

Grimsargh St Michael's C of E Primary School Science Policy January, 2020

This policy reflects the school values and philosophy in relation to the teaching and learning of Science at Grimsargh St Michael's C of E School. It sets out a framework within which teaching and non-teaching staff can operate and give guidance on planning, teaching and assessment. This policy should be read in conjunction with the 2014 National Curriculum for Science which sets out in detail what pupils in different year groups should be taught.

This document is intended for all teaching staff and non-teaching staff with classroom responsibilities, and school governors. Copies of this policy will be available for parents who wish to see it; this can be requested at the school office.

1. Our rationale for teaching science

Science is a body of knowledge built up through experimental testing of Ideas and a sound knowledge base. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills and developing a sound knowledge base.

We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability.

Our aims in teaching science include the following.

- Preparing our children for life in an increasingly scientific and technological world.
- Fostering concern about, and active care for, our environment.
- Helping our children acquire a growing knowledge and understanding of scientific ideas.
- Helping develop and extend our children's scientific concept of their world.
- Developing our children's understanding of the international and collaborative nature of science and related issues.

Attitudes

- Encouraging the development of positive attitudes to science.
- Building on our children's natural curiosity and developing scientific approaches to problems.
- Encouraging open-mindedness, self-assessment, perseverance and responsibility.
- Building our children's self-confidence to enable them to work independently and as part of a team.
- Developing our children's social skills to work cooperatively with others.
- Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further.

Skills

- Giving our children an understanding of scientific processes.
- Helping our children to acquire practical scientific skills.
- Developing the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Developing the use of scientific language, recording and techniques.
- Developing the use of ICT in investigating and recording.
- Enabling our children to become effective communicators of scientific ideas, facts and data.

2. Our teaching aims

- Teaching science in ways that are imaginative, purposeful, safe, well managed and enjoyable.
- Giving clear and accurate teacher explanations and offering skilful questioning.
- Making connections between science and other subjects.

When planning and teaching science lessons it is important to ensure that children are carrying out investigations using the five types of enquiry. The National Curriculum for Science for England clearly lists five different types of enquiry that children should be familiar with across the primary school.

These are:

Pattern Seeking- Involves observing, measuring, and recording natural phenomena, or carrying out surveys. These may be biological investigations where it is not possible to control the variables. The children then look for patterns and relationships in the collected data.

Comparative and fair testing- Here children start thinking about variables and how they affect things. Children may compare two things, for example does icing sugar dissolve faster than caster sugar? They may start to think about developing a controlled test such as how the height of a drop affects the size of the crater made by a ball.

Observation over time- This type of enquiry occurs when children make careful observations of objects or events over a set time. This could be over

any time period from short times such as minutes, hours etc up to over a whole year.

Identifying, classifying and grouping- This allows pupils to engage in activities to help them make sense of how the world is organised. They arrange a range of objects or events into manageable sets and then name them.

Research using secondary sources- This is an enquiry type that is useful when it is difficult to find out by testing for yourself. This could be finding out about different planets or what lives in a desert? It's also important to look at where they source the information and how accurate the sources may or may not be.

Science is a core subject in the National Curriculum. The programmes of study for each year group describe a sequence of knowledge and concepts. Children need to develop a secure understanding of the knowledge and concepts in order to progress to the next stage. 'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group.

Children in the Foundation Stage are taught the science elements of the Foundation Stage document through the Early Years Curriculum: Understanding the World.

3. How Science is structured throughout the school

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of the National Curriculum for Science and science in the Foundation stage. Science teaching in the school is about excellence and enjoyment.

KS1 and Foundation stage teachers should be teaching science for a minimum of one hour each week.

KS2 teachers should be teaching science for a minimum of **two hours per week.**

This may not be the case if teachers are blocking their science lessons. We aim to include practical scientific enquiry which is backed up by the development of secure knowledge and understanding.

The school follows the programmes of study from 2014 National Curriculum that specifies what to teach in each year group. We then use the Lancashire Key Learning Progression documents, KLIPS and the Creative Contexts documents to plan the units of work for our classes. This ensures progression between year groups and guarantees topics are revisited. Teachers are expected to adapt and modify the model plans to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

4. Our approach to Science

The essential elements describing how science is taught in our school are described below.

- Wherever possible, we teach science through acquiring knowledge and practical tasks to provide children with real experiences of planning, carrying out and evaluating the results of investigations.
- We actively teach science skills focusing on 'Working Scientifically'.
- We use Lancashire's Creative Contexts documents to ensure the children are learning for a real purpose.
- We use educational visits to enhance the children's science study and visitors will be invited into school to support and enhance their learning.
- We encourage children to ask and answer their own questions as far as is practical to do so.
- We use cross-curricular links to science with design technology, mathematics, I.T., literacy and art.
- Our curriculum is under constant review in line with the needs of our children, our changing local community and environment and national directives.

5. Equal opportunities in science

Science is taught within the guidelines of the school's equal-opportunities policy.

- We ensure that all our children have the opportunity to gain scientific knowledge and understanding regardless of gender, race, class, physical or intellectual ability.
- Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.
- We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different cultures and background (the study of significant people in the world of science).
- We draw examples from other cultures, recognising that simple technology may be superior to complex solutions.
- We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences (curriculum ambassadors and pupil interviews).
- In our teaching, science is closely linked with literacy, mathematics, design technology and art.
- We recognise the particular importance of first-hand experience for motivating children with learning difficulties.
- We recognise that science should engage our gifted and talented children, and we aim to challenge and extend them.
- We exploit science's special contribution to children's developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking.

6. Assessment and recording in science

We use assessment to inform and develop our teaching and learning.

- Topics commonly begin with an assessment of what children already know (using grids or mind maps, for example).

- We use assessment for learning (AfL). Children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve. Activities during, and at the end of, each topic record achievement and celebrate success. For example, children at Key Stage 2 may self-mark completed work with 'two stars and a wish' - identifying two good points in their work and one in which they could improve.
- We mark pieces of work constructively, giving verbal and/or written feedback, and suggest how it might be further improved when appropriate.
- The school science lead monitors progress through the school by sampling children's work, talking to children, learning walks, class portfolios/books and displays.
- All staff assess children's levels of attainment at the end of each term and report levels achieved on the Lancashire tracker. This teacher assessment is made using KLIPS statements and the 'I can...' statements (learning ladders), ASE exemplification booklets and work samples. (Moderation is a possibility in the future as assessment procedures develop in this area of the curriculum.)
- Reports to parents are written once a year, describing each child's attitude to science, his/her progress in scientific enquiry and knowledge and understanding of the content of science. There are also two parents' evenings in the autumn and spring terms where verbal reports are given.

7. Health and Safety

Please refer to the school Health and Safety Policy and CLEAPSS "Model Health and Safety Policy for Science in Primary Schools" which refers to the "Be Safe Booklet". (Appendix 3)

8. Role of the Subject Lead

The subject lead for science will monitor science throughout the school. A long term planning grid reflects the programmes of study for each year group from 2014 National Curriculum. Medium and short term plans are developed by the teacher and passed on to the head each half term. Pupil books are monitored annually, a sample of children are interviewed and learning walks are made in discussion with class teachers in order to observe learning, not teaching. Displays of work and discussions with children and staff assist the subject lead when monitoring.

9. Resources/Equipment

Practical science equipment is stored in the P.E./maths/science cupboard off the hall or in classrooms. Equipment is constantly reviewed and items purchased annually.

Reference materials and photocopiable resources for teachers are to be found on the shelves in the staffroom. These are grouped according to Key Stage and

Programme of Study area. Teachers may have year group specific books and resources in their classrooms.

We are a member of ASE and all staff have access to this website.

A budget is set annually and is outlined within a Subject Development Plan.

Date of policy review – 29/01/2020

Updated by Alison Loughran

Date for next policy review - Spring 2021

Adopted by the Governing Body

Date