of Science and we strive to weave these concepts into each unit we teach:

- Identifying and classifying
- Pattern making
- Research
- Observing over time
- Fair and comparative testing

At Moreland we aim to provide a rich experience of Science that enables our children to experience both depth and breadth in the units they cover. This is achieved through our "revisit" units where we revise units from earlier parts of the year to consolidate learning.

What Do We Teach?

Our Science curriculum teaches both substantive knowledge (the subject knowledge and vocabulary for each topic) and disciplinary knowledge (the knowledge of how to work scientifically).

A guiding principle of the Science curriculum is that all learning connects to prior learning. Children develop practical experience and consolidate this before moving to more abstract knowledge and concepts.

How Do We Teach?

EYFS

Science in the Early Years Foundations Stage is covered in the 'Understanding the World' area of the EYFS Curriculum. It is introduced through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.

During their first years at school our children will explore creatures, people, plants and objects in their natural environments. They will observe and manipulate objects and materials to identify differences and similarities. They will also learn to use their senses to explore objects and their environment. They will make observations of animals and plants and explain why some things occur and talk about changes. Children will be encouraged to ask questions about why things happen and how things work. They will explore early physics and cause and effect relationships through practical investigation and experimentation such as increasing the incline of a slope to observe how fast a vehicle travels, or opening a mechanical toy to see how it works. Children will also be supported to make predictions, make observations, communicate their ideas, plan, investigate, problem solve, record and evaluate findings**.**

Curriculum coverage for Science related areas of the Understanding the World Curriculum and key vocabulary can be found in the Science Progression Map and EYFS Long term and Medium Term plans.

Key Stage 1 and 2

Our science lessons:

- Promote scientific learning through collaborative learning and hands on investigation
- Begin with links to prior learning and opportunities to address misconceptions/consolidate learning
- Explicitly teach scientific vocabulary
- Provide opportunities to think critically, be creative and problem solve.
- Encourage discussion of ideas and concepts
- Enable children to build links through cross curricular links where appropriate
- Model expectations and approaches to enable children to work independently.
- Enable children to build a body of scientific knowledge so that they know more and remember more.
- Encourage children to see themselves as scientists.

Each unit includes an overview for children which details the topic's big idea and prior learning, plus substantive and disciplinary knowledge. Dual coded 'knowledge organisers' contain core information for children's reference and act as a means of retrieval practise, which is the deliberate retrieval of knowledge in a way that supports long-term memory formation.

Lesson sequences are carefully considered to ensure that the content has a clear and coherent order, allowing children to connect new learning to existing knowledge. Each lesson is structured around a learning question which children are able to answer by the end. Curriculum documents provide teachers with a range of task ideas to support the development of this knowledge and understanding. For each lesson, children use a knowledge note which develops the core knowledge found in knowledge organisers. Knowledge notes focus pupils' working memory to the key question that will be asked at the end of the lesson. They reduce cognitive load and help avoid split-attention effect.

Retrieval practise is embedded in the learning sequences to support long-term memory, using spaced learning and 'interleaving' as part of the class teacher's lesson design.

Children also study vocabulary modules which provide vital Tier 2 and 3 vocabulary connected to Science topics. These include etymology and morphology, relevant idioms and colloquialisms. We aim to provide a culture of high challenge combined with low threat, putting no ceiling on any child's learning and providing the right scaffolding for every child to achieve.

Our science curriculum is planned to be accessible for all children and support them to achieve through the use of adaptive teaching methods by the class teacher and carefully selected resources that scaffold children's learning. Challenge is inbuilt into all lessons to stretch children's thinking further. The SENCO and More Able lead can provide teachers with support when planning and delivering Science lessons if required.

Curriculum coverage for Science including key vocabulary can be found in the Science Progression Map.

Enrichment in Science

Science is celebrated annually during Science Week where the children work on a Science project aimed at stimulating children's interest in the subject. This is shared during a whole school Science Fair.

Each classroom should have an interactive display in the science area and science displays should be around the school. Scientific vocabulary should form part of these displays.

Children regularly go on educational trips to further enhance their knowledge and understanding of the subject. We make good use of the school gardens and grounds for scientific learning and investigation which provide a stimulating outdoor learning environment where much of the curriculum can be enhanced through practical activities.

We make links with STEM organisations, secondary schools and universities to promote careers in Science and other STEM subjects in order to raise the profile of Science and promote careers in STEM.

Resources

Science is well resourced and the Science subject leader continues to build on the resources for each year group. The school is a member of the Islington Education Library so teachers can request

resources including books and artefacts to support each topic. Children also have access to laptops, ipads and chrome books to support their learning in Science.

Impact

How Do We know What Children Have Learned ?

- Questioning
- Pupil Book Study
- Talking to teachers
- Low stakes “drop in” observations
- Quizzing and retrieval practices
- Feedback and marking
- Progress in book matches the curriculum intent
- Summative assessment using SONAR

Assessment in Science is primarily through ongoing observation of children’s learning and formative assessment methods including discussion with children, questioning, revisiting and assessing prior learning, reviewing children’s learning in books and verbal feedback. In addition children participate in cumulative quizzing and retrieval practice which supports teachers to assess children’s knowledge and understanding.

Science assessment should reflect knowledge and skills in science. An adult can read questions and scribe for children as required to remove barriers from them demonstrating what they know.

The role of the Science Subject Leader

Moreland Primary School has a science lead who is responsible for developing teaching and learning in this subject The Science subject leader supports individual teachers by monitoring their lesson slides, books and lessons and supporting with planning sequences of lessons.. The subject leader, alongside the Senior Leadership Team, implements a monitoring cycle which ensures a high standard, and timetabling ensures that Science is allocated appropriate time. We appreciate and value feedback from all sources, including parents, children, governors etc. and will aim to accommodate any suggestions made if practicable and viable.

Staff Development

All staff are given the opportunity to extend their knowledge, skills and understanding of Science through INSET’s, specialist courses and working alongside professionals. All subject leaders are given the opportunity to attend various leadership courses/programmes including the Local Authority Network meetings.

Reviewed by Catherine Lawrence (Headteacher) and Tamsin May (Science Lead) July 2024

To be reviewed: September 2025