

PERRYFIELDS INFANT SCHOOL

SCIENCE POLICY



Helping each other to learn and grow

Science holds an important standing in the curriculum due to its diverse cross-curricular and everyday links. We value the teaching of science and aim to ensure that each child fulfils their full potential in both knowledge and understanding of science and in the key practical areas of learning that are integral to developing a better understanding of scientific elements. Every child is encouraged to explore scientific concepts and experiment with ideas and challenges encountered.

At Perryfields Infant School, we follow a creative 'topic-based' approach to the curriculum. This means that wherever possible, we group our subjects around a topic. The topics we choose depend on two factors: what areas of the National Curriculum we must cover and the interests and needs of the children. Where possible science is taught within the terms cross-curricular theme. If this is not possible then standalone lessons are taught as well to ensure complete coverage over the year. Science is taught at least every fortnight.

AIMS

Through teaching Science at Perryfields Infant School we aim that all children will:

- Learn through first hand experience to play with and explore new materials and equipment;
- Ask and answer scientific questions;
- Know and understand the life processes of living things;
- Know and understand the physical processes of materials, electricity, light, sound and natural forces.
- Retain and develop a positive and enquiring attitude and curiosity about the world around them;
- Develop a set of attitudes which will promote scientific ways of thinking including open-mindedness, perseverance, objectivity and team work;

- Develop the skills of scientific investigation including careful observation, making and testing of hypothesis and the beginnings of fair and controlled experiments;
- To begin to effectively communicate their scientific ideas, observations and data;
- To stimulate questioning of common and unfamiliar concepts and develop an attitude of enquiry.

AIM OF SCIENCE IN THE EARLY YEARS FOUNDATION STAGE

Science is included in one of the seven areas of learning known as 'Understanding the World' and is taught through first hand and practical experiences.

SKILLS

Throughout the Key Stage we identify the following skills within the scientific process:

- Observing
- Recording
- Referring
- Handling
- Discussing
- Predicting
- Testing & evaluating
- Hypothesising
- Communicating

In addition our scientific activities also aim to develop the following through our emphasis on first-hand experience:

- A willingness to handle the living and the non-living
- An ability to collect, classify and ask questions
- A sensitivity to the needs of living things
- An increased awareness of the environment
- An increased awareness of the passing of time
- An increased scientific vocabulary
- The ability to solve problems through investigations
- Recording skills, both verbal and written

The contribution of science to teaching in other 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. Some of the texts that the children study in Literacy are of a scientific nature. The children develop oral

skills in science lessons through discussions (for example of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information. Where possible, a creative curriculum is delivered and links are made between Science and Literacy.

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 and recording of events. They use numbers in many of their answers and conclusions. They also produce diagrams, charts and graphs using the data from real investigations.

Computing

Children use ICT in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet. Children use ICT (computers, cameras and Ipads) to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. Science promotes the concept of positive citizenship.

Spiritual, moral, social and cultural development (SMSC)

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss many questions and ideas. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

SUBJECT ORGANISATION

Early Years Foundation Stage

In the Early Years Foundation Stage planning is linked to the relevant topics and is clearly referenced to the Early Years Foundation Stage Curriculum using the objectives from the Development Matters Document.

Key Stage 1

In KS1 progression is planned for using a National Curriculum coverage grid. This ensures that throughout the children's time in school all areas of the National Curriculum have been covered. At Perryfields Infant School we follow the Chris Quigley 'Essentials' skills-based Primary Curriculum to plan engaging lessons. It includes all National Curriculum subjects and exceeds the requirements of the National Curriculum. It caters for all abilities and includes support and challenge.

The Science 'Essentials' curriculum contains a lot more than the National Curriculum. We feel that knowledge and concepts develop over time rather than in a particular year group or key stage. The learning objectives are not designed to be 'achieved'. They are designed to be advanced throughout the primary years. This reflects the nature of growing depth and mastery.

The teaching of science in KS1 covers:

Year 1	Year 2
<ul style="list-style-type: none">❖ Everyday materials❖ Working scientifically❖ Seasonal changes❖ Animals including humans❖ Plants	<ul style="list-style-type: none">❖ Everyday materials❖ Living things and their habitats❖ Working scientifically❖ Physics
Working scientifically is described separately in the programme of study, but must always be taught throughout and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.	

***Pupils in years 1 and 2 should explore the world around them and raise their own questions. They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions.*

(Each class has their own science book in which they present their science work. Individual children's work is placed in their topic books).

Science teaching is linked to the termly theme. The opportunities for working scientifically should be provided across years 1 and 2 so that the expectations in the

programme of study can be met by the end of year 2. Pupils are not expected to cover each aspect for every area of study.

All lessons have clear learning objectives which are shared and reviewed with the pupils effectively at the start of every lesson. New vocabulary is shared and discussed and is referred to throughout the lesson using visual support where necessary. Children are also given the opportunity to play and practice science skills which are challenging, motivating and will extend their learning. Classroom organisation ensures children have the opportunity to work individually, in pairs, as part of a small group and as a whole class, appropriate to the age of the children and the nature of the lesson. A variety of strategies, including questioning, discussion, concept mapping and marking are used to assess progress. The information is used to identify what is taught next to develop knowledge, understanding and scientific enquiry.

Mastery in Science

Effective mastery in science focuses on the ability to explain how and why things work in the world around us, applying learning in different fields. Please refer to the 'Mastery in Science' document for more information.

ASSESSMENT AND TARGET SETTING

- Teachers assess children's science skills in a variety of contexts.
- Assessment is continuous and teaching is adjusted to address the next learning steps of the children.
- We make informal judgments as we observe them during lessons.
- On completion of a piece of work, the teacher marks it with comments and targets to help them improve their work, identifying the next steps in their learning.
- Formal observations and completion of work is used to in order to assess children within Key Stage 1.
- Chris Quigley 'I can statements' are highlighted for each child when there teacher feels that they are secure in a particular area or skill.
- Assessment is entered into the Target Tracker system which enables individual and group progress to be monitored.

HEALTH AND SAFETY IN SCIENCE

Our policy follows the Association of Science Education guidelines. All members are required to read the full document at least bi-annually.

Planning for safe practice is essential and must be promoted and modelled 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 'children's' 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 lessons. Any health and safety concerns should be indicated in the planning.

INCLUSION

We teach science to all children, whatever their ability so that they achieve their full potential. Science forms part of the school curriculum policy 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. We identify which children or groups of children are under-achieving and take steps to improve their attainment through LSA and SENCO support and interventions. Our work in science takes into account the targets set in the children's Individual Learning Plans. Also 'More Able' children are identified by their class teachers and suitable challenges are provided in their lessons.

EQUAL OPPORTUNITIES

All children are provided with equal access to the Science curriculum. We aim to provide exciting learning opportunities regardless of gender, ethnicity or home background.

REVIEW

This policy will be reviewed according to the policy reviews timetable taking into account national and school based initiatives.

Signed.....

Dated.....