



Science Policy

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Science Policy

The National Curriculum

Our strategic plan for teaching, learning and assessment states that we will 'promote even more opportunities for pupils to extend their learning through questioning, creativity and innovation'. We strive to enable each child to reach his or her potential academically by establishing an ethos of high expectations, with a strong emphasis on excellence and enjoyment and high quality teaching and learning of Science across the school.

Key skills, knowledge and understanding are taught according to the National Curriculum (2014). Working scientifically is taught through contexts taken from the science content in the programme of study for each year group.

The teaching of Science will be based on the investigation of the physical, chemical and biological aspects of the world we live in and beyond. It will rely on firsthand experiences and on other sources of information.

Aims for Science at Midfield

It is our aim that each child should develop a positive and enthusiastic attitude to Science to cultivate pupils' enjoyment and interest in Science and an appreciation of its contribution to all aspects of everyday life, today and in the future. Each child will become more aware of and able to use scientific approaches and methods. Children will be given opportunities to develop their scientific understanding of the world and their skills of investigation, including, observation, measuring, predicting, hypothesising, experimenting, fair testing, communicating and interpreting. We strongly believe the best way to learn about Science is through hands-on investigation, so children can develop their understanding of the nature, processes and methods of science through a range of scientific enquiries that can help them to answer questions about the world around them. Where possible we will encourage children to take an active lead in their learning, posing and finding ways of answering their own questions. Children will develop their use and understanding of scientific language, recording and techniques. Cross curricular links will be made between Science and other subjects where appropriate to ensure a breadth of study.

Children will be given the opportunity to develop a set of attitudes which will promote scientific ways of thinking, including open-endedness, perseverance, objectivity and recognition of the importance of teamwork. Children will gain an awareness of environmental issues to enable them to become responsible citizens who can make informed life choices.

Aims for Early Years Foundation Stage (Year R)

At Foundation stage, Science is within the area of learning, 'Understanding the World' and in the sub-section 'The World'.

Children's knowledge, skills and understanding are developed in areas that help them make sense of the world around them. This helps to create a foundation for later work in many other areas of the curriculum. They are:

Early Learning Goal:

- Children know about similarities and differences in relation to places, objects, materials and living things
- They talk about the features of their own immediate environment and how environments might vary from one another
- They make observations of animals and plants and explain why some things occur, and talk about changes.
- They show concern for other living things.

The work carried out in the foundation stage is built upon in later study in Science and in other foundation subjects, for example Geography and ICT.

Aims for Key Stage 1 (Year 1 and 2)

During KS1, pupils observe, explore and ask questions about living things and materials. They begin to work together to collect and evaluate evidence to help them answer questions and to link this to simple scientific ideas. They use a range of reference materials to find out more about scientific ideas. They experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions.

Across the Key Stage, pupils will study:

- Seasonal change
- Plants
- Animals, including humans
- All living things and their habitats
- Everyday materials

Working scientifically:

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions
- Gathering and recording data to help in answering questions.

Aims for Key Stage 2 (Year 3, 4, 5 and 6)

During KS2, pupils learn about a wider range of living things, materials and phenomena. They begin to make links between ideas and to explain things using models and theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health.

They begin to think about the positive and negative effects of scientific and technological developments on the environment and in other contexts. They carry out more systematic investigations, working on their own and with others. They use a wider range of reference sources in their work. They talk about their work and its significance, and communicate ideas using a range of scientific language, conventional diagrams, charts and graphs.

Across the Key Stage, pupils will study:

- Forces and magnets
- Light
- Rocks
- Animals, including humans
- Plants
- Sound
- States of Matter
- Electricity
- Earth and space
- Properties and changes of materials
- Evolution and inheritance

Working scientifically:

During years 3 and 4, pupils are taught to use the following practical scientific methods, processes and skills:

- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Using straightforward scientific evidence to answer questions or to support their findings.

During years 5 and 6, pupils are taught to use the following practical scientific methods, processes and skills:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments.

Curriculum and Organisation

Midfield has adopted the Kent Primary Science Scheme of Work 2014 as the basis for termly and weekly planning. The scheme ensures full coverage in line with the National Curriculum, progression between year groups, expected learning outcomes and guarantees that topics are revisited.

Teachers are encouraged to plan in a range of different ways, considering opportunities for hands-on investigation and learning outside the classroom, differentiation, encouraging a range of skills to enable children to work scientifically and key vocabulary. Science topics are supported through the use of effective displays that highlight key learning, vocabulary and celebrate children's work and questions.

Cross-Curriculum and ICT

Science is taught as a discrete subject with a focus on hands-on investigation, questioning and key vocabulary, but cross curricular links will be made to other subjects and topic themes where possible. Learning in Literacy and Mathematics are used to support a variety of science topics, providing good opportunities for speaking and listening, non-fiction reading and writing as well as opportunities for using weights and measuring, data collection and handling in Mathematics.

Children are encouraged to use ICT opportunities wherever appropriate, especially in collecting, recording and presenting data and graphs, including the use of digital photography, word processing, data logging, data handling programs and the Internet.

Assessment

Assessment opportunities are identified within the schemes of work. Formative assessments offer information on strengths or weaknesses and these are used to inform the unit and to encourage children to consider the questions they have about the new topic. End of module termly assessments to provide information to support yearly reports and parent discussions.

Class teachers assess children's progress and identify the any gaps in children's learning. Assessment data is recorded on a purpose-designed spreadsheet which highlights progress and gaps to inform future planning.

Inclusion and Differentiation

The study of Science is planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more able.

- **Special Education Needs**

For pupils with SEN the tasks will be adjusted or pupils may be given extra support.

- **Greater depth**

Children who are working well above their expected level (identified as working at greater depth in Science) are given suitable challenges to allow them to think creatively as well as develop their independent learning and enquiry skills.

- **Equal Opportunities**

Curriculum planning will ensure that all pupils have an equal opportunity to take part in all Science teaching regardless of gender, cultural background or disability.

Health and Safety

At Midfield, we follow the guidelines as outlined by CLEAPSS through their website and telephone information service. During practical investigations in Science, health and safety is an important consideration and pupils are taught:

- about hazards, risks and risk control;
- to recognise hazards, assess consequent risks and take steps to control the risks to themselves and others;
- to manage their environment to ensure the health and safety of themselves and others;
- To explain the steps they take to control risks.