

ASKERN MOSS ROAD INFANT SCHOOL



SCIENCE POLICY

January 2018

Science Policy

Rationale:

We believe that through focussed exploration and investigations the children will develop an understanding of science in relation to their everyday life. We believe that through providing children with hands on scientific experiences we stimulate a child's curiosity in finding out why things happen in the way they do, teaching the children methods of enquiry and investigation to stimulate creative thought. Through the teaching of science children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national, and global level.

Aims:

The aims of science are to enable children to:

- ask and answer scientific questions;
- plan and carry out scientific investigations, using equipment, including ICT, correctly;
- know and understand the life processes of living things;
- know and understand the physical processes of materials, electricity, light, sound and natural forces;
- know about the nature of the sun, moon and earth;
- evaluate evidence and present their conclusions clearly and accurately.

Teaching and learning style

We believe that the best way to learn science is through first hand experience through a range of domestic and environmental concepts that are of interest to the children.

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. We engage the children to be involved in enquiry-based research activities. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as graphs, pictures, and photographs. They use ICT in science lessons where it enhances their learning. They take part in role-play and discussions and they present reports to the rest of the class. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in 'real' scientific activities, for example, researching a local environmental problem or carrying out a practical experiment and analysing the results.

We recognise that there are children of widely different scientific abilities in all classes 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 by:

- setting common 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);
- grouping children by ability in the room and setting different tasks for each ability group;
- 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.

The Science curriculum

Foundation Stage:

In the Foundation Stage science is taught as an integral part of the thematic topic work covered during the year. We relate the scientific aspects of the children's work to the objectives set out in the Early Years Foundation Stage curriculum which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objective in the ELGs of developing a child's understanding of the world; e.g. through investigating what floats and what sinks when placed in water, at their level of conceptual understanding.

Key Stage 1:

The New National Curriculum (2014) has been embedded in Key Stage 1 using the Chris Quigly 'Essentials' planning tool to guide our planning and ensure the continuity of progression and the appropriate coverage of knowledge, skills and understanding. Throughout Key Stage One a cross curricular thematic approach is used in the teaching of Science. Some scientific subjects may also be planned for discretely if appropriate.

- We carry out curriculum planning in three phases (long-term, medium-term and short-term) incorporating science into each half terms topic.
- Both Year 1 and Year 2 follow a yearly cross curricular map.
- The scientific areas of study are written into the long term plan for each class in Key Stage 1. The areas are taken from the New National Curriculum (2014)

- A medium term plan is written every half term containing the 'Essential' key objectives that are to be developed throughout the term. They are displayed in the classroom.
- Scientific experiments take place when most appropriate to the topic
- An overview of learning is written each half term and shared with parents.
- A weekly plan is produced with the literacy and numeracy targets linked to the science activities e.g Data handling

Cross curricular

The School aims to make the teaching of science cross curricular utilising our outdoor learning environments developing skills and concepts that are taught, used and developed through out the curriculum areas.

English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information. They develop their reading and comprehension skills by reading signs, labels and a wide range of non-fiction materials relevant to science.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation, recording of events and using and applying data handling techniques. They use numbers in many of their answers and conclusions.

Information and communication technology (ICT)

ICT plays a key role in the teaching and learning of science. It is used in many science lessons where appropriate. It is used to support learning in science by finding, selecting and analysing information. Children use ICT to record and present their work

Children with SEN, PP or who are gifted and talented:

We teach science to all children, whatever their ability, as part of the school curriculum policy we aim to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with learning difficulties and also those who are gifted and talented and we take into account the targets set in the children's School Support Plan.

Equal Opportunities:

All the children have the right to equal opportunities in science in our school regardless of their background, gender or intellectual ability. Children are encouraged to work together and care is taken to provide equal access for all.

Resources:

The quad area of the school plays an integral role in our science curriculum. Many gardening and scientific investigation resources have been purchased and utilised to promote hands on investigations. As a school we follow a timetable to ensure each class has the opportunity to work alongside the garden volunteer every week.

We have a growing supply of science resources which are kept in a central store where the equipment is labelled and organised into topics. The school library contains a large number of scientific topic books and the school has a wide range of computer software to support the teaching and learning of science, including Espresso which is updated weekly.

Assessment:

- It is our aim to assess children's ideas and skills at the start of a topic by giving them the opportunity to express their thoughts, make predictions and explain their reasons.
- Foundation stage 1 have developed an effective assessment system using first hand observations to assess the children against the Developmental Matters months taken from the Early Years Foundation Stage Curriculum

- Foundation Stage 2 uses both first hand observations and formatted assessment sheets to assess the children against the Foundation Stage Profile for Understanding of the World.
- All the foundation stage assessments are recorded in the children's individual assessment books and the results are inputted onto the school tracking assessment tool. The children are recorded beginning, developing or secure in each birth band for Understanding the World
- At the end of Foundation Stage 2 the children are assessed against the Early Learning Goals for Understanding the World. The children are recorded as Emerging, Expected or Exceeding the Early Learning Goal.
- Key Stage 1 children are be assessed against the Chris Quigley 'Essential' objects (milestones) using a formatted assessment sheet created in school highlighting the depth of learning (Basic, Advanced, deep). Children by the end of Key Stage One will be expected to achieve at least the advanced level in Milestone 1

Health and Safety:

We accept that we must all plan safe activities for science. We must make our children aware of the need for personal safety and the safety of others during their investigations. We encourage them to reflect on safety issues themselves to help reinforce teacher's direction.

Conclusion:

We aim to:-

- Build on our children's curiosity and stimulate them to investigate, question, evaluate and explain their findings.
- Help pupils develop confidence with practical activities,
- Give children the necessary vocabulary to express themselves scientifically,
- Give children the understanding and ability to recognise hazards and risks when doing experimental or investigative work.

