Cragside Church of England Primary School



Science Policy

Revised: May 2022

Date of next Review: May 2023

"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)



"Wonder is the beginning of wisdom," Socrates

We create an environment where our children are encouraged to flourish and shine. We are all scientists and we get excited about that. A thirst for knowledge and understanding about the world around us inspires us to ask questions and find out the answers for ourselves. We care about the world now, and want to be the people that change it for tomorrow.

Introduction

At Cragside Church of England Primary School, we seek to live out the Christian and British values which are at the heart of our school and expressed in our mission statement, our school value statement and the set of SHINE BRIGHT code of conduct we have at school. Our constant and relentless drive is that there should be high achievement for all at Cragside.

This policy describes our values and philosophy in relation to meeting the needs of all learners at Cragside. It outlines the framework within which all staff work and gives guidance on planning, teaching and assessment. It is designed to describe how the school intends to meet the needs of learners of all ages, groups and abilities.

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.

Intent

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:

- Recognise the importance of Science in every aspect of daily life.
- Develop the natural curiosity of our children.
- Encourage a christian respect and guardianship for living organisms and the physical environment.
- Provide and enrich the children's scientific capital so that they may become active participants in the modern world.
- Celebrate STEM subjects and highlight STEM careers, raising awareness for all children about the jobs they could do.
- Encourage the development of positive attitudes to science.
- Deliver the National Curriculum Science orders in ways that are imaginative, purposeful, well controlled and enjoyable.
- 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.

Implementation

We will implement this vision through:

- A clear and comprehensive scheme of work, following Dual Action Planning, in line with the National Curriculum, where teaching and learning shows progression across all key stages within the strands of Science.
- Children will use a range of resources to develop their knowledge and understanding that is integral to their learning and develop their understanding of working scientifically; using practical equipment as much as possible.
- Scientific Capital will be enriched by an on-going menu of additional learning opportunities in Science are offered and taught through a range of extra-curricular clubs, close network with companies/organisations and outreach work, celebrating national STEM days/weeks and through family involvement.
- On-going feedback from pupils and staff will help focus and redirect the implementation of our Intent. This will make sure that all stakeholders are involved, engaged and that time and resources are used efficiently.
- 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.
- Develop the use of scientific language, recording and techniques.
- Develop the following skills of investigation observation, measuring, predicting, hypothesising, experimenting, communicating and interpreting.

Planning and delivery

We use a skills based focus when it comes to the Science Curriculum. All Medium Term plans across the school were reviewed in March 2020 and updated to reflect the new Dual Action Planning Approach that we will be using. 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. Each topic will provide the context in which to develop the children's proficiency in two key scientific skills. Across the year all the skills will be covered. It is these skills which teachers will assess rather than purely retention of facts, this will be expanded upon below. Teachers use the Skills Progression Document when planning lessons 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.
- Teacher/child use of models to explain scientific concepts.

Impact

We expect that most children will achieve age related expectations in Science at the end of their cohort year. Children will work collaboratively and practically to investigate and experiment. Children at Cragside will be engaged and enthusiastic about Science, would consider/respect careers in Science and appreciate that the Science sector has the potential to shape our planet.

Tracking Attainment and Progress in Science

Across the school we use Target Tracker to record summative progress. 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 parents evenings the written end of year summative report.

Management and Development

Co-ordination

Science education throughout the school is co-ordinated by Joshua Flynnwood. Joshua will frequently monitor and track pupils 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, Staff meeting CPD or inset.

Moderation and Monitoring

At Cragside C of E Primary School we moderate and monitor Science as a part of our selfevaluation approach to maintaining standards and supporting staff in their teaching. This is timetabled every term. We meet up termly within a cramlington school partnership as science leads to moderate pupil work. Moderation meetings also occur with schools across the wider region as we are part of the North East Science Network and Round 20 PSQM schools.

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/Mentoring

At Cragside we are trying to move towards a more proactive/developmental approach to monitoring. With an open dialogue between observer and observee. Monitoring of science teaching is carried out through a program of lesson observations by Joshua Flynnwood or another member of staff. The objective of the monitoring is to ensure science is being taught well across the school by upskilling staff continually. The school wide focus is primarily on the effective use of scientific models, communication of scientific knowledge and the quality of investigative work. Specific and tailored areas to focus and support can be highlighted by the staff or observer prior to, and following lesson observations through discussions and staff questionnaires. This process should be dynamic with observers sometimes modelling the teaching skills when necessary.

Science monitoring/mentoring 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 into 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 that might prove useful.

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. We are

taking part in the global developmental goals and linking areas of the curriculum to the climate crisis through our 'Advocates of Change' initiative.

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.