

Meadows Primary School & Nursery

Science Curriculum 2014

Science 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 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 what is occurring, predict how things will behave, and analyse causes.

Aims

The national curriculum for science 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. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content.

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. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils' engagement with and motivation to study science.

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. Pupils should seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

Spoken Language

The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum - cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

School curriculum

The programmes of study for science are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage if appropriate. All schools are also required to set out their school curriculum for science on a year-by-year basis and make this information available online.

Attainment targets

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

Overview of units

Year 1	Working Scientifically Continuous throughout	Plants	Animals including humans	Everyday materials		Seasonal Changes Continuous throughout year to compare changes.
Year 2		All living things and their habitats	Plants	Animals including humans	Use of everyday materials	
Year 3	Working Scientifically Continuous throughout	Plants	Animals including humans	Rocks	Light	Forces and magnets
Year 4		All living things	Animals including humans	States of matter	Sound	Electricity
Year 5	Working Scientifically Continuous throughout	All living things	Animals including humans	Properties and changes of materials	Earth and Space	Forces
Year 6		All living things	Animals including humans	Evolution and inheritance	Light	Electricity

Year 1 and Year 2 had Light and Sound units in the draft curriculum. These were then removed so are not statutory.

As we have mixed year groups our Science scheme of work will be broken up in to Year A and B.

School Overview in Year A and B

Year 1 / 2 Year A	Working Scientifically	Plants	Animals including humans	Everyday materials		Seasonal Changes
Year 1 / 2 Year B		Plants	All living things and their habitats	Animals including humans	Use of everyday materials	Continuous throughout year to compare changes.
Year 3 / 4 Year A	Working Scientifically	Plants	Animals including humans	Rocks	Light and Sound	
Year 3 / 4 Year B		Continuous throughout	All living things in their habitats		States of matter	Forces Electricity
Year 5 / 6 Year A	Working Scientifically Continuous throughout	All living things	Evolution and inheritance	Properties and changes of materials		Forces
Year 5 / 6 Year B		Animals including humans	Evolution and inheritance	Earth and Space	Light	Electricity