Working Scientifically Progression Chart

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. 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.

Curriculum 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

EYFS

Understanding the World: The Natural World

- Explore the natural world around them, making observations and drawing pictures of animals and plants
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

Communication and Language Listening, Attention and Understanding

- Make comments about what they have heard and ask questions to clarify their understanding

KS1

During **Years 1** and **2**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

Y1

	asking **simple questions** and recognising that they can be answered in different ways;	**observing closely**, using **simple equipment**;	performing **simple tests**;	**identifying** and **classifying**;	using their **observations** and **ideas** to **suggest answers** to questions;	**gathering** and **recording data** to help in answering questions.
Animals including humans	**Lesson 2**	**Lesson 6**		**Lesson 1 Lesson 3 Lesson 5**	**Lesson 2**	
Plants	**Lesson 5**	**Lesson 3 Lesson 4 Lesson 5**		**Lesson 1 Lesson 2**	**Lesson 7**	
Materials	**Lesson 4**	**Lesson 5 Lesson 6**	**Lesson 4 Lesson 5 Lesson 6**	**Lesson 1 Lesson 2 Lesson 3 Lesson 4**	**Lesson 5 Lesson 6**	**Lesson 5 Lesson 6**
Seasonal change		**Lesson 5**	**Lesson 5**	**Lesson 1 Lesson 2 Lesson 3 Lesson 4**	**Lesson 5**	**Lesson 5**

KS1

During **Years 1** and **2**, pupils should be taught to use the following practical scientific methods, processes and skills through theteaching of the programme of study content:

Y2

	asking **simple questions** and recognising that they can be answered in different ways;	**observing closely**, using **simple equipment**;	performing **simple tests**;	**identifying** and **classifying**;	using their **observations** and **ideas** to **suggest answers** to questions;	**gathering** and **recording data** to help in answering questions.
Animals including humans		Lesson 4 Lesson 5	Lesson 4 Lesson 5	Lesson 1 Lesson 2 Lesson 3	Lesson 4 Lesson 5	Lesson 4 Lesson 5
Plants		Lesson 1 Lesson 2 Lesson 3 Lesson 4 Lesson 5		Lesson 1 Lesson 2	Lesson 4	
Living things and their habitats	Lesson 4	Lesson 2 Lesson 4	Lesson 4	Lesson 1 Lesson 2 Lesson 3 Lesson 4 Lesson 5 Lesson 6	Lesson 4	Lesson 4
Materials	Lesson 3 Lesson 4	Lesson 3 Lesson 4 Lesson 5	Lesson 3 Lesson 4 Lesson 5	Lesson 1 Lesson 2	Lesson 3 Lesson 4 Lesson 5	Lesson 3 Lesson 4

LKS2

During **Years 3** and **4**, pupils should be taught to use the following practical scientific methods, processes and skills through theteaching of the programme of study content:

Y3

	asking relevant questions and using different types of **scientific enquiries** to answer them;	setting up **simple practical enquiries**, **comparative** and **fair tests**;	making **systematic** and **careful observations** and, where appropriate, taking accurate **measurements** using **standard units**, using a range of **equipment**, including **thermometers** and **data loggers**;	**gathering**, **recording**, **classifying** and **presenting data** in a variety of ways to help in answering questions;	**recording findings** using simple **scientific language**, **drawings**, **labelled diagrams**, **keys**, **bar charts**, and **tables**;	**reporting** on findings from enquiries, including **oral** and **written explanations**, **displays** or **presentations** of results and conclusions;	using results to **draw** simple **conclusions**, make **predictions** for new values, **suggest improvements** and raise further **questions**;	identifying **differences**, **similarities** or **changes** related to simple scientific ideas and processes;	using straightforward **scientific evidence** to answer questions or to support their findings.
Animals including humans	Lesson 2	Lesson 2	Lesson 2		Lesson 2	Lesson 2			
Plants	Lesson 4	Lesson 1 Lesson 4	Lesson 4		Lesson 4	Lesson 4			
Light	Lesson 5	Lesson 5	Lesson 5	Lesson 5	Lesson 4		Lesson 5	Lesson 4	Lesson 4 Lesson 5
Rocks	Lesson 5	Lesson 2 Lesson 5	Lesson 1 Lesson 2 Lesson 5		Lesson 2 Lesson 5	Lesson 2	Lesson 5		
Forces and magnets		Lesson 2	Lesson 4 Lesson 5	Lesson 2	Lesson 3	Lesson 2	Lesson 2	Lesson 2 Lesson 5	Lesson 2 Lesson 5

LKS2

During **Years 3** and **4**, pupils should be taught to use the following practical scientific methods, processes and skills through theteaching of the programme of study content:

Y4

	asking relevant questions and using different types of **scientific enquiries** to answer them;	setting up **simple practical enquiries**, **comparative** and **fair tests**;	making **systematic** and **careful observations** and, where appropriate, taking accurate **measurements** using **standard units**, using a range of **equipment**, including **thermometers** and **data loggers**;	**gathering**, **recording**, **classifying** and **presenting data** in a variety of ways to help in answering questions;	**recording findings** using simple **scientific language**, **drawings**, **labelled diagrams**, **keys**, **bar charts**, and **tables**;	**reporting** on findings from enquiries, including **oral** and **written explanations**, **displays** or **presentations** of results and conclusions;	using results to **draw** simple **conclusions**, make **predictions** for new values, **suggest improvements** and raise further **questions**;	identifying **differences**, **similarities** or **changes** related to simple scientific ideas and processes;	using straightforward **scientific evidence** to answer questions or to support their findings.
Animals including humans		Lesson 3	Lesson 3	Lesson 3	Lesson 3	Lesson 3	Lesson 3		
Living things and their habitats			Lesson 4	Lesson 4	Lesson 4 Lesson 5	Lesson 4			
Electricity	Lesson 4	Lesson 4	Lesson 4		Lesson 5	Lesson 5	Lesson 4		Lesson 5
Sound	Lesson 7	Lesson 4 Lesson 7	Lesson 6 Lesson 7	Lesson 7		Lesson 1 Lesson 4 Lesson 6 Lesson 7	Lesson 4 Lesson 7	Lesson 4	Lesson 5 Lesson 6
States of matter		Lesson 2 Lesson 4 Lesson 6	Lesson 2 Lesson 3 Lesson 4 Lesson 6 Lesson 7	Lesson 2 Lesson 3 Lesson 4 Lesson 6 Lesson 7	Lesson 4 Lesson 6	Lesson 2 Lesson 4 Lesson 6 Lesson 7	Lesson 6 Lesson 7	Lesson 6 Lesson 7	Lesson 6 Lesson 7

UKS2

During **Years 5** and **6**, pupils should be taught to use the following practical scientific methods, processes and skills through theteaching of the programme of study content:

Y5

	planning different types of **scientific enquiries** to answer questions, including **recognising** and **controlling variables** where necessary;	taking **measurements**, using a range of **scientific equipment**, with increasing accuracy and precision, taking **repeat readings** when appropriate;	**recording data** and results of increasing complexity using **scientific diagrams** and **labels**, **classification keys**, **tables**, **scatter graphs**, **bar** and **line graphs**;	using test results to make **predictions** to set up further comparative and fair tests;	**reporting** and **presenting** findings from enquiries, including **conclusions**, **causal relationships** and **explanations** of and a degree of trust in results, in **oral** and **written forms** such as displays and other presentations;	identifying **scientific evidence** that has been used to support or refute ideas or arguments.
Animals including humans						
Living things and their habitats			Lesson 2		Lesson 2	
Materials	Lesson 3 Lesson 4	Lesson 3 Lesson 4	Lesson 3 Lesson 4	Lesson 3	Lesson 3	
Forces and magnets	Lesson 1 Lesson 3 Lesson 4	Lesson 1 Lesson 3 Lesson 4 Lesson 5	Lesson 1 Lesson 3		Lesson 1 Lesson 5	Lesson 1
Earth and space	Lesson 5	Lesson 5	Lesson 5		Lesson 5	Lesson 5

UKS2

During **Years 5** and **6**, pupils should be taught to use the following practical scientific methods, processes and skills through theteaching of the programme of study content:

Y6

	planning different types of **scientific enquiries** to answer questions, including **recognising** and **controlling variables** where necessary;	taking **measurements**, using a range of **scientific equipment**, with increasing accuracy and precision, taking **repeat readings** when appropriate;	**recording data** and results of increasing complexity using **scientific diagrams** and **labels**, **classification keys**, **tables**, **scatter graphs**, **bar** and **line graphs**;	using test results to make **predictions** to set up further comparative and fair tests;	**reporting** and **presenting** findings from enquiries, including **conclusions**, **causal relationships** and **explanations** of and a degree of trust in results, in **oral** and **written forms** such as displays and other presentations;	identifying **scientific evidence** that has been used to support or refute ideas or arguments.
Animals including humans	Lesson 3	Lesson 3	Lesson 3		Lesson 3	
Living things and their habitats			Lesson 4		Lesson 4	Lesson 4
Light	Lesson 4	Lesson 4	Lesson 4	Lesson 2	Lesson 4	
Electricity	Lesson 2 Lesson 3	Lesson 2 Lesson 4	Lesson 4	Lesson 2	Lesson 2 Lesson 4	Lesson 4 Lesson 5
Evolution	Lesson 4	Lesson 4			Lesson 4	Lesson 3 Lesson 4 Lesson 6