



## Science Policy

### Introduction

Science is a core subject within the National Curriculum. This policy outlines the purpose, nature and management of science taught at Moat Farm Infant School. The school's policy for science is based on the National Primary Curriculum which has been statutory from September 2014. The implementation of this policy is the responsibility of all teaching staff.

### Aims

At Moat Farm Infant School, we are passionate about promoting high standards of science. Through combining the Early Years and National Curriculum with our school's core values, our ambitious science curriculum equips all our children with the necessary skills needed.

We aim to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry, physics and Earth science. We develop understanding of the nature, processes and methods of science through different types of science enquiries that help children to answer scientific questions about the world around them. We strive to ensure our pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. We believe children should develop enquiring minds and the ability to question. This will build on their natural curiosity and enable them to understand and care for the world in which they live. Our pupils are provided with an environment where they can work in an investigative way and can communicate their findings in a variety of ways.

Through our well-planned, and sequenced Science curriculum our pupils acquire the vital knowledge and skills required for the next stage of their learning journey and on into adulthood. This enables the pupils of Moat Farm Infant School to become successful, active and positive members of their local community and wider world.

### Intent

#### Science Intent Statement

At Moat Farm Infant School, we are committed to providing our pupils with a science curriculum that has a clear intention and impacts positively upon children's learning and lives.

### Intent

At Moat Farm Infant School, we recognise the importance of Science in every aspect of daily life. As one of the core subjects taught in Primary Schools, we give the teaching and learning of Science the prominence it requires. Our Science curriculum will develop the natural curiosity of the child, encourage respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence.

At Moat Farm Infant School, in conjunction with the aims of the National Curriculum, our Science curriculum offers opportunities for pupils to:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Physics and Chemistry.
- Develop understanding of the nature, processes and methods of Science through different types of scientific enquiries that help them to answer scientific questions about the world around them.

- Be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future.
- Develop the essential scientific enquiry skills to deepen their scientific knowledge.
- Use a range of methods to communicate their scientific information and present it in a systematic, cross-curricular manner.
- Develop a respect for the materials and equipment they handle with regard to their own, and other pupil's safety.
- Develop an enthusiasm and enjoyment of scientific learning and discovery.

### Implementation

At Moat Farm Infant School our Science curriculum uses both substantive and disciplinary knowledge. The curriculum consists of three areas: working scientifically, science enquiry and knowledge.

Substantive knowledge is developed through our topics:

Animals including humans, Plants and Living things and their habitats (Biology): Pupils are encouraged to recognise similarities and differences between living and non-living things. They learn about the human body, their senses, plants and what living things need to stay alive.

Material (Chemistry): Pupils are given the opportunity to explore different materials, sort them according to their properties and consider how some materials can be changed.

Seasonal changes (Earth Science): Pupils are encouraged to observe and describe changes across the four seasons.

Force (Physics): Pupils are given the opportunity to explore force.

Disciplinary knowledge is developed through working scientifically and science enquiry. Pupils use questions and skills through the 5 areas of science enquiry:

1. Comparative/ fair testing
2. Research
3. Observation over time
4. Pattern-seeking
5. Identifying, grouping and classifying

Science is a core subject at Moat Farm Infant School. When planning science, staff ensure that our school gives full coverage of, 'The National Curriculum programmes of study for Science 2014' and, 'Understanding of the World' in the Early Years Foundation Stage. Working Scientifically skills and enquiry are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.

We have introduced our Science Mantras and Key Principles that were created together with both children and staff. These principles are:

**Science**

We observe, explore, investigate and work scientifically.

Moat Farm Infant School

**Key Principles:**

- We build upon our prior experiences and knowledge.
- We promote curiosity through hands-on activities.
- We make observations, predictions and ask questions.
- We work scientifically and use scientific vocabulary.
- We are the scientists of the future!

These should be displayed in our classrooms and adhered to. We encourage Science to be a subject that gives children more ownership of their learning, where they have time to ask questions and learn about the world around them.

### Early Years Foundation Stage

In the Foundation Stage, children are taught Science through the key area of learning set out within the EYFS Statutory Framework. Through a broad range of teacher-led, child-initiated and continuous learning opportunities, pupils will be taught to:

- Use their senses to investigate a range of objects and materials.
- Find out about, identify and observe the different features of living things, objects and worldly events.
- Look closely at similarities, differences, patterns and change.
- Ask questions about why things happen and why things work.
- Develop their communication and co-operation skills.
- Talk about their findings, sometimes recording them.
- Identify and find out about features of the place they live and in the natural world around them.

### Key Stage 1

In Key Stage 1, a Science topic is taught every half-term. Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Pupils are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. The heart of Science teaching at Moat Farm is our commitment to practical, explorative and investigative learning. We believe in a hands-on approach where pupils learn by doing it for themselves. This approach encourages our pupils to build resilience and become creative, critical thinkers. Our teaching and learning supports our curriculum by ensuring that lessons build on prior learning and provide opportunities for guided and independent practice.

Science week is celebrated every year across the whole school and there are also cross curricular opportunities, when possible. Trips and visits from experts who will enhance the learning experience are used where appropriate. These are purposeful and link with the knowledge being taught in class. Knowledge and skills are often revisited through retrieval practise strategies such as quizzes, games and starter activities so pupils can retain information in their long-term memory.

### Impact

The successful approach at Moat Farm Infant school results in a fun, engaging, high-quality Science education that provides pupils with the foundations and knowledge for understanding the world. Our pupils love Science! Pupils will know more, remember more and understand more about the curriculum. Pupils retain prior-learning and explicitly make connections between what they have previously learned and what they are currently learning. All pupils will have:

- A wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills.
- A richer vocabulary which will enable them to articulate their understanding of taught concepts.
- Confidence and a love of learning for all things Science.

### Teaching and Learning

The teaching of Science is a process in which all teachers are involved. Our science topics covers biology, physics, chemistry and Earth science with each topic answering a key question for pupils to explore. The topics are planned and delivered to deepen pupils' knowledge about the world, develop their working scientifically and science enquiry skills. Our Science curriculum is designed into 'chunks' so that pupils build knowledge of key concepts and the relationships between them from Nursery to Year Two; this prevents pupils from seeing science as a list of isolated facts and prevents overloading children's working memory. This is achieved by studying one topic at a time through systematic topics and building on prior knowledge each year. Therefore, there are elements of retrieval practice planned into sessions enabling pupils to practice key knowledge and skills. Furthermore, our Science curriculum is designed to develop pupils 'substantive knowledge' and 'disciplinary knowledge'. Importantly, this involves pupils learning about the many different types of scientific enquiry ensuring that pupils not only know 'the science'; they also know the evidence for it and can use this knowledge to work scientifically.

### Monitoring and Review

Monitoring of planning is undertaken by the subject leader on a regular basis. The head teacher and SLT undertake lesson observations, in accordance with the School Monitoring Plan, of Science teaching across the school. The work of the science subject leader also involves supporting colleagues in the teaching of science, being informed about current developments and providing a strategic lead and direction for the subject in the school.

### The Role of the Science Subject Lead

The science lead will:

- Encourage other members of staff in their teaching of science and to give support where appropriate such as, advising on plans and learning approaches, assessment and resources.
- Monitor progression and differentiation within the subject.
- Prepare and update documentation relevant to the teaching and learning of the subject.
- Organise, review, order and publish an inventory of resources.
- Ensure that staff are aware of new resources.
- Keep up to date with their own subject knowledge.
- Meet with external agencies who provide extracurricular activities in school.
- Continue to raise the profile of the subject throughout the school.

### Inclusion and Equal opportunities including SEND

At Moat Farm Infant School, we believe that all children should have access to the same education and opportunities.

We will endeavour to:

- Examine resources to check for bias and to ensure the inclusion of all pupils.

- Provide tasks to ensure that pupils experiencing difficulties with science concepts or scientific language are supported.
- Provide tasks to ensure that the more able gifted and talented pupils are challenged.
- Provide a supportive ethos in each classroom so that all pupils develop a positive attitude towards science and are not afraid of making mistakes.

For our SEND HUB We have high expectations of all our pupils. We aim to achieve this through the removal of barriers to learning and participation. We want all of our pupils to feel that they are a valued part of our school community. We respect the fact that pupils:

- have different educational and behavioural needs and aspirations
- require different strategies for learning
- acquire, assimilate and communicate information at different rates
- need a range of different teaching approaches and experiences

We pride ourselves in the inclusive nature of our school, pupils mix happily and are fully accepted into school life by staff and their peers. We aim for pupils to integrate into learning and social times and we are happy to adapt and be flexible to ensure each child is settled, has provision to meet their specific needs and ensure they make excellent progress from their individual starting points.

### Health and Safety

The staff and Governing Body of this school are committed to establishing and maintaining an environment where children feel secure, are encouraged to talk, and are listened to. We will ensure that pupils know that there are adults in the school who they can approach if they are worried and that the principles of confidentiality are made clear to pupils and young people. Pupil's wishes and feelings are always taken in to account when determining what action is taken and included in any referrals. The school promotes a positive, supportive and secure ethos, giving pupils a sense of being valued and understanding that their voice will be heard.

It is important to allow pupils to do what they can for themselves, but depending on age and circumstances (i.e. a child who is hurt, who needs instruction in the use of a particular instrument/piece of equipment, safety issues such as the need to prevent a child hurting themselves or others), it may be necessary for some physical contact to take place.

Effective health and safety planning is essential in Science to ensure risks are identified and risks are monitored before, during and after lessons. A pragmatic, risk-based approach is taken, based on evidence and with the co-operation of all staff and pupils. Hands-on practical work will enable pupils to further understand the processes of good risk management, as well as focussing in on areas such as teaching space management and use of resources safely and effectively.

### Other Curriculum area links

At Moat Farm Infants School, we make curriculum links where appropriate. Our Science curriculum is designed to make relevant connections between science knowledge and mathematics knowledge. Pupils are taught how to transfer their mathematics knowledge into science through practical lessons. Furthermore, curriculum links are made in reading, writing and communication and language, allowing pupils to represent their science knowledge in a range of ways. This allows pupils to explore how scientists engage in their work developing pupils 'disciplinary literacy' skills. Pupils also have regular opportunities to learn new scientific vocabulary through story and non-fiction books, rhymes and songs in a range of subjects.

### Enrichments and links made within the community

At Moat Farm Infant School we enrich science for pupils by teaching them how to be a good scientist. We do this through:

- Using and apply taught skills - Using methods, known strategies and practise.
- Using scientific vocabulary - Confidently using and referring to key vocabulary, often displayed on our working walls.
- Connections - Making connections within science and other curriculum areas.
- Be problem solvers - Show initiative in solving problems in a wide range of contexts, including new or unusual.
- Think independently and be challenged - Thinking independently and persevering when faced with challenges.
- Learn from mistakes - Value learning from mistakes.
- Reason - having the ability to reason, generalise and make sense of solutions.
- Have passion and enjoyment!

Through EYFS and KS1 pupils have the opportunity to link science to the wider community take part in:

- Workshops, homework and school trips linked to science

#### Assessment

- Science is assessed regularly through marking and feedback (see Marking and Feedback policy)
- Staff use assessment grids and tick off if children have achieved objectives for each target
- Staff input data into learning ladders each term

#### Recording

Children are expected to record in science lessons if it is useful and purposeful to the activity and child's progress. The need to record and the most appropriate method to use will vary on the activity.

#### Equal Opportunities

Our teaching of science is designed to give equal curricular opportunities to both boys and girls. Children with learning difficulties may need modified curriculum with a different emphasis and progression. They may need opportunities to develop their observational, manipulative and linguistic skills. More able children need to be presented with problems which will stretch them and allow them to build upon the skills they already have.

Children from all cultures need to know that their culture is valued and included in any relevant work. Activities that include, for example, clothes, instruments and food are obvious ways to reflect the cultural diversity of our local area.

#### Resources

Science resources are kept in labelled boxes in a cupboard in the hall labelled 'Science Resources'. It is the responsibility of all class teachers to ensure that these resources are handled carefully and returned as soon as possible after use. Please notify the coordinator immediately of any lost or broken items, and of any materials in short supply so that these can be quickly replaced. Many classes keep resources for children to use freely, the same applies that they should be kept safe, used appropriately and report if there is any damage or loss.

#### Monitoring and Evaluation

Monitoring of science in our school is continuous. The science policy is a working document and will be updated and amended when necessary. Science within our school is monitored via planning, work in books, assessment, learning walks, pupil voice and displays and how science is integrated into our classrooms through the provision.

*Parental involvement*

*Parents are invited in during Science days or science weeks to take part in parent workshops, whenever appropriate.*

*Offsite visits*

*Staff are encouraged to incorporate offsite visits to develop scientific knowledge, skills and understanding, whenever possible.*

*J. O'Gara*

*January 2025*