CARNFORTH COMMUNITY PRIMARY SCHOOL

Science Policy

Intent

Science teaching at Carnforth Community Primary School is designed to enable each child become competent scientific thinkers and investigators who will encounter awe and wonder through first-hand scientific investigative experiences and approaches, which activate learning for all children. With great emphasis on providing children with a high-quality science education that offers the foundations for understanding the world through the specific disciplines of biology, chemistry and physics, our curriculum design for Science across primary school promotes specific competences including knowledge, enquiry and the working scientifically based skills. Creative pathways to learning are planned for so that children can make links to prior learning and develop depth in key skills within Science that are rich, stimulating, challenging and real life with the aim of enabling children to master learning with skills, knowledge and experiences that will remain with them for the rest of their lives. We should all champion primary science and our intent is to make sure that every child has a positive experience of science throughout their primary school education.

Topics are informed by the National Curriculum (2014) and are carefully planned and structured to ensure that current learning is linked to previous learning and that the school's approaches are informed by current pedagogy. As a school, we are constantly developing our enquiry skills.

In line with the National Curriculum (2014), the Science curriculum at Carnforth Community 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

Implementation

Science at Carnforth Community is taught every half term, linking where possible to the topic being taught that half term. At Carnforth Community, teachers create a positive attitude to science learning within their classroom and reinforce an expectation that all pupils are capable of achieving high standards in science. Prior knowledge from previous years is built upon. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence. Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics. Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning.

RECEPTION

Understanding the World: (The World)

- Children know about similarities and differences in relation to places, objects, materials and living things.
- 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.

Physical development (Health and Self-Care)

- Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.

KEY STAGE 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. 'Working scientifically' is described separately in the programme of study, but 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, examples show how scientific methods and skills might be linked to specific

elements of the content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.

LOWER KEY STAGE 2

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

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

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

UPPER KEY STAGE 2

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

Pupils should be taught about:	In which year at our school?
1 Materials **Autumn 1**	Year 1/2
2 Seasonal Change – Autumn/Winter **Autumn 2**	Year 1/2
3 Animals – Bears and Mammals **Spring 1**	Year 1/2
4 Animals – Humans, Senses and Body Parts **Spring 2**	Year 1/2
5 Plants – Seasonal Change – Spring/Summer **Summer 1**	Year 1/2
6 Habitats – Beach, rock pools and food chains **Summer 2**	Year 1/2
1 Electricity **Autumn 1**	Year 3/4
2 Animals including food chains linked to estuaries and rivers. The Water Cycle **Autumn 2**	Year 3/4
3 Animals including humans – digestion, teeth, food chains linked to Stone Age animals, nutrition **Spring 1**	Year 3/4
4 Living things and their habitats **Spring 2**	Year 3/4
5 Plants – life cycles, seed dispersals, labelling **Summer 1**	Year 3/4
6 Sound **Summer 2**	Year 3/4
1 Electricity **Autumn 1**	Year 5/6
2 Evolution and Inheritance **Autumn 2**	Year 5/6
3 Light **Spring 1 and 2**	Year 5/6
4 Animals including humans **Summer 1 and 2**	Year 5/6

IMPACT

Outcomes in topic books evidence a broad and balanced science curriculum and demonstrate the children's acquisition of identified key knowledge.
Impact of the subject is demonstrated in different ways:-
• through pupil voice children will be able to talk about the skills and knowledge they have acquired.
• Children will be engaged in Science lessons and want to find out more.
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Work will show that a range of topics is being covered, cross curricular links are made where possible and differentiated work set as appropriate.

Pupils' attainment in Science is assessed at the end of a unit using the Science matrices.

By the end of a pupil's time at Carnforth Community, we want our children in Science to:

- use simple and appropriate scientific language and terminology to talk about what has been found out and when working scientifically (at least: method, observe, pattern, results, measure, compare, record, group, equipment, fair)
- read and spell scientific vocabulary at a level consistent with their word reading and spelling knowledge at key stage 1.
- decide on a simple method for a fair test that will answer the investigation question, select the appropriate equipment, identify the variables and identify some hazards suggesting how to be safe.
- take measurements using a range of equipment with increasing accuracy and precision repeating the measurements where appropriate.
- present the data in tables and on graphs including the headings and units with a suitable scale.
- A child should present and report predictions and conclusions using scientific evidence, describing any patterns in data.
- compare relationships using the 'er' statement.
- describe how to improve the investigation and suggest other investigations. Eg 'How does changing the number of bulbs affect brightness of bulb?' can become 'How does changing the number of cells affect the brightness of the bulb?'