



Monkhouse Primary School

Policy for Science

‘Science is a particular way of understanding the physical world, which requires precise approaches and ways of thinking.’

Rationale:

Science stimulates and excites pupils’ curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Science links direct practical experience with ideas and it engages learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modeling. This is a spur to creative thought. Through science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving the quality of life. Pupils recognise the cultural significance of science and trace its world-wide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

Aims:

At Monkhouse we aim for the children to develop children who are independent investigators, by providing a balanced and varied programme of scientific skills, knowledge, understanding and attitudes. Our aims take into account the National Curriculum for Science (subject) 2014.

We aim to:

- address the issues of special needs of individuals, as well as bilingualism and in science we aim to reflect our policies on race, gender and equality.
- provide a science curriculum that reflects and values the life histories of all peoples, especially those represented in the local community.
- give the children the opportunity to learn through firsthand experience to play with and explore new materials and equipment.
- teach science through a variety of individual, group and whole class teaching, providing equal learning opportunities for all children.
- value children’s existing ideas, experience and knowledge and these are to be valued and developed.

We aim to ensure that each child is entitled:

- not to feel excluded from science and scientists because of gender, culture and class;
- to participate in active exploratory work, with an increasing degree of self-planning and control;
- to be able to show what they can do in as wide a range of activities as possible, with full knowledge and increasing personal participation in the process of assessment and target setting.

Curriculum

Foundation Stage

During the **Early Years Foundation Stage**, science is included in one of the six areas of learning known as Knowledge and Understanding of the world. Scientific learning occurs through:

- access to a range of developmentally appropriate practical activities based on first hand exploratory experiences. For example, a nature walk, magnifiers to explore natural objects, manipulating wet/dry sand etc;
- enthusiastic and meaningful interaction with adults, who provide opportunities to develop communication skills, use correct scientific language and carefully framed open-ended questioning techniques to develop thinking skills;
- exploration of both indoor and outdoor environments linking all areas of learning;
- recognition and extension of their existing knowledge and understanding gained from their home setting.

During Key Stage 1

Pupils should:

- be encouraged to be curious and ask questions about what they notice
- 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
- 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
- learn about science through the use of first-hand practical experiences
- use appropriate secondary sources, such as books, photographs and videos
- read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.' (National Curriculum 2014)

During lower Key Stage 2

Pupils should:

- be exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments
- begin to develop their ideas about functions, relationships and interactions
- 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 comparative and fair tests and finding things out using secondary sources of information
- draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out
- read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.' (National Curriculum 2014)

During upper Key Stage 2

Pupils should:

- be exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.
- encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates
- begin to recognise that scientific ideas change and develop over time
- 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 comparative and fair tests and finding things out using a wide range of secondary sources of information
- 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

- read, spell and pronounce scientific vocabulary correctly.’ (National Curriculum 2014)

Recording of Science

Pupils are encouraged to record their work using a variety of methods and therefore communicate their findings to others. As per the school’s policy for writing, once a unit of work the children will record in an extended piece of writing. These may include written or verbal reports, charts, models, pictures and role play activities. Examples of children’s work will be retained to provide evidence of on-going Science including photographic evidence of displays, presentations, visitors and visits out of school.

Teaching and Learning

At Monkhouse we use a variety of teaching and learning styles in Science lessons. Our principal aim is to develop the children’s knowledge, skills and understanding in Science and we use a variety of teaching and learning styles in our Science lessons. We believe in whole-class teaching methods and combine these with enquiry-based research activities.

We believe children learn best in Science when they have opportunities to:

- ask questions;
- locate sources of information;
- observe;
- select appropriate equipment and use it safely;
- discuss;
- plan investigative work;
- investigate;
- raise ideas and prediction;
- test;
- collect evidence, measure and check results;
- handle evidence;
- make comparisons;
- describe patterns;
- communicate results and findings

Progression

The activities in Science build upon the prior learning of the children. Within our scheme of work, learning activities are in sequence to ensure continuity and progression.

Assessment and Recording

At Monkhouse, assessment is an integral part of the teaching process. Assessment is used to inform planning and to facilitate differentiation. The assessment of children's work is on-going to ensure that understanding is being achieved and that progress is being made. Feedback is given to the children as soon as possible, and marking work will be guided by the school's Marking and Feedback Policy. Once in a unit of work, the children will receive a quality mark highlighting where the children have been successful in meeting the learning intention, and an area for further development or challenge (where appropriate per subject).

All children receive a written report on their progress in Science as part of their annual report to parents in the Summer Term.

Differentiation

At Monkhouse we teach Science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Science teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child’s different needs. Assessment against the National Curriculum allows us to consider each child’s

attainment and progress. We use a range of strategies to support pupils. A few of these, particularly relevant to Science are:

- Photographs
- Observations
- Work samples
- Questioning
- Discussion
- Concept maps

Gifted and Talented

Teachers provide teaching and learning experiences that encourage pupils to think creatively, explore and develop ideas, and try different approaches. Pupils should be encouraged to set their own questions, offer ideas, suggest solutions or explanations, and reflect on what they have heard, seen or done in order to clarify their thoughts. At Monkhouse we encourage greater independence in working, for example, we avoid giving gifted pupils additional writing tasks and encourage them instead to communicate their understanding in a variety of ways, giving them responsibility for choosing and evaluating the most appropriate method.

ICT

ICT is used in a range of forms to enhance the Science curriculum. Children use ICT to research, record and present information in digital forms (Picollage, Twitter, Publisher, iMovie, Excel). As part of our commitment to incorporate ICT across the curriculum we are working to develop our use of iPads and flipped learning to introduce to the curriculum in the academic year 2015-2016. This element of the policy will be updated.

Literacy

At Monkhouse we are committed to developing children's literacy skills through other areas of the curriculum. When they record their work through writing, a wide range of genre is used (information texts, instructional texts, discussion texts, persuasive texts, explanation texts.) Once in a unit of work children record their work in an extended piece of writing.

Maths

Children's learning and progress in many subjects often depends on what they know and understand and can do in mathematics.

At the same time, these subjects provide a rich source of stimulus and motivation for pupils improving their mathematics skills.

At Monkhouse we provide opportunities for children to develop and apply their Maths skills through activities such as:

- Collecting data
- Analysing data
- Presenting data

Safeguarding and Health and Safety

Safe practice must be promoted at all times. Teachers must take into account any health and safety and child protection issues, particular attention must be given to avoiding the use of anything which aggravates individual pupils' allergies. Risk assessments are carried out to ensure safety issues have been identified and that specific attention is made when activities are unusual and beyond the scope of normal safety practice.

Staff Development

The subject leader should be a role model for other staff. Feedback is given back to teachers at least once a year on the results of all formal and informal monitoring procedures about standards across the school. The needs of individual members of staff may be identified through discussion and through formal and informal monitoring. Staff attending training are expected to share the useful points with the rest of staff. The school is a member of the Association of Science Education.

How is science monitored and evaluated?

The subject leader will coordinate the implementation of the school science plan and monitor progress against the targets identified in the science action plan. Pupil performance data is reviewed termly by Science Subject leader and the Senior Leadership Team. Planning is monitored to ensure it takes account of the range of pupils at our school and is appropriate to our needs. Evidence and quality of wall displays and talking to the children about science will also provide valuable information about science being undertaken. The head teacher monitors annual reports to parents.

The head teacher and Link Governors monitor Science Action Plans and review policy via Strategy and Curriculum Committee meetings.