

Mill Lane Primary School



Science Policy

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1. Our Rationale for teaching Science

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills.

We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability.

Aims:

Our aims in teaching science include the following:

1. Preparing our children for life in an increasingly scientific and technological world.
2. Fostering concern about, and active care for, our environment.
3. Encourage every child to investigate, question and discuss in order to acquire scientific knowledge, understanding and skills.
4. Encourage children to hypothesise and to find ways of testing their ideas to provide evidence to support their ideas.
5. Teach scientific vocabulary and to use a variety of ways to present the results of their investigations.
6. Promote key skills by offering a range of contexts for the development of:
 - Literacy - communicating facts, ideas and opinions
 - Mathematics - application of number through collecting, considering and analysing data.
 - ICT - through using a wide range of ICT
7. Provide opportunities to learn about aspects of personal, social and health education (PHSCE) and citizenship.
8. Ensure children recognise hazards and risks when working with living things and materials and agree safety rules.
9. Provide opportunities that engage the children in relevant, interactive first hand experiences.
10. Encourage children to work co-operatively and collaboratively, developing children's confidence communicating ideas.
11. To provide opportunities for all children regardless of race, gender or disability.

Our Objectives

We will fulfil these aims by:

1. Using the rich and stimulating environments that surround our schools to enable us to provide opportunities for learning about life processes and living things, through observation, questioning and wonder.
2. Providing a wide range of interactive, practical activities for individual and group work that encourage the children to explore and find out and develop their understanding of key scientific ideas and make links between different experiences.
3. Developing the children's investigative skills and understanding of Science through the use of questioning and giving them opportunity to express their findings and ideas to their peers and a wider audience.

4. Planning opportunities to develop skills predicting, asking questions, making inferences, drawing conclusions and making evaluations based on evidence and understanding.
5. Teaching scientific and mathematical language, including technical vocabulary and conventions, and drawing diagrams and charts to communicate scientific ideas.
6. Planning opportunities to extract information from sources such as reference books or ICT as well as through science visits and visitors to school.
7. Working collaboratively in pairs or groups, listening to and sharing ideas and treating these with respect.
8. Taking part in the annual National Science Week activities.

Attitudes

1. Encouraging the development of positive attitudes to science.
2. Building on our children's natural curiosity and developing a scientific approach to problems.
3. Encouraging open-mindedness, self-assessment, perseverance and responsibility.
4. Building our children's self-confidence to enable them to work independently.
5. Developing our children's social skills to work cooperatively with others.
6. Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further.

Skills

1. Giving our children an understanding of scientific processes.
2. Helping our children to acquire practical scientific skills.
3. Developing the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
4. Developing the use of scientific language, recording and techniques.
5. Developing the use of ICT in investigating and recording.
6. Enabling our children to become effective communicators of scientific ideas, facts and data.

2. Organisation

In KS1 and KS2, science is taught using a mixture of schemes in order to achieve the best possible curriculum for our pupils. We use Collins Snappy Science and the Cornerstones Scheme of Work. . These documents are adapted to suit the needs of each class and individual children. Normally, Science is taught discretely in a weekly lesson. This alters if the cornerstones topic is 'science' based.

In EYFS, Science is taught through the half termly topic through the Early learning Goal of KUW (Knowledge and Understanding of the World). We actively encourage our EYFS pupils to engage in the world around them and make use of our outdoor spaces to allow children to observe changes as the year progresses.

3. Teaching and Learning Strategies

As in other areas of the curriculum, Science is taught in accordance with our Teaching and Learning Policy. Each child is taught at his or her own level through a planned progression of learning activities to enable them to achieve their full potential.

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes we do this through whole-class teaching, while at other times we engage the children in an enquiry-based research activity. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs; use ICT in science lessons because it enhances their learning; take part in role-play and discussions and engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, for example, investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

We recognise that in all classes children have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- Setting tasks which are open-ended and can have a variety of responses;
- Setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- Working with individual children;
- Enabling children to work collaboratively KAGAN group work;
- Providing resources of different complexity, matched to the ability of the child;
- Using classroom assistants to support the work of individual children or groups of children.
- Using Language Ambassadors to ensure that all EAL children can access the curriculum too.

4. Equal opportunities in science

Science is taught within the guidelines of the school's equal-opportunities policy.

- We ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class, physical or intellectual ability.
- Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.
- We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.
- We draw examples from other cultures, recognising that simple technology may be superior to complex solutions.
- We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences.
- In our teaching, science is closely linked with literacy and mathematics.

- We recognise the particular importance of first-hand experience for motivating children with learning difficulties.
- We recognise that science may strongly engage our gifted and talented children, and we aim to challenge and extend them.
- We exploit science's special contribution to children's developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking.

5. Assessment

In EYFS, assessment is through observation and is mainly formative. The Foundation Stage Guidelines offer examples of what children do to help identify when knowledge, skills, understanding and attitudes have been achieved by individuals or groups of children to inform planning for the next stage in the children's learning. Children's progress in Science is monitored throughout the year using the STEPs monitoring system each half term. Parents are informed of children's progress through parent's consultation evening and an end of year report. Science is included under the heading of Knowledge and Understanding of the World.

Teachers help children to develop skills and confidence by looking at their work and discussing it with others in order that they can identify success, strength and weaknesses and plan next steps in their learning. Observations during practical work and discussions help us to make informed judgements about children's understanding in science.

In line with the National Curriculum, assessment throughout Key Stage 1 and 2 is based on teacher's assessments of the children's progress in the different areas of study and the use of our tracking sheets. This is also supported through the use of Collins Snappy Science assessments if appropriate.

The SLT and Science Subject Leader also monitored external data.

6. Health and Safety

Health and safety is an integral part of teaching. As teachers and citizens in a dangerous world, we have a responsibility to encourage children to approach hazards in a safe way. There are few risks associated with Primary Science but children should be taught the importance of safety and the correct way of handling tools, materials and equipment. Teachers will use their professional judgments as to the suitability of any experiment for their class, bearing in mind their age and maturity. Teachers will always supervise all activities and it will sometimes be appropriate to have the support of other adults. If there is an accident the teacher will alert the school first-aiders and the Head teacher. Accidents will be recorded in the school's Accident Book.

When considering safety procedures, guidance can be sought from the Science leader or the Head teacher. For further information staff should refer to the "Be Safe" booklet which is produced by the Association for Science Education, a copy of which can be found in the resources area.

All electrical appliances in school are PAT tested. All staff should visually check electrical equipment before they use it and take any damaged equipment out of use. Where children are to participate in activities outside the classroom (a trip to a science museum, for example) we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

7. Resources

Science resources are managed by the science subject leader and s/he is responsible for ordering new/replacement equipment, in consultation with the staff and the Head teacher. The subject leader is responsible for checking all resources annually.

We have sufficient resources to support science teaching in our school. We keep these in a central store. The library contains a good supply of science topic books to support children's individual research which is enhanced by the use of computers.

All children should be encouraged to develop necessary skills in order to handle the equipment in the appropriate scientific way. These skills should be progressively built upon as the children move through the Key Stages. All children should be made aware of safety factors

8. The Role of Parents

Parental involvement is actively encouraged at Mill Lane. Parents can be involved in their child's development in Science. When it is appropriate tasks may be sent home for the child and parent to work on together, thereby involving the parent in the child's learning. Opportunities for parental involvement can be built into the Science planning and may include:

- the making of lists
- collecting material or information
- undertaking small surveys
- questioning adults in the house
- making observations of the environment about the house.

9. Conclusion:

This policy should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Assessment and Record Keeping
- Marking policy
- Special Educational Needs Policy
- Computing Policy
- Equal Opportunities Policy
- Health and Safety Policy
- Continuing Professional Development Policy

This policy will be reviewed at least every two years.

Signed and dated:

Head Teacher

Chair of Governors