



celtic cross education

MARHAMCHURCH

Science Policy

January 2020

Signed (Chair)

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Date

13/1/2020

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Marhamchurch C of E Primary School

Science Policy

Policy adopted by the FGB on: Monday 13th January 2020

Signed:
Chair of School Monitoring Councillors

Date:

Signed:
Head of School

Date:

To be reviewed: Spring Term 2022

Mission Statement: Together, we can achieve and succeed with God by our side.

Rationale

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 in England: science programmes of study, Department for Education, 2014;

Purpose

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

To achieve this, we aim to maintain curiosity by:

- providing every child with the scientific experience to which they are entitled
- building on children's natural curiosity and develop a scientific approach to problems
- communicating and relating science to everyday life and develop these experiences through scientific investigations
- developing an interest and enthusiasm for science by providing enjoyable and rewarding science experiences
- developing skills, knowledge and understanding of science based on first hand practical activities and linked to science in the real world
- teaching children how to communicate their ideas effectively with appropriate scientific vocabulary
- help children understand that scientific knowledge relies on evidence
- teaching children that scientific evidence can be obtained in a variety of ways
- building children's self- confidence to enable them to work independently and develop their social skills to work co-operatively with others
- fostering concern about, and appreciation of our environment
- making children aware of health and safety

Planning

All children over the course of their primary education will cover all aspects of study from the National Curriculum Programmes of Study 2014. This may be as a discrete area of study or as a larger cross curricular topic. Learning will reflect the children's interest, abilities and any local interest. We have mixed age classes so topics will be taught to the whole class rather than year groups. The focus for teaching is through investigations ensuring that children have experience of the 5 different ways of science enquiry namely observing over time, identifying and classifying, pattern seeking, research and fair testing.

Foundation Stage Science

Foundation Stage children experience scientific activities through the Understanding of the world strand and investigation and exploration. Children know about similarities and differences in relation to places, objects, materials and living things. Looks closely at similarities, they look at differences, patterns and change. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

Foundation stage children are encouraged to:

1. Use their senses appropriately to explore and find out about their environment
2. Make decisions
3. Experiment
4. Predict
5. Solve problems
6. Plan and question in a varied range of contexts
7. Record their findings orally, through simple pictures and simple charts

KS1 Science

Class teacher will decide their own pattern of topics to support work in other subject areas and also provide opportunities for exploring our rich environment.

Key stage 1 Science blocks of learning- Working Scientifically is always to be taught alongside knowledge content.

Year 1	Plants	Animals including humans	Every day materials	Seasonal Changes
Year 2	Plants	Animals including humans	Use of Every day materials	Living things and their habitats

KS1 science builds on the science activities and knowledge developed in the Foundation Stage. In KS1 children should have many opportunities to:

1. Observe
2. Explore
3. Ask questions
4. Begin to work together
5. Collect Evidence to answer their questions
6. Begin to be aware of fair testing
7. Communicate their findings using scientific language,
8. Use drawings, charts and tables to record
9. Begin to interpret data
10. Use reference materials including ICT to find out about scientific ideas.
11. Apply their science to other areas of the curriculum and to real life.

KS2 Science

KS2 science builds on the knowledge and skills gained in Foundation and KS1. KS2 follow the National Curriculum Programmes of Study. Teachers agree their own pattern of topics to support work in other subject areas and also provide opportunities for exploring our rich outdoor environment.

KS2 Science blocks of learning -Working scientifically underpins knowledge content through investigation.

3	Plants	Animals including Humans	Rocks	Light	Forces and Magnets
4	Living things and their habitats	Animals including Humans	States of Matter	Sound	Electricity
5	Living things and their habitats	Animals including Humans	Properties and Changes of materials	Earth and Space	Forces
6	Living things and their habitats	Animals including Humans	Evolution and Inheritance	Light	Electricity

In KS2 pupils develop the ability to:

1. Analyse observations
2. Raise Questions
3. Propose enquiries
4. Plan and carry out investigations
5. Communicate findings using reports and charts
6. Use scientific vocabulary
7. Use fair testing and controls in investigations
8. Use reference materials to find out about the work of scientists
9. Draw conclusions from their investigation

Teaching Styles and Strategies

Each dedicated science lesson should have an investigative learning focus and/or a knowledge learning objective. A range of teaching styles is necessary for the teaching of science, the approach being related to the topic and the abilities and experience of learners.

Our teaching shall include opportunities for:

1. Teacher modelling
2. Discussion techniques
3. Consolidation and practice of fundamental skills and routines
4. Problem solving
5. First-hand experience
6. The use of ICT
7. Investigations and experimental work using questions, predictions, hypothesis and measurement and to interpret results into meaningful conclusions
8. Recording through a range of methods e.g. diagrams, graphs, charts, models and investigation planning and recording sheets
9. Class work, group work and individual work
10. Learning science through songs

Science across the curriculum

Science, where possible, should be taught across the curriculum and links with other subjects should be made explicit.

English

Science provides opportunities for:

1. Speaking and listening to discuss investigations and results
2. Writing to record their results, recounting their observations and writing reports
3. Science provides opportunities to explore a range of Literacy texts
4. Role play
5. Debates

Mathematics

Science provides opportunities for:

1. Using weights and measures and their units
2. Estimating and predicting
3. Reading and writing numbers

4. Sorting and classifying
5. Looking for patterns
6. Handling data
7. Developing the skills of accurate observation and recording results

Design Technology (DT)

Science provides opportunities for:

1. Investigative research to solve DT design problems to ensure quality outcomes suitable for audience and function
2. Make decisions about the design process based on scientific knowledge and understanding

Information and Communication Technology (ICT)

Science provides opportunities for:

1. Learning how to find, select and analyse information on the internet and CD-ROMs
2. Recording, presenting and interpreting data
3. Modifying and evaluating their work and improving presentation
4. Learning through games

Personal, Social, Moral and Health Education and Citizenship.

Science provides opportunities for:

1. Increasing knowledge and understanding of personal and social well-being subject matter
2. Working together harmoniously in groups to achieve successful scientific investigations
3. Raising scientific issues and offer support. (*CHARITY WORK, HERB GARDEN*)
4. Raising matters of citizenship and social welfare
5. Some science links to SRE which is taught through PSHE

Outdoor Learning

Through the use of the school grounds, the children will use their own 'firsthand' experiences to reinforce learning about their environment. Using the five senses will enable children to find out about and care about their world.

Equal opportunities/SEN

At our schools, we teach science to all children whatever their ability. Science forms part of the school curriculum, which aims 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 and gifted and talented.

Record keeping and Assessment

Foundation stage children are assessed through regular observations of child initiated and adult directed activities and the observations form part of the Foundation Profile.

In KS1 and KS2, children are given constructive feedback both orally and through written comments as necessary.

Children's knowledge and understanding are assessed against National Curriculum statements and a judgement is made about the achievement of each pupil in relation to statements of attainment. This is recorded on electronic Excel Spreadsheet tracking sheets which are passed on to the next teacher. This is an ongoing system of assessment based on attainment throughout the year.

In addition, science sample tests may occur alternate years, selected schools are notified of the Y6 Science pupils chosen to participate in the Science sampling tests in May to early June. The sampling test period is mid-June.

Health and Safety

We endeavour to make science in our schools very safe. However, when children are engaged in a variety of practical activities, including open-ended investigations there is always the possibility that something could go wrong.

Our Governing Body's code of practice for health and safety in Primary Science is encompassed in the booklet 'Be Safe!' 4th edition, (Association for Science Education). Individual staff must complete the appropriate risk assessments.

We encourage/ permit teachers to keep suitable animals in their classrooms, because we believe they contribute to the children's education. However, this imposes on us an obligation to meet their needs and to care for them humanely. To achieve this more information can and should be obtained from the RSPCA.