

Cragside Church of England Primary School



Science Policy

Revised: November 2017

Date of next Review: September 2019 (or sooner if required)

**“Treat others as you would want to be treated”
(Matthew 7v 12)**

**(This document is available in an alternative format and in an alternative
language on request)**

Cragside Church of England Primary School
Science Policy

Introduction

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 and using and applying process skills. This policy was updated in November 2017 by Lyndsey Urwin and will be reviewed annually in relation to existing school policies, national and LEA guidelines and curriculum orders.

What is Science?

Rationale

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us.

Through Science in our school we aim to:

- Encourage the development of positive attitudes to science.
- Deliver the National Curriculum Science orders in ways that are imaginative, purposeful, well controlled and enjoyable, bearing in mind that the new curriculum will lead to further policy changes.
- Help in developing and extending the children's scientific concept of their world and encouraging them to ask deeper questions about the world around them.
- Deliver clear and accurate teacher explanations and skilful questioning. Providing guidance but at the same time allowing children the freedom to explore as independently as possible.
- Make strong, purposeful links between science and other subjects. Using ICT in a meaningful way to extend their learning.
- Develop the use of scientific language, recording and techniques.

- Enable children to become effective communicators of scientific ideas, facts and data whilst becoming experts at analysing the data they collect.
- Develop the following skills of investigation - observation, measuring, predicting, hypothesising, experimenting, communicating and interpreting.

Teaching and Learning of Science

Content of the Curriculum

Science is important because: -

- It is a body of knowledge essential to our understanding of the world around us.
- The process of scientific investigation forms the basis of the most intellectual enquiry.
- The skills and knowledge of science have a wide application in everyday life.

Science is a core subject in the National Curriculum. The fundamental skills, knowledge and concepts of the subjects are categorised into the following attainment targets:

Key Stage One subject content:

- Plants (Year 1 and Year 2)
- Animals including humans (Year 1 and Year 2)
- Everyday materials (Year 1)
- Seasonal changes (Year 1)
- Living things and their habitats (Year 2)
- Uses of everyday materials (Year 2)

Key Stage Two subjects content:

- Plants (year 3)
- Animals including humans (Year 3, Year 4, Year 5 and Year 6)
- Rocks (Year 3)
- Light (Year 3)
- Forces and Movement (Year 3 and Year 5)
- Living Things and their habitats (Year 4, Year 5 and Year 6)
- States of matter (Year 4)
- Sound (Year 4)
- Electricity (Year 4 and Year 6)
- Properties and changes of materials (Year 5)

- Earth and space (Year 5)
- Evolution and inheritance (Year 6)
- Light (Year 6)

Knowledge and understanding, and Working Scientifically for Key Stage One and Key Stage Two:

- Explaining Science
- Classification
- Designing Experiments
- Data, Tables and Graphs
- Making Conclusions

Reception

Reception classes are taught the required science elements of the foundation stage document through cross curricular themes.

(The Early Years curriculum was amended in 2012 so all planning is structured under their new curriculum.)

In line with the New Curriculum, science teaching across the school will change in terms of topics taught and expected skills to be mastered at each stage. All Medium Term plans across the school were reviewed in June 2014.

The school will continue to timetable an annual Science Week that will include trips, visits, investigations, presentations and performances. Each class will also present examples of scientific enquiry through Science Photo Books.

Planning and delivery

Planning in science is a process in which all teachers are involved to ensure that the school delivers full coverage of the current National Curriculum and Foundation stage. The topics set out provide a vehicle to teach the skills in Knowledge and Understanding, and Working Scientifically. Teachers use The Primary Assessment Board (See Appendix 1) when planning lessons and this is used to ensure progression between year groups. Teachers are expected to adapt and modify model plans to suit their own teaching, the use of any support staff and the resources available.

- KS1 and Foundation stage teachers should be teaching science for a minimum of 1 and a half hours each.

- KS2 teachers should be teaching Science for a minimum of 2 hours each week.
- Teachers should try to make cross-curricular links wherever possible.
- In KS2 50% of lessons should include practical Scientific Investigation.
- In KS1/ Foundation stage a minimum of one third of lessons in each half term should include practical Scientific Investigation.

The science curriculum is delivered through co-operative group work, individual work, and whole class teaching.

Within this structure there will be: -

- Whole class and group discussions and presentations.
- Demonstrations, explanations and instruction by teachers to groups, individuals and the whole class as well as child-led when possible.
- Practical activities to advance and consolidate knowledge and skills.
- Problem solving and investigation tasks.

ICT in Science

- The provision for the use of ICT in Science at Cragside C of E Primary School is excellent and teachers work to maximise the use of resources in their teaching. The children are given the opportunity to research, plan, predict, test and improve their ideas using relevant ICT resources to improve understanding, aid communication and enhance presentation.
- Recently there has been a change of emphasis in Science curriculum and assessment shifting towards more investigative approach to science.
- This involves more tasks involving interpreting and analysing results, which can be supported and developed by the use of I.C.T.
- I.C.T provides various opportunities to investigate (e.g. Discovery Dog, virtual experiments, Folens software, Concept Cartoons, Digital microscope, the Internet, etc)
- And to interpret results (e.g. Loggit Dataloggers, databases, graphs)
- Helps to develop more independence and can provide an excellent extension and challenge for more talented pupils, whilst supporting others where necessary.

Tracking Attainment and Progress in Science

The following terminology is used for consistency and clarity across our school in all subjects. The National Curriculum for Science has been arranged into a series of age related bands within each phase.

There are three broad sections within these age bands:

Beginning

Pupil learning is chiefly focussed on the criteria for the band. There may be minimal elements of the previous band still to gain complete confidence in

Working Within

Pupil learning is fully focussed on the criteria for the band. This is a teacher best fit decision but could be informed by statement assessments between around 40% and 70% achieved.

Secure

Confidence in all of the criteria for the band. There may be pupil learning still focussed on gaining thorough confidence in some minimal elements but the broad expectations for the band have been met.

Each year band has been broken down into six steps:

beginning (b)
beginning + (b+)
working within (w)
working within + (w+)
secure (s)
secure + (s+)

The expectation for all children is that 6 points progress will be made by each child during the academic year.

Parents will be updated about their child's progress and achievement in this subject via the written end of year summative support.

Management and Development

Co-ordination

Science education throughout the school is co-ordinated by Lyndsey Urwin. Lyndsey will frequently monitor and track pupil in Science using Target Tracker. The role entails managing the Science budget, updating and monitoring school resources and giving support to colleagues as appropriate. The Science Co-ordinator leads meetings and discussions related to science issues, e.g. Science Week, monitoring program, work scrutiny or inset.

Moderation and Monitoring

At Cragside C of E Primary School we moderate and monitor Science as a part of our self-evaluation approach to maintaining standards and supporting staff in their teaching. This is timetabled every term.

Moderation

Science moderation involves analysis of children's work in relation to learning outcomes and National Curriculum achievements across the school. Science moderation achieves the following.

- Evidence of learning outcomes
- Understanding and agreeing on achievements and age related expectations for work
- Age related samples for school portfolio

Monitoring

Monitoring of science teaching is carried out through a program of lesson observations by Lyndsey Urwin and Emma Smith. The objective of the monitoring is to ensure science is being taught well across the school. Observations focus primarily on the effective communication of scientific knowledge and the quality of investigative work. If requested specific areas, for example use of support staff, Working Scientifically, the use of ICT, maybe agreed on as the focus in advance of the lesson. Following an observation the class teacher receives feedback and a copy of the observation notes.

Science monitoring achieves the following:

- The Science Co-ordinator/s gain insight into the nature of science teaching across the school.
- It gives class teachers the opportunity to review their own practice and discuss teaching science with a subject specialist.
- It gives the Science Co-ordinator/s an insight in to areas of strengths, enabling good practice to be shared among colleagues.
- It allows resources to be audited and for the assessment of current and future resource requirements.
- It allows the Science Co-ordinator/s to set targets, demonstrating the schools commitment to self-evaluation and improvement of standards in science.

Resources

- The vast majority of resources are stored centrally.
- Teachers need to collect their resources as they need them and ensure they return them to where they came from.
- Staff should notify the Science Co-ordinator of any extra resources required, of any breakages or losses that occur and of any new materials, CD ROMs, books, DVDs etc that might prove useful.
- Unsupervised children should not be allowed to collect resources.

Environmental Awareness

At Cragside C of E Primary School we realise the importance of teaching our pupils to care for the environment. The school will continue to recycle waste paper and ink cartridges and promote walking to school through the 'Walk to School' initiative. The Nature Garden includes areas where children can study minibeasts and habitats. They are taught the importance of their impact on the environment and have used the area for studying plants, rivers and rocks and soils.

Equal Opportunities

At Cragside C of E Primary School we work to ensure that all children have the opportunity to gain scientific knowledge and understanding regardless of gender, race, class, physical or intellectual ability. We will ensure that expectations do not limit pupils' achievements and that assessments do not involve any cultural, social, linguistic or gender bias.

Health and Safety

- The teacher should be clear as to the purpose of the work and ensure that any testing that needs to be carried out complies with the Health and Safety procedures and has been practised prior to the lesson.
- Safety hazards should be pointed out to the children at the beginning of any work.

Review Date

Cragside C of E Primary School Science Policy is to be reviewed annually by Lyndsey Urwin.

- Next review November 2018