

Science

Intent, Implementation, Impact



INTENT

At Moorlands Primary School, we have designed our science curriculum with the intent that all children, regardless of background, will have a curiosity and interest to understand the world around them.

Science has changed our lives and is vital to the world's future prosperity, that 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 and concepts, pupils will be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They will be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

At Moorlands we draw from and make use of the school grounds, including the wooded area and pond alongside the wider local area, enabling children to have a better understanding of the world around them.

To develop the appropriate subject specific knowledge, skills and understanding set out in the National Curriculum, we have built our science curriculum upon principles from Chris Quigley's Essentials Curriculum. As pupils progress through the school, units are carefully planned and structured to ensure current learning is linked to previous learning and that the school's approaches are informed by current pedagogy.

Science is an immersive subject which gives children the opportunity to explore their world. We deliver a science curriculum, through the specific disciplines of biology, chemistry and physics, which develop the national curriculum for science aims:

- To develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- To 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
- To ensure pupils are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

Implementation

Our Science curriculum is mapped across the school and progressively built on from EYFS to the end of KS2.

In Early Years, the children begin their journey into science by 'Understanding the world' through learning in simple terms, about the natural changes that occur throughout the year. They explore a range of transports and how they work while also exploring different environments and countries through the 'Santa's Transport' topic. The children learn to plant seeds and nurture plants during 'Fairy Tales'. They experience a wide range of animals, how to care for them and life cycles during the 'Animal Kingdom' topic including rearing chicks from eggs.

The Science curriculum is split into: KS1, Lower kS2 (Years 3 and 4) and Upper KS2 (Years 5 and 6)

However 'Working scientifically' is taught through all years and clearly related to the teaching of substantive science content.

KS1 science

The principal focus of science teaching in key stage 1 is for pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They are encouraged to be curious and ask questions about what they notice. They are 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 will 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 will be done through the use of first-hand practical experiences, but there are some use of appropriate secondary sources, such as books, photographs and video

Subjects covered: plants, Animals including humans, everyday materials, seasonal changes, living things and their habitats,

Lower KS2 science

The principal focus of science teaching in lower key stage 2 is for pupils to broaden their scientific view of the world around them. This is planned 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. The children are encouraged to 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 will draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Subjects covered: plants, Animals including humans, rocks, light, forces and magnets, living things and their habitats, states of matter, sound and electricity

Upper KS2 science

The principal focus of science teaching in upper key stage 2 is for pupils to develop a deeper understanding of a wide range of scientific ideas. They 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 will encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They also begin to recognise that scientific ideas change and develop over time. They are encouraged to 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 will be able to 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.

Subjects covered: Animals including humans, living things and their habitats, properties and changes of materials, electricity, earth and space, forces, evolution and inheritance and light.

We also support learning with trips and visitors in to school to inspire our children and widen their cultural capital (Science dome, plant a tree week assembly, incubate egg to chick in early years etc.)

Year 1: Animals, including humans, Plants, Animals, including humans (senses), Plants, Everyday Materials

Year 2: Animals, including humans, Uses of Everyday Materials, Living Things and their Habitat

Plants

Year 3: Plants, Rock, Animals, including humans, Light, Forces and Magnets

Year 4: Electricity, Animals, including humans, Sound (through Music) States of Matter, Living Things and their Habitats

Year 5: Properties and Changes of Materials Forces, Living Things and their Habitats, Earth and Space, Forces, Animals, including humans, Properties and Changes of Materials

Year 6: Living Things and their Habitats, Animals, including humans, Evolution and Inheritance, Electricity, Light

Impact

When children leave Moorlands in Year 6, they will have developed the scientific knowledge and skills to help them understand the world through the specific disciplines of biology, chemistry and physics.

The impact of our science curriculum is measured in a variety of ways.

- Scientific investigation planning, experimenting and concluding
- Data interpretation
- Questioning during lesson time
- Marking children's written work
- Listening to child-led discussions
- Pupil interviews across the school
- Book looks