



Science Policy 2022-23

Rationale

Science is a body of knowledge and understanding built up through experimental testing of ideas. Science is also a methodology; a practical way of finding reliable answers to questions we may ask about the world around us.

Science at Marsh Lane Primary School is about developing children's ideas and ways of working that enable them to :

- Think critically and communicate their understanding;
- Have opportunities to apply their scientific skills in different contexts across the curriculum;
- Develop enquiry skills useful for science and across the curriculum.

Aims

- Preparing children for life in an increasingly scientific and technological world
- Fostering concern about, and active care for, our local and global environment.
- Helping children develop a scientific concept of their world.
- Developing children's understanding of the international and collaborative nature of science.
- Enabling children to appreciate every-day and technological applications of science, both positive and negative.

Attitudes

- Encouraging the development of positive attitudes to science for both girls and boys.
- Building on children's natural curiosity and developing a scientific approach to problems.
- Encouraging open-mindedness, self-assessment, perseverance and responsibility.
- Encouraging children to engage in scientific enquiry; posing questions and investigating.
- Developing children's social skills to work co-operatively with others.
- Providing children with an enjoyable experience of science, so that they will develop a deep and lasting interest

Skills

- Giving children an understanding of scientific processes.
- Helping children to acquire practical scientific skills.
- Developing the skills of investigation - including observing, questioning, measuring, predicting, hypothesising, experimenting, communicating, interpreting, pattern spotting, explaining and evaluating.
- Developing the use of scientific language, recording and techniques.
- Enabling our children to become effective communicators of scientific ideas, facts and data.

Science and the National Curriculum

Key Stage 1

The principal focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about Science should be done

through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. 'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive Science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2

The principal focus of science teaching in lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. 'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Upper Key Stage 2

The principal focus of science teaching in upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.

At upper Key Stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read, spell and pronounce scientific vocabulary correctly.

Organisation

Foundation Stage

The Foundation Stage Profile in Reception sets out the learning objectives for the six areas of learning:

- Physical Development
- Creative Development (Music, Art and Drama)
- Personal, Social and Emotional Development
- Understanding of the World (Science, History, I.C.T., Geography and Technology)
- Communication, Language and Literacy
- Problem Solving, Reasoning and Numeracy (PSRN)

The Foundation Stage Profile aims to give the children knowledge and skills so they can begin the National Curriculum.

Teaching and Learning

Planning:

- Planning begins from a thorough understanding of children's needs gleaned through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve.
- Medium term planning will outline the areas of science that will be taught during the term to ensure coverage of the National Curriculum.
- Within short term planning, clear success criteria for each learning objective taught should be created – demonstrating the progression needed to reach and exceed the objective. This will enable the class teacher to follow a clear and systematic teaching sequence, where input and activities are differentiated by considering which parts of the success criteria individual children are ready for.
- Where children are working significantly above or below the objective the majority of the class need to work towards, and where extending this by expanding the success criteria seems inappropriate, objectives should be adapted in order to meet the individual's needs, including providing scaffolding to allow children to achieve objectives or by allowing children to research challenging key questions or enquiries independently to allow them to develop mastery of the objective.
- Planning should involve real life contexts for science, where children are investigating scientific question with a real purpose in mind, appropriately linked to the creative curriculum topic.
- Enquiry-based learning should permeate the scientific knowledge and understanding being developed by the teacher, as it gives life and sustenance to learning new knowledge and developing understanding in every area of the primary science curriculum. It should be the driving force of scientific learning, teaching and assessment, enabling children to be far more independent and scientific in their thinking and approach to science and ultimately leading to the development of in depth scientific understanding in all areas of the subject.
- Class teachers should regularly plan for opportunities for children to apply their scientific skills to different areas within science lessons and across the curriculum. This will also allow children to revisit, practice and consolidate different areas of science and apply them within different contexts.

Teaching:

- In the Foundation Stage, children are given the opportunity to learn about similarities and differences in relation to places, objects, materials and living things; to talk about the features of their own immediate environment and how environments might vary from one to another; make observations of animals and plants and explain why some things occur, and talk about changes

- Class targets should be used to ensure areas where the majority of the class have not grasped a concept can be revisited and mastered. Individual targets should be used to ensure groups of children can be targeted effectively for support.
- Though the nature of lessons will be very different depending on the needs of the class, children should be: active; practicing skills they haven't yet mastered (perhaps recapping on class targets); learning something new OR learning to apply their knowledge to different contexts.

They should be:

- 'doing' very quickly; working at a good pace and being productive; sharing their thoughts and
- methods and being successful.

Assessment:

- Assessment for learning should occur throughout the entire science lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs. This feedback should be incisive and regular.
- Children should self-assess against the learning objective and success criteria, giving them a sense of success.
- Pupil's work should be marked in line with the Marking Policy and should model how corrections should be made, giving children a chance to learn from their misconceptions or incorrect methods. At the beginning of each lesson, time should be given for pupils to reflect on marking and comments on the previous work.
- Future lesson design should depend on class success evaluated through marking and observations made during the lesson.
- Assessment of pupil work and progress is on-going by the class teacher and informs future planning.

Teachers mark work in science in line with the school marking policy. Teachers use formative and summative assessment against the KS1, LKS2 or UKS2 descriptors which allows teachers to assess children's progress in science, gathering evidence over the course of the year.

Teachers use this information to inform planning for groups and individual pupils.

Resources

Science resources are kept in the staffroom. An audit of resources will be completed annually and in line with staff requests in order to ensure curriculum coverage.

Consumable items can be purchased on request.

We promote science through links with local industries, parents with specialist knowledge, visits and exhibitions, competitions and events whenever possible.

Responsibilities of the Subject Leader

- Monitor the effectiveness of Science teaching and learning by means of lesson observation, pupil interviews, learning walks, sampling children's work and overseeing assessment
- Provide feedback to teaching staff and the headteacher
- Periodically update the whole school planning overview (in consultation with all teaching staff) to ensure it remains relevant and appropriate.
- Attend subject leader network meetings and disseminate new information
- Support teachers in planning and delivering the curriculum
- Manage the resources for teaching Science
- Report to the Curriculum Committee of the Governing Body as requested.

Health and Safety

All children are made aware of the importance and relevance of health and safety when undertaking work in science. In planning, the class teacher is expected to assess the risks and adjust their lessons accordingly to ensure safe practice and appropriate levels of supervision.

EVALUATION

This policy will be observed in practice by the subject manager on a regular basis as part of the monitoring Process

Policy Ratified on October 2022

Policy Reviewed October 2023

Signed by _____ Chair of Governors