



Science Long Term Plan

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.

KS1

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 KS2

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 KS2

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.

	Year 1					Year 2				
	Seasonal changes	Animals, including humans	Everyday materials	Plants	RSE (See Relationships Education)	Living things & their habitats	RSE (See Relationships Education)	Uses of everyday materials	Animals, including humans	Plants
Working Scientifically										
Ask simple questions and recognising that they can be answered in different ways										
Observe closely, using simple equipment										
Perform simple tests										
Identify and classify										
Use their observations and ideas to suggest answers to questions										
Gather and recording data to help in answering questions.										
Plants										
Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees				x						

Identify and describe the basic structure of a variety of common flowering plants, including trees				x						
Observe and describe how seeds and bulbs grow into mature plants										x
Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.										x
Animals, including humans										
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals		x								
Identify and name a variety of common animals that are carnivores, herbivores and omnivores		x								
Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)		x								
Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.		x								
Notice that animals, including humans, have offspring which grow into adults									x	
Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)									x	
Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene									x	
Everyday materials										
Distinguish between an object and the material from which it is made			x							

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						x				
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	Year 5						Year 6					
	Forces	Properties & changes of materials	Earth & Space	Living things & their habitats	Animals, including humans	RSE (See Relationships Education)	Light	Living things & their habitats	Electricity	Evolution & inheritance	Animals, including humans	RSE (See Relationships Education)
Working scientifically												
Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary												
Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate												
Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs												
Use test results to make predictions to set up further comparative and fair tests												
Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations												
Identify scientific evidence that has been used to support or refute ideas or arguments												
Living things & their habitats												
Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird				x								
Describe the life process of reproduction in some plants and animals				x								
Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including								x				

smaller force to have a greater effect												
Light												
Recognise that light appears to travel in straight lines							x					
Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye							x					
Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes							x					
Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them							x					
Electricity												
Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit									x			
Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches									x			
Use recognised symbols when representing a simple circuit in a diagram									x			