

St. Margaret's Anfield Church of England Primary School

Jesus said, "Love one another as I have loved you" (John 13:34).
Therefore, by faith and work, be the change you want to see.

With God, all things are possible.



Policy for Science

Mrs L. McQuillan

Date	Action	Review Date
February 2023	Adopted by FGB	February 2024

Purpose of Study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

National Curriculum Sept 2013

1. Aims and Objectives

1.1 The national curriculum for science aims to ensure that all pupils:

- Develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics.
- Develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them.
- Are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

1.2 Science teaching at St. Margaret's helps children:

- Prepare for life in an increasingly scientific and technological world.
- Foster concern about, and active care for, our environment.
- Acquire a growing understanding of scientific ideas.
- Develop and extend scientific concepts of their world.
- Develop understanding of the collaborative nature of science.
- Celebrate and investigate the wondrous universe that God made and it allows our pupils to consider the big questions of existence while providing them with opportunities to consider the awe and complexity of all living organisms from the smallest to the biggest.

Attitudes

- Develop positive attitudes to science.
- Build on their natural curiosity and develop a scientific approach to problems.
- Develop their social skills to work cooperatively with others.
- To have an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further.

Skills

- Gain an understanding of scientific processes.
- Acquire practical scientific skills.
- Develop the skills of investigation.
- Developing the use of scientific language.
- To become effective communicators of scientific ideas, facts and data.
- The Science curriculum works towards providing pupils with thinking, questioning and reasoning skills that will aid them in jobs that don't yet exist.

2. Teaching and Learning

Science is taught as a discrete subject but links are made to develop other areas of the curriculum. For example: the use of mathematical skills in the presentation and interpretation of data and the development of Speaking and Listening skills through group and class discussion.

All pupils are encouraged to reach their full potential through the provision of varied opportunities.

We recognise that our curriculum planning must allow pupils to gain a progressively deeper understanding and competency as they move through the school. This is facilitated by topics being revisited in yearly or two-yearly cycles, with concepts being built on through age-related objectives.

2.1 EYFS:

Scientific Experiences are planned for in accordance with the learning area 'Understanding the World' from the EYFS Framework. Staff plan accordingly to ensure that activities are matched to the children's needs, interests and stage of development.

Many of the statements taught under 'Personal, Social and Emotional Development' and 'Communication and Language' directly link to Science and are very relevant for the children in our school.

In KS1 and KS2 there are specific statutory objectives to be taught for each year group. These objectives are set out in detail alongside the Programmes of Study for each year group in our science curriculum map.

2.2 Key Stage 1 Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the Programme of Study content:

- Asking simple questions and recognising that they can be answered in different ways.
- Observing closely, using simple equipment.
- Performing simple tests.
- Identifying and classifying.
- Using their observations and ideas to suggest answers to questions.
- Gathering and recording data to help in answering questions.

2.3 Lower Key Stage 2 Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the Programme of Study content:

- Asking relevant questions and using different types of scientific enquiries to answer them.
- Setting up simple practical enquiries, comparative and fair tests.
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identifying differences, similarities or changes related to simple scientific ideas and processes.
- Using straightforward scientific evidence to answer questions or to support their findings.

2.4 Upper Key Stage 2 Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the Programme of Study content:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Using test results to make predictions to set up further comparative and fair tests.
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identifying scientific evidence that has been used to support or refute ideas or arguments.

3. Planning and Assessment

3.1 Planning and resources

The programmes of study for science are set out year-by-year for key stages 1 and 2.

An overview of the units of work for both Key Stage 1 and Key Stage 2 and a science curriculum map have been updated by the Science Curriculum Leader in order to ensure more of a 'spiral curriculum'. These include non-statutory physics units in Year 1, Year 2 and Year 6, ensuring there is never more than a two year gap before a topic is revisited.

Class teachers plan using the statutory requirements as set out in the National Curriculum. In line with these staff use PLAN Knowledge Matrices to ensure pupils cover the correct key learning, conceptual knowledge, progression of skills and how to work scientifically. In this way, planning is curriculum intent driven.

3.2 Monitoring and assessment

Work audits are carried out termly by the subject leader and members of the Senior Leadership Team, ensuring coverage and development of skills in line with specific year group expectations. These take the form of book looks, lesson observations and pupil interviews. Findings are recorded and feedback is shared.

Class teachers also assess children's understanding and skills through observation and discussion of their work.

Work is marked in line with the school's Feedback and Presentation Policy and the use of 'on the spot' feedback is utilised throughout lessons. This allows for misconceptions to be addressed accordingly.

Formative and summative assessment is used to track children's learning against the statutory objectives set and progress against the expectations are to be recorded on our assessment and class record spreadsheet.

Subject Leadership

- To liaise with and to support staff in the implementation of Science teaching.
- To monitor the teaching and learning of Science through lesson observations and book looks.
- To liaise with staff to identify and organise resources for science.
- To review this policy document and revise as appropriate in accordance with school policies and National Curriculum requirements;

- To promote the teaching of science throughout the school.
- To report to the Board of Governors annually on standards and progress in Science.

Policy Written by: L. McQuillan
To be reviewed: Nov. 2023