



CHINLEY PRIMARY SCHOOL SCIENCE POLICY

INTRODUCTION

This policy reflects the values and philosophy of Chinley Primary school in relation to the teaching and learning of Science. It sets out a framework within which teaching and non-teaching staff can operate, and gives guidance on planning, teaching and assessment.

This policy should be read in conjunction with the National Curriculum Programme of Study for Science. https://assets.publishing.service.gov.uk/media/5a806ebd40f0b62305b8b1fa/PRIMARY_national_curriculum_-_Science.pdf

The National Curriculum sets out which skills and learning opportunities children in each Key Stage should be taught.

This policy is prepared in partnership with the Headteacher and through consultation with staff. The policy has been agreed by the Governing Body Curriculum Committee who have delegated responsibility to oversee this process.

A copy of the policy is available on the school website www.chinley.derbyshire.sch.uk or on request from the school office.

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, vocabulary 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 results, predict how things react, and analyse outcomes.

AIMS

Chinley Primary School 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

Scientific Knowledge and Conceptual Understanding

The programmes of study describe a sequence of knowledge and concepts. Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely.

The Nature, Processes and Methods of Science

'**Working Scientifically**' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.



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School Curriculum

The programmes of study for science are set out year-by-year for key stages 1 and 2 (see Progression Map in appendix). Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Schools are not required by law to teach the content indicated as being 'non-statutory'.

Attainment Targets

By the end of each key stage, pupils are expected to know, apply and understand the skills and processes specified in the relevant programme of study.

SCIENCE IN CHINLEY PRIMARY SCHOOL

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. This allows children to develop a body of knowledge 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.

Knowledge

- 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 understanding of scientific ideas and concepts in the world

Attitudes

- Encourage the development of positive attitudes to science
- Building on children's natural curiosity and developing a scientific approach to problems
- Encouraging open-mindedness, self-assessment, perseverance and responsibility, both in a team and independently

Skills

- Giving children an understanding of scientific processes and skills of observation, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating
- Developing the use of scientific language, recording and techniques, including ICT
- Enabling children to become effective communicators of scientific ideas, facts and data

Purpose

We aim to encourage a positive attitude towards science by producing a structured programme that teaches skills, knowledge and concepts. We aim to teach children to show respect for living things and their environment and demonstrate a responsible attitude towards safety. Children will be taught the skills required to plan, hypothesise, predict, design and carry out investigations, interpret results, draw conclusions and communicate their findings.

'Working scientifically' must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance in the curriculum, examples show how scientific methods and skills might be linked to specific elements of the content.

Children in the Foundation Stage (Reception and Nursery) are taught science elements through the Early Years Foundation Stage Framework, in the Understanding of the World objectives/targets. https://assets.publishing.service.gov.uk/media/670fa42a30536cb92748328f/EYFS_statutory_framework_for_group_and_school_based_providers.pdf

Understanding the world involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.



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Structure

In the Foundation Stage (Nursery and Reception classes), science is taught within a theme, and is flexible to follow the interests of the children. Key stage 1 and 2 follow the National Curriculum 2013. **'Working Scientifically'** is covered in all units.

Teachers use the Hamilton Brookes Trust scheme of work but adapt these plans to suit the students interests, current events, their own teaching style, the use of support staff and resources available.

<https://www.hamilton-trust.org.uk/science/>

There is an emphasis on practical investigations. **'Working Scientifically'** symbols are used and displayed to encourage different types of scientific enquiry (see appendix). Cross-curricular links are forged where possible. ICT is used as a secondary source of information, and to assess and present information. We develop science informally through school visits, Science, Technology, Engineering and Mathematics (STEM) Ambassadors and other enrichment activities.

Resources

Science resources are managed by the science co-ordinator who is responsible for the ordering/replacing of equipment. Reference books are located in the library and the internet is used for research. It is the responsibility of class teachers to put equipment back in its proper place and inform the co-ordinators of loss, breakages or if new resources are needed.

Assessment

We use assessment to inform and develop our teaching and learning. Children are assessed each lesson using a Red, Amber and Green (RAG) sheet. **'Working Scientifically'** targets will be displayed in the front of books.

The use of Explorify, Odd One Out, The Big Question are used as opportunities to elicit discussion for assessment opportunities. <https://explorify.uk/> <https://pstt.org.uk/resources/bright-ideas/>

Purple Pen Challenges enable teachers to assess topic subject knowledge. All this information is used to complete the individual assessment booklets which are sectioned into year group objectives that follow the children through the school. These findings are reported to the science lead at the end of each academic year.

Assessment at the end of the EYFS – the Early Years Foundation Stage Profile (EYFSP)

In the final term of the year in which the child reaches age five, and no later than 30 June in that term, the EYFS Profile must be completed for each child. Each child's level of development must be assessed against the early learning goals. Practitioners must indicate whether children are meeting expected levels of development or not yet reaching expected levels ('emerging'). This is the EYFS Profile.

Reports to parents are made verbally in Autumn and Spring parents' evenings, and in a written report in Summer, reporting each child's attitude to science, their progress in scientific enquiry and understanding of the content of science in relation to year group expectations.

Role of the Science Co-ordinator

The monitoring of the standards of children's work and the quality of teaching in science is the responsibility of the science co-ordinator. The work of the co-ordinators also involves supporting colleagues in the teaching of science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.



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HEALTH AND SAFETY

All electrical equipment is checked annually under the Electricity at Work Regulation 1989. A detailed inventory is kept up to date by the bursar and ensures all equipment is checked. New equipment is added to the inventory on arrival.

INTERNET RESEARCH

The school takes every precaution to ensure that the children and staff are safe when working on-line and accessing materials on the Internet. The school runs annual e-safety days for all children from Reception upwards and further workshops are held for parents as required. Every child in school is educated about keeping passwords safe, the reasons why and how to report anything which worries them.

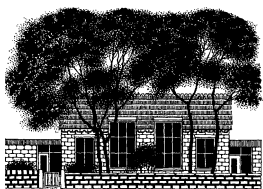
Reviewed by Tracy Cadman

Agreed by Governors: CC08/210125e

APPENDIX

Progression Map

Science Progression Map
Early Learning Goals (ELG): The Natural World Children at the expected level of development will: • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.



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Key Stage One

Working Scientifically

During years 1 and 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 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

Year 1 Science

Plants

- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- identify and describe the basic structure of a variety of common flowering plants, including trees

Seasonal Changes

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies

Animals, including humans

- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- identify and name a variety of common animals that are carnivores, herbivores and omnivores
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Everyday materials

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties

Year 2 Science

Pupils should be taught to:

Plants

- observe and describe how seeds and bulbs grow into mature plants
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

Animals, including humans

- notice that animals, including humans, have offspring which grow into adults
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

Living things and their habitat

- explore and compare the differences between things that are living, dead, and things that have never been alive
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- identify and name a variety of plants and animals in their habitats, including micro-habitats
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

Uses of everyday materials

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Key Stage One Vocabulary

Plants

branch blossom bud petal berry nut
dandelion foxglove daisy bluebell daffodil rose
pine holly beech oak sycamore horse chestnut
conker pinecone chestnut catkin acorn ivy
garden plant warmth life cycle wild plant grow sunlight

Seasons

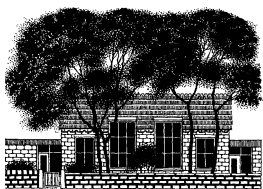
summer winter night spring autumn day
lightning hail storm thunder sleet fog

Animals, including humans

mouth nose tongue eyes ears fingers senses hear smell touch taste see
feathers fur scales skin tail wing claws fins hooves paws beak whiskers
swim walk fly run jump dive
baby toddler child teenager adult older person
water food air shelter warmth exercise
carnivores herbivores omnivores

Materials

foil clay rock rubber wool string spoon chair window cup box ball
hard soft bendy stiff cold hot mix stir melt freeze heat cool stretchy wobbly strong weak runny set



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rough smooth shiny dull natural manufactured
pull twist push squash bend stretch

Forces – acting on materials

suck blow fall drop spin turn

twist bend stretch squash object shape

Habitats

damp shady windy warm cold shelter

rainforest ocean woodland seashore desert river

food food chain sun plant grow animal

living once alive never alive natural life cycle habitat

“Working Scientifically” Symbols

“Working Scientifically” symbols to be used and displayed to encourage different types of scientific enquiry.

<https://pstt.org.uk/resources/enquiry-skills/>



Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

Using information from the data to say what you found out.





Evaluating

Reflecting on the success of the enquiry approach
and identifying further questions for enquiry.

