# 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**<br>**Lesson 3**<br>**Lesson 5** | **Lesson 2** | |
| **Plants** | **Lesson 5** | **Lesson 3**<br>**Lesson 4**<br>**Lesson 5** | | **Lesson 1**<br>**Lesson 2** | **Lesson 7** | |
| **Materials** | **Lesson 4** | **Lesson 5**<br>**Lesson 6** | **Lesson 4**<br>**Lesson 5**<br>**Lesson 6** | **Lesson 1**<br>**Lesson 2**<br>**Lesson 3**<br>**Lesson 4** | **Lesson 5**<br>**Lesson 6** | **Lesson 5**<br>**Lesson 6** |
| **Seasonal change** | | **Lesson 5** | **Lesson 5** | **Lesson 1**<br>**Lesson 2**<br>**Lesson 3**<br>**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 the teaching 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<br>Lesson 5 | Lesson 4<br>Lesson 5 | Lesson 1<br>Lesson 2<br>Lesson 3 | Lesson 4<br>Lesson 5 | Lesson 4<br>Lesson 5 |
| **Plants** | | Lesson 1<br>Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 5 | | Lesson 1<br>Lesson 2 | Lesson 4 | |
| **Living things and their habitats** | Lesson 4 | Lesson 2<br>Lesson 4 | Lesson 4 | Lesson 1<br>Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 5<br>Lesson 6 | Lesson 4 | Lesson 4 |
| **Materials** | Lesson 3<br>Lesson 4 | Lesson 3<br>Lesson 4<br>Lesson 5 | Lesson 3<br>Lesson 4<br>Lesson 5 | Lesson 1<br>Lesson 2 | Lesson 3<br>Lesson 4<br>Lesson 5 | Lesson 3<br>Lesson 4 |

# LKS2

During **Years 3** and **4**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching 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<br>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<br>Lesson 5 |
| **Rocks** | Lesson 5 | Lesson 2<br>Lesson 5 | Lesson 1<br>Lesson 2<br>Lesson 5 | | Lesson 2<br>Lesson 5 | Lesson 2 | Lesson 5 | | |
| **Forces and magnets** | | Lesson 2 | Lesson 4<br>Lesson 5 | Lesson 2 | Lesson 3 | Lesson 2 | Lesson 2 | Lesson 2<br>Lesson 5 | Lesson 2<br>Lesson 5 |

# LKS2

During **Years 3** and **4**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching 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<br>Lesson 5 | Lesson 4 | | | |
| **Electricity** | Lesson 4 | Lesson 4 | Lesson 4 | | Lesson 5 | Lesson 5 | Lesson 4 | | Lesson 5 |
| **Sound** | Lesson 7 | Lesson 4<br>Lesson 7 | Lesson 6<br>Lesson 7 | Lesson 7 | | Lesson 1<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 4<br>Lesson 7 | Lesson 4 | Lesson 5<br>Lesson 6 |
| **States of matter** | | Lesson 2<br>Lesson 4<br>Lesson 6 | Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 4<br>Lesson 6 | Lesson 2<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 6<br>Lesson 7 | Lesson 6<br>Lesson 7 | Lesson 6<br>Lesson 7 |

# UKS2

During **Years 5** and **6**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching 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** | | | | | **Lesson 3**<br>**Lesson 4** | **Lesson 2** |
| **Living things and their habitats** | | | **Lesson 2** | | **Lesson 2** | |
| **Materials** | **Lesson 3**<br>**Lesson 4** | **Lesson 3**<br>**Lesson 4** | **Lesson 3**<br>**Lesson 4** | **Lesson 3** | **Lesson 3** | |
| **Forces and magnets** | **Lesson 1**<br>**Lesson 3**<br>**Lesson 4** | **Lesson 1**<br>**Lesson 3**<br>**Lesson 4**<br>**Lesson 5** | **Lesson 1**<br>**Lesson 3** | | **Lesson 1**<br>**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 the teaching 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**<br>**Lesson 3** | **Lesson 2**<br>**Lesson 4** | **Lesson 4** | **Lesson 2** | **Lesson 2**<br>**Lesson 4** | **Lesson 4**<br>**Lesson 5** |
| **Evolution** | **Lesson 4** | **Lesson 4** | | | **Lesson 4** | **Lesson 3**<br>**Lesson 4**<br>**Lesson 6** |