

Elmwood Infant and Nursery School

Science Policy



Updated January 2022

Article 29 'Education must develop every child's personality, talents
and abilities to the full'



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This policy outlines the purpose, nature and management of the Science taught in our school. The teaching of Science is based on the 2014 National Curriculum in England Key Stage 1 framework document. In the Foundation Stage, Science is planned in line with guidance for the new EYFS curriculum. The implementation of this policy is the joint responsibility of the Head Teacher, the Science Co-ordinator and all teaching staff.

Intent

At Elmwood, we aim to teach Science in a practical and stimulating way which encourages children's natural curiosity and fascination with the world around them. We create moments of 'awe and wonder' through the many first hand opportunities we offer to experience Science in action. We carry out exciting investigations and experiments, which inspire all our children to be inquisitive, reflective and confident young scientists.

Our Science teaching builds upon children's natural fascination with the world in which they live and their desire to find out more about the phenomena occurring around them. This fascination is developed through first hand exploration, which fosters curiosity, critical reflection, cooperation, problem solving, observation, independent learning, perseverance and open-mindedness. Learning Science in this way leads to an appreciation of the subject as a fundamental part of everyday life and allows children to develop confidently within our society now and in the future, in which Science will continue to play a progressively vital role.

As a Rights Respecting School, we aim to respect and promote the rights of children through the teaching of Science. We encourage children to link their learning in Science to their rights, for example making links between their Science learning and their rights to healthy food, clean water and a safe environment. Using their Super Skills, children learn to question and discuss Science-based issues that may affect their own lives, our society and our future.

Aims

- ✓ To foster children's wonder and natural curiosity about the world they live in through active engagement in learning experiences.
- ✓ To provide opportunities for children to develop knowledge and understanding of key scientific ideas.
- ✓ To develop children's scientific enquiry skills in questioning, predicting, planning, observing, measuring, fair testing, recording, interpreting and working systematically through direct experience.

- ✓ To provide children with the ability to make informed decisions based on evidence and their own experiences and be able to apply scientific knowledge to new situations.
- ✓ To teach children how to communicate their ideas effectively.
- ✓ To demonstrate interest and enthusiasm for Science and to be confident to participate in explorative and investigative work.
- ✓ To develop skills to confidently discuss, record and research through cross-curricular learning, which forms particularly strong links with Maths, Literacy and ICT.
- ✓ To develop Rights Respecting values and attitudes, communicating with others, listening to their ideas and treating these with respect.
- ✓ To develop an awareness and sensitivity to the living things in our environment through access to the natural environment.
- ✓ To develop a responsibility for their own health and safety and that of others when undertaking scientific activities and exploring the world around them.

Implementation

At Elmwood Infant School we ensure high standards of teaching and learning in Science by implementing a curriculum that is progressive through building on skills and knowledge as children move through the different year groups. Planning for Science is a process in which all teachers are involved to ensure that the 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. Science teaching involves adapting and extending the curriculum to match all pupils' needs. Where possible, Science is linked to class topics, although it is taught as discrete units and lessons where needed to ensure coverage. In Key Stage One, Science units are taught in blocks, with each year group having a carefully balanced set of units to cover throughout the year. This ensures progression between year groups and guarantees all topics are covered. In Early Years, teachers plan by linking Science learning to their termly topics and the children's interests, planning carefully to ensure coverage. The children across the school are further encouraged to use their 'Super Skills' each lesson to embed them in their approach to Science learning: to be inquisitive, to be confident, to collaborate, to be independent, to be organised, to persevere, to be adventurous, to be creative in their thinking and to use their communication skills.

We ensure that all children are provided with rich learning experiences that aim to help them to:

- ✓ Explore the world around them and begin to ask and answer scientific questions about what they see and experience,
- ✓ Compare and group different objects, materials and living things, commenting on patterns and making observations,
- ✓ Use a range of sources to find new information and answers to questions,
- ✓ Use a range of equipment to plan and carry out simple tests,
- ✓ Use simple scientific language to express ideas, observations and findings.

Impact

The impact and measure of our Science teaching is that our children at Elmwood enjoy and are enthusiastic about Science. There is also evidence of clear progression of children's work and teachers' expectations in our school.

We measure the impact of our curriculum through the following methods:

- Assessing children's understanding of topic linked concepts and vocabulary throughout the topic
- Evaluating information recorded on pupil voice sheets at the end of a topic
- Evidence of learning recorded in books
- Recording observations in Learning Journeys and on our online learning platforms (Evidence Me and SeeSaw)
- Summative assessment of pupil discussions about their learning
- Observations of the children's practical learning
- Assessments collected half termly through the Science progression sheets
- Moderation staff meetings where there is time for discussion and pupil's books are shared and seen in a whole school context
- External moderation of children's work at the end the Early Years
- Formal reporting of standards at the end of each Key Stage
- Annual reporting of standards across the curriculum to parents.

Management and Organisation

In the Early Years, the new statutory framework for the Early Years Foundation Stage will be embedded and children will be supported in developing their understanding of the world through taught lessons, child-initiated activities and small group work where they can explore, enjoy, learn, practise and talk about their increasing understanding of people, cultures and communities, their immediate environment and the natural world.

Children will be engaged in activities that promote:

- ✓ Playing and exploring - children investigate and experience things through exciting, hands-on learning, always being encouraged to try things out themselves. Above all, our children are encouraged to develop a true love of learning and a passion for discovering new things.
- ✓ Active learning – engaging opportunities which allow children to experiment and test their theories, which in turn encourages them to persevere when they encounter difficulties and enjoy their achievements when they succeed.
- ✓ Being creative and thinking critically – through modelling and scaffolding, children are encouraged to look at things from a scientific perspective and use their initiative to develop their own strategies for doing things. Children are consistently being encouraged to be inquisitive, enabling them to develop their own ideas and make links between their ideas and prior learning.

In Key Stage 1, the National Curriculum 2014 is organised into the following programmes of study:

Year 1: Plants, Animals including humans, Everyday Materials, Seasonal Changes and all aspects of working scientifically.

Year 2: Living Things and their Habitats, Plants, Animals including Humans, Uses of Everyday Materials and all aspects of working scientifically.

During Years 1 and 2, pupils will 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.

As practical learning and investigations follow the needs of the children's knowledge base, teachers operate an 'open-ended' approach to timing of lesson coverage. For example, some scientific investigations may engage the class in discovery for a day, some for a week or some for a longer period of time, depending on the nature of the investigation and the aspects of the curriculum being covered.

Resources

At Elmwood, we aim to resource our Science teaching to ensure that our children learn through practical experiences in which the children's Science learning is scaffolded using the teacher as a fellow investigator. This allows the children to explore and discover in a way which lets them build on their own ideas and find the answers to their own questions. Whenever possible, we make use of meaningful cross-curricular links and experiences encompassing many areas of learning to maximise the children's wider understanding and engagement. As Science contributes to many subjects within the primary curriculum, opportunities are sought at the planning stage in every year group to link curriculum areas. This allows children to begin to use and apply scientific skills and knowledge in real and relevant contexts.

Our Science learning has always been enhanced through trips and workshops, including local trips to Lloyd Park to compare trees and plants in different seasons, animal workshops in school and trips further afield to London Zoo. Due to the pandemic, such opportunities have been limited but will continue as soon as circumstances allow for this. National Science Week is celebrated annually and we have exciting Science activities and investigations linked to the topic each year, which take place throughout the school, from Nursery to Year 2.

Teachers encourage children to explore the invaluable resources in the library and online, allowing them to discover that books and online publications/resources are very valuable sources of information, which have been collected and organised to aid them in discovering new things. Our ICT equipment and the Internet are crucial tools in the children's investigative journey. The children are encouraged to see these tools as a valuable and safe method to find answers to their questions. Therefore we place a high priority on developing the children's skills in accessing these resources and technology.

Science equipment is stored in a central cupboard in labelled trays and is readily available to be taken into classrooms and used whenever needed. Whilst each year group also has trolleys in the classrooms, which contain resources specific to the parts of the Science curriculum they cover. All children are made aware of the relevance of health and safety when understanding work in Science and links are made to their rights regarding their health and safety.

Computing

At Elmwood we incorporate technology in our Science teaching as much as possible as so many elements of Science learning can be enhanced by the use of Computing. Planning incorporates the use of classroom computers, online publications and resources, microscopes and iPads. These are always incorporated into planning when they are an effective way to meet the learning objective but are also always available to the children if they deem them a necessary resource to aid their investigation when working more independently.

Planning, Assessment and Recording

- Curriculum planning is undertaken by the year group teachers in line with the New Primary Curriculum. Detailed schemes of work have been compiled and will ensure progression across the year groups.
- In the Early Years, attainment in Understanding of World is assessed and passed on to the Year 1 teacher and commented on in the end of year report.
- Work is acknowledged and verbal feedback is given.
- Informal assessment is undertaken continuously by class teachers and teaching assistants whilst pupils are engaged in tasks. Immediate feedback is given to pupils about their work and teaching points can be emphasised. This also gives pupils the opportunity to assess and review their own work.
- At the end of Year 2, teachers report on whether the children have achieved age related expectations in Science.

Although Science teaching at Elmwood is primarily activity-based, there are often occasions when it is necessary and desirable to make a record of what has been seen, done or discovered. Children are encouraged to record their Science learning in a variety of ways. Recording may take the form of: planning an activity or investigation, making predictions, comparing data and examining patterns, compiling their own results in order to draw their own conclusions and recording data and developing observation skills.

Inclusion

Staff will ensure that the delivery of the Science curriculum meets the needs of all pupils whatever their ability and needs. At Elmwood, we are committed to providing all children with an equal entitlement to scientific activities and opportunities regardless of race, gender, culture or class. We aim to meet the needs of all our children through differentiation in our Science planning and in providing a variety of approaches and tasks appropriate to the range of ability levels. This will enable children with learning and/or physical difficulties to take an active part in scientific learning, practical activities and investigations in order to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst more able children will be extended through differentiated activities.

Consideration is always given by teachers to the diversity of abilities within each class. Providing a range of experiences via the planning, ensures the fullest involvement of the whole class, encouraging the less able and extending the more able. The use of differentiated challenges (Hot, Boiling and On Fire) ensures all children are being supported and challenged to facilitate them making optimal progress in their Science learning.

Links with Home

We strongly encourage parents to use the resources and information available on our online learning platforms and our school website, which provides current links to age appropriate Science websites, activities and resources to enhance their children's learning.

Parents are sent half termly newsletters for the year groups in which their children are taught. Within these newsletters, we often suggest additional practical activities and experiences that parents can engage in with their children to enrich their experiences and understanding of Science in the 'real world'.

A 'pre-teach poster' is sent to parents each week via our online learning platforms to inform them of the weekly learning, with opportunities to develop their children's understanding through activities at home or outside in the natural environment.

We also have curriculum meetings, which inform parents of the topics being covered and also give them the opportunity to discuss any areas of their children's learning that they wish to enquire about.

Health and Safety

Whenever appropriate, health and safety is discussed with the children and reminders are given to children about potential hazards and the additional care that needs to be taken whenever they are using different resources or equipment.

Any trips or workshops, are planned with due regard to the school policy on taking children on outings and risk assessments are carried out prior to the trips/workshops.