



SCIENCE POLICY

SEPTEMBER 2022

This policy is in line with the New National Curriculum, the Disability Equality Scheme and SEN and EMA policies and includes guidelines for them.

AIMS

Science teaches an understanding of natural phenomena through the disciplines of chemistry, physics and biology. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way in which science will affect the future on a personal, national, and global level.

OBJECTIVES

The objectives of teaching science are to enable children to:

- ask and answer scientific questions;
- plan and carry out scientific investigations, using equipment (including computers) 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 solar system, including the earth; evaluate evidence, and present their conclusions clearly and accurately.

PRINCIPLES OF GOOD SCIENCE

1. Children's curiosity is encouraged and valued; they are excited and enthusiastic in their science lessons.
2. Science is practical and hands on and children enjoy learning through exploration and questioning; they have the opportunity to use good quality resources.
3. Progression of science skills is evident and taught throughout the school.
4. Children confidently use accurate scientific vocabulary in context.
5. Teachers use different assessment strategies during science lessons.

6. All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, answering their own questions.

TEACHING AND LEARNING

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes we do this through whole-class teaching, while at other times we engage the children in an enquiry-based research activity.

We encourage the children to ask, as well as answer, scientific questions. We use post-it planning to scaffold our investigations. The children have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs. They use ICT in science lessons where appropriate to enhance their learning. They take part in role-play and discussions, and they present reports to the rest of the class, school or parents/guardians.

They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, for example, investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

We recognise that in all classes children have a wide range of scientific abilities, 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:

- setting tasks which are open-ended and can have a variety of responses
- providing resources of different complexity, matched to the ability of the child;
- using teaching assistants to support the work of individual children or groups of children;
- by teaching children in mixed ability Kagan groups and by making links across subjects.

SCIENCE CURRICULUM PLANNING

Teachers are expected to develop their planning in line with the Learning Challenge Curriculum and assess it using Pupil Asset. In Years 2-6 'Rising Stars' assessment materials are used to support teacher assessment.

- Lessons are evaluated by class teachers and this is used to inform future teaching and learning (this does not need to be in a written format);
- Pre and Post learning challenges are to be completed for each Science topic to establish children's current scientific knowledge. Pre-learning tasks will inform planning and post-learning tasks will inform progress made and help identify children working below and exceeding levels in the science curriculum.
- Key Stage 2 plan for 2 hours of science per week;
- Key Stage 1 plan for 1 ½ hours of science per week;
- We combine scientific study with work in other subject areas where possible. (Cross-curricular links.);
- ICT should be integrated into planning when possible including use of laptops, data loggers and database software etc.
- We have planned the topics in science so that they build on prior learning, using Focus knowledge mats to ensure progress year on year across scientific knowledge and vocabulary.

- We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, and we also build progression into our lessons shown clearly through the Learning Challenge Curriculum, so that the children are challenged as they move up through the school.

TEACHING AND LEARNING

Foundation Stage

At this phase children are:

- Developing the crucial knowledge, skills and understanding that help them make sense of the world;
- Involved in activities based on first-hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking and decision-making and discussion;
- Experiencing a wide range of activities, indoors and outdoors, including adults. Stimulated, interested and curious;
- Observed by adults and learning is recorded in a variety of ways.

Key Stage 1 and 2

At this phase children are:

- Learning through a science process skill-based approach;
- Working Scientifically across all 5 areas of scientific investigation.
- Working collaboratively and independently;
- Developing high quality, purposeful talk for science;
- Recording findings in a variety of stimulating and purposeful ways;
- Building upon prior science learning, both skill and knowledge based;
- Beginning to think about the positive and negative effects of science.
- Using ICT to support and extend their learning in science;
- Experiencing a variety of teaching styles and strategies that promote positive science learning;
- Learning that science promotes the concept of positive citizenship;
- Learning through science, to raise social and moral questions, to understand differences between people and to have respect for others including those with disabilities.

INCLUSION

- Our inclusive approach and differentiation allows all children to learn regardless of race, gender, faith, culture or disability. We select and use resources that positively reflect all of the above.
- Inclusion for science is carried out in line with the school's policies for SEN, G&T, Equal Opportunities and the Disability Equality Scheme.
- Planning and teaching and learning in science set high expectations for all children.
- Science provides opportunities for all children to achieve including, boys and girls, children with SEN, children with disabilities, children who are G&T, children from all social and cultural backgrounds, children from different ethnic groups including travellers, refugees, asylum seekers and those from diverse linguistic backgrounds.

- Teachers are aware that children bring to school different experiences, interests and strengths that will influence the way in which they learn science.
- Teachers will use a variety of teaching styles and strategies to meet the needs of all children in their science learning.

PROMOTING SCIENCE

- All children to attend school visits **with a science focus at least once per academic year**. Disability provision must be noted in Risk Assessment.
- Formative assessments are made through observations in lessons.
- Summative assessment (post-learning task) takes place at the end of each unit of work.
- Assessments are used to inform planning and teaching and learning (pre and post learning tasks).
- Written or verbal feedback is given to the child in line with school marking policy, to help guide his/her progress.
- Older children are encouraged to make judgements about how they can improve their own work.
- Class teachers use “Rising Stars” assessment materials for science available and track attainment using Pupil Asset.

MONITORING

- Monitoring for science is carried out in line with the school monitoring policy.
- Best practice for science is identified and shared amongst practitioners.
- Samples of children’s work will be collected.

RESOURCES

- **Resources are carefully selected to provide children with a range of experiences and activities that realistically reflect scientific contexts as far as possible.**
- All resources are stored centrally in the science cupboard.
- Staff are responsible for informing the Science Subject Leader, when extra resources are needed, when there are breakages and when consumables are running low.
- The Science Subject Leader will update and replenish resources when needed.

HEALTH AND SAFETY

- The safe use of equipment is to be promoted at all times by all staff.