

# Willerby Carr Lane

Primary School



## Science Policy

### POLICY MANAGEMENT

<b>Approved by</b>	Full Governing Body
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## Purpose

At Carr Lane we develop curious, collaborative scientists who have the motivation, knowledge and skills to explain an evolving world.

- We **spark** curiosity by learning about real life situations and using a range of equipment and resources.
- We **encourage** discussion and explanation by showing phenomena, asking questions, making predictions and challenging ideas and misconceptions.
- We **build** enquiring minds that can explain and challenge scientific ideas; find patterns in results and test our own ideas.
- We **include everyone** by building on what we already know, working together and using small steps to reach our aims.

Science should:

- stimulate and excite children's curiosity and fascination about the nature and behaviour of natural things and the knowledge that we obtain about them.
- encourage children to make observations, ask scientific questions and seek answers to them in the form of testable explanations and predictions about the universe.
- develop children's ability to test their theories.
- systematically build and organize knowledge about the natural world that is based on facts learned through experiments and observation.
- encourage children to discuss science-based issues which may affect their own lives and the world in which they live.
- enhance children's sense of responsibility for the care of the Earth and its people.

## Aims

At Willerby Carr Lane Primary School, we aim to provide quality teaching and learning of science:

- To develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- To develop the natural curiosity of children about the world around them.
- To develop questioning and enquiring minds through a range of enjoyable and interesting experiences.
- To help children develop the skills to make systemic enquiries.
- To provide opportunities for children to apply theoretical ideas to the solving of practical problems.
- To enable children to develop an increasing attention to accuracy.
- To foster a positive attitude to science and increase their understanding of how science is used in the wider world and in the future.
- To develop the understanding of the nature, processes and methods of science through different types of scientific studies.
- To develop accurate use and spelling of scientific vocabulary.
- To meet the needs of each child so that they will reach their full potential.
- To provide opportunities to explore science learning which is linked to a broader theme involving other subjects, such as STEM.

- To engage children’s enthusiasm for science in an annual STEM week, which is rich in practical activities.
- To teach science in a global and historical context; including the contributions of significant scientists.

## **Making Science Relevant**

At Willerby Carr Lane Primary School, we ensure that science learning embraces changes in the natural world. This includes the environmental impact of scientific technologies such as wind power.

## **Making use of our Locality and Wider Links**

At Willerby Carr Lane Primary School, we aim to provide strong foundations for children’s development of geographical knowledge, skills and understanding, by making best use of scientific resources on our doorstep. These include:

- The school grounds including our pond, wildlife, greenhouse and gardening areas
- School roof-top weather station
- Water treatment works at Anlaby
- Nature reserves at Tophill Low, Far Ings and Bempton Cliffs
- Links with Siemens Wind Turbine Centre, Hull

## **Curriculum Intent**

Our school curriculum sets out the knowledge and skills that pupils will gain at each stage. It is clear what end points the curriculum is building towards and what children need to know and be able to do to reach those end points. This is set out in detail in a series of science ‘knowledge organisers’. The knowledge organisers detail:

- What children should already know before starting a unit of work
- What children will know by the end of the unit
- The associated key vocabulary children are expected to learn and understand
- The opportunities for conducting investigations and developing scientific skills

Our curriculum has been developed through extensive subject development working-group meetings involving discussion by members of the teaching staff from all year groups, from EYFS to Year 6. It is rooted in a solid consensus of the school’s teaching staff. This in-depth process ensures that it is coherently planned, sequenced and implemented so that new knowledge and skills build on what has already been taught.

## **Curriculum Implementation**

A high-quality science education provides the foundations for understating the world through the scientific disciplines of biology, chemistry and physics.

- Children will be taught essential aspects of knowledge, method, concepts and the skills to make systemic enquiries.
- Children will build up a body of foundational knowledge and concepts which enable them to explore the wider world with excitement and curiosity.
- Children will understand how science can explain what is happening and use this to predict how things will behave, giving them opportunities to question the world around us.

The school is committed to the importance of learning through first hand experiences in Science. Wherever possible, it is important that the children learn through the 'Working Scientifically' strand of Science and develop skills as 'real scientists'.

Each unit within scientific enquiry should be taught in a step by step manner which is immediately understandable to the pupils and progresses within the year group and across the school.

On starting a unit there should be a reminder of the lessons learned in previous units and particularly those with similar materials. Children will be able to work in a variety of different ways to develop their scientific skills:

- Opportunity will be given for children to work scientifically through the five different strands allowing variation to develop understanding of the different units.
- There is a high expectation of open-ended questioning from both teacher and child, and an investigative approach to learning is expected.
- Children will work through the investigative process of predicting, experimenting, collecting data, analysing results and drawing conclusions. This may then lead to more questions!
- Pupils are expected to verbalise their reasoning and understanding with open ended questions at regular intervals. Pupils should expect to be challenged by critical questions and be given the opportunity to further their understanding with research and experimentation.

Pupils are encouraged to make connections with the real world and see Science in practise. Opportunities are given for the children to make connections through visiting scientists, STEM club and educational visits.

The key concepts which run through the units which need to be developed, step by step, and show progression year on year. Children will develop their knowledge, understanding and concepts in the units of the National Curriculum through the process of scientific enquiry. This will nurture a questioning mind. These areas are:

- Research using secondary sources.
- Identifying, classifying and grouping.
- Making comparisons and fair testing.
- Pattern seeking.
- Observing over time.

When working scientifically, our teaching staff will carefully consider the health and safety implications of each individual enquiry, referring to guidance from CLEAPSS, adopting a read, think, record, do approach. Health and safety guidance will be made explicit, where appropriate, to adults and children in enquiry based lessons.

## Science in the Foundation Stage

Science in the Foundation Stage is taught through the areas of provision and through some direct teaching in lessons. Our aim is to develop enquiring minds and make science fun. There are opportunities to explore and investigate, both inside and out. The children visit the school grounds including the gardens and wildlife area and experience forest school activities on our visit to Meaux Abbey Farm. The children are encouraged to use their fine and gross motor skills to develop scientific skills. They learn through talk, songs, play and being surrounded by a stimulating environment rich in opportunities and scientific vocabulary. Science related topics are taught regularly throughout the year such as Farming and Life-cycles. Children work towards the Early Learning Goal 'The World'.

- (DM) Can talk about some of the things that they have observed such as plant, animals, natural and found objects.
- (DM) Talks about why things happen and how things work.
- (DM) Developing an understanding of growth, decay and changes over time.
- (DM) Looks closely at similarities, differences patterns and change.
- (ELG) Children know about similarities and differences in relation to... objects, materials and living things.
- (ELG) They make observations of animals and plants and explain why some things occur, and talk about changes

## Cross Curricular Opportunities

The content and positioning of science units is designed to develop a coherent and progressive science curriculum which supports quality teaching and learning. Links are only made with other subjects where they can meaningfully and significantly contribute to the teaching of those areas. Possible opportunities include:

- Maths – using a variety of methods for data presentation
- Design and Technology – designing products that require electrical circuits
- Computing – designing products that require electrical circuits and computer control
- Geography – sustainability and the green energy

## Assessment, Recording and Reporting

Assessment is carried out in line with the school's Assessment Policy and is based on the principles of Assessment for Learning. Assessment can take place at all appropriate stages of a lesson, but particularly within the plenary focussing on the relevant learning objectives to that lesson.

We assess how well pupils embed concepts in their long-term memory and apply them fluently; developing their understanding, rather than memorising disconnected facts. Teachers assess how well children are able to answer the key questions which are set out in our knowledge organisers: the depth of their answers and clarity of their explanations. For each unit pupils are assessed to have met the expected targets, exceeded them or not met them.

## **Equal Opportunities**

It is the responsibility of teachers to ensure that all pupils, irrespective of gender, ability, race or SEND, have access to the curriculum and make the greatest progress possible. Teachers set suitable learning challenges and respond to each child's different needs.

## **Role of the Subject Leader**

The science subject leader is responsible for:

- Ensuring progression and continuity across the key stage through the development of the long term plan.
- Supporting colleagues in the implementation of the short term planning and providing support within each unit of work.
- Monitoring progress and standards within the subject.
- Keeping up to date with developments in science and disseminating information to the rest of the teaching staff.