



SCIENCE POLICY

Name of school:	Green Oaks Primary Academy
Persons responsible:	Headteacher, Governors, Science Co-ordinator
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Policy written by:	Miss M Payne June 2018
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	Miss M Payne July 2020
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Policy Statement for the Teaching of Science

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 children are encouraged through systematic enquiry and first hand experience 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 and understand materials and their products
- evaluate evidence and present their conclusions clearly and accurately.

Teaching and Learning

Children are encouraged at all phases to explore and develop their scientific knowledge and understanding of the world in which they live; curiosity is encouraged and valued and they are excited and enthusiastic in their science lessons. A number of teaching strategies are employed to include direct teaching and investigative work. Wherever possible, lessons are practical and hands on.

We encourage the children to ask, as well as answer, scientific questions. Through roleplay and discussions, children engage in a wide variety of problem-solving activities and have the opportunity to use a variety of enquiry strategies:

- observing
- predicting
- problem solving
- sensory exploration
- hypothesizing
- fair testing
- measuring
- collecting

They record and interpret data, and communicate findings in a variety of ways, such as statistics, graphs, pictures and photographs, and where appropriate, use ICT to enhance their learning.

We ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. The progression of skills and knowledge is ensured through long term planning, based on the National Curriculum programmes of study, and the correct use of scientific language, which is encouraged and expected throughout the school.

Science is one of the core subjects in the National Curriculum and this is reflected in the time allocated for the teaching of this subject throughout our school, from Nursery through to Year 6.

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, EMAG, G&T, Equal Opportunities and the Disability Equality Scheme. Planning and teaching and learning in science set high expectations for all children and provides opportunities for everyone to achieve. Teachers are aware that children bring to school different experiences, interests and strengths that will influence the way in which they learn science. Teachers use a variety of teaching styles and strategies to meet the needs of all children in their science learning.

Planning

Science is mainly planned for and delivered as a discrete subject by class teachers in Years 1 to 6. The teachers aim to include experimental and investigative work, direct teaching of new knowledge, and safe and appropriate use of equipment and correct vocabulary. In the Early Years, science is taught within a more thematic approach as addressed in the foundation stage within knowledge, skills and understanding.

Learning intentions are taken from the National Curriculum. Teachers are expected to break these down into smaller steps by developing a series of lessons (utilising schemes of work from Twinkl, Plan Bee or Deepening Understanding) and assessment materials adapted from Twinkl including moderation documents from the Association of Science Education (ASE) and the Primary Science Teaching Trust. Teachers are not to rely solely on these resources but use them for ideas, reference and guidance so the children can have more creative, memorable and inspiring science lessons.

- Short-term planning is completed for each unit of work utilising schemes of work from Twinkl, Plan Bee or Deepening Understanding
- Lessons build on prior learning in the sequence of work/from previous years work
- There are opportunities for children of all abilities to develop their skills and knowledge in each unit
- Scientific study is combined with work in other subject areas where possible (Cross-curricular links);
- 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).

Assessment

Across all year groups, formative assessment is ongoing throughout lessons and over a unit of work. Teachers question effectively to identify misconceptions and to challenge and move learning on. Written or verbal feedback is given to the child in line with school marking policy, to help guide their progress.

Summative assessment

Knowledge and understanding:

At the end of every unit of work, teachers make a judgement as to each child's attainment against the statements from the National Curriculum using the Insight Data Tracking. LI sheets that are used in each child's science book (Year 1-6) are used to enable teachers to see which statements have been achieved using the triangle system.

Working scientifically:

Teacher appraisals of learning are ongoing. As skills are revisited through each unit of work, judgments are amended to reflect the progress a child has made. To support teachers in making accurate judgments, assessment materials from the ASE are readily available. The LI sheets are also used to enable teachers to see which statements have been met and which need to be revisited in subsequent topics.

EYFS:

Tapestry is used to record children's learning and understanding of the world around them: People and Communities, The World, Technology. At the end of Reception, children will be assessed against the Early Learning Goals. Insight Data Tracking is used to assess all the areas of learning at several points over the course of the year.

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 if necessary to share good practise

Resources

All science resources are centrally placed in the science storeroom. Individual teachers are responsible for the care and return of the equipment and for informing the co-ordinator of any breakages, losses or shortages of consumables.

Health and Safety

At all times the children need a safe working environment and are taught how to use tools and equipment safely and how to maintain them. Some equipment must only be used under close supervision. (See Health and Safety Policy).

Cross Curricular Links

English

Science contributes significantly to the teaching of English in our school by 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 by recording information.

Maths

In science the children use weights and measures and learn to use and apply number. Through investigations, they learn to estimate and predict. They collect data and present this in tables and graphs (sometimes using ICT) and use numbers in many of their answers and conclusions.

I.C.T.

Children use I.C.T. 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 to record, present and interpret data where appropriate.

P.S.H.E.

Science makes a significant contribution to the teaching of P.S.H.E.: raising matters of citizenship and social welfare, the children study the way people recycle material and how environments are changed. Children benefit from the nature of the subject in that it gives them opportunities to take part in discussion.

Spiritual, moral, social & cultural development

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. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and misuse of drugs. Science teaches children about the reasons why people are different and thereby promotes respect for others.