

# SCIENCE Standards Map

## EYFS:

### AT (expected)

**Understanding the world – The world:** Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one to another. They make observations of animals and plants and explain why some things occur, and talk about changes.

**Understanding the world – People and communities:** Children know about similarities and differences between themselves and others, and among families, communities and traditions.

**Communication and language - Understanding:** Children ask how and why questions about their experiences stories or events.

**Physical development - Health and self- care:** Children know the importance for good health of physical exercise and a healthy diet, and talk about ways to keep healthy and safe.

### GD (exceeding)

**Understanding the world – The world:** Children know that the environment and living things are influenced by human activity. They can describe some actions which people in their own community do that help to maintain the area they live in. They know the properties of some materials and can suggest some of the purposes they are used for. They are familiar with basic scientific concepts such as floating, sinking, experimentation.

**Understanding the world – People and communities:** Children know that other children have different likes and dislikes and that they may be good at different things.

**Communication and language - Understanding:** Children can express views about events and answer questions about why things happened.

**Physical development - Health and self- care:** Children know about and can make healthy choices in relation to healthy eating and exercise.

# SCIENCE Standards Map

## Year 1:

### AT

#### **Working Scientifically:**

Pupils think of questions to ask and respond to prompts to suggest practical ways to find answers to questions. They make observations about features of objects, living things and events. They organise things into groups and put simple information into charts or tables. They communicate their findings using basic language and in ways such as talking about their work in everyday terms, through drawings or by labelling.

#### **Scientific Knowledge:**

Pupils use their knowledge related to topics to identify, describe, compare and group (classify) according to common criteria provided. They communicate their understanding through naming and describing. They recognise evidence that has been used to answer a question, and make links between science and everyday objects and experiences.

### GD

#### **Working Scientifically:**

Pupils ask questions and make their own suggestions about how to collect relevant data and answer questions. They make close observations and look for simple patterns and relationships. They use more scientific language to explain what they have found out and say whether what happened was what they expected.

#### **Scientific Knowledge:**

Pupils independently classify and compare according to their own criteria. They can explain how certain objects/materials/ animals are suited to their purpose/ habitat. They suggest answers to questions based on their own ideas and experience of the world

# SCIENCE Standards Map

## Year 2:

### AT

#### **Working Scientifically:**

Pupils ask questions and make their own suggestions about how to collect relevant data and answer questions. They find information by using texts, with help. They follow direct instructions in order to stay safe. They make close observations and measurements (over time when suitable), using simple equipment provided, to compare living things, objects and events, looking for simple patterns and relationships. They record findings using prepared tables/ charts and communicate observations using some scientific words. They say whether what happened was what they expected.

#### **Scientific Knowledge:**

Pupils use their knowledge related to topics to recognise, describe and compare a range of common examples provided, identify their properties and explain how they are suited to their purpose (when relevant). They recognise and describe similarities and differences between examples, being able to classify them into groups provided and occasionally according to their own criteria. They suggest answers to questions based on their own ideas and experience of the world. They identify science in everyday contexts and say whether it is helpful, for example ways of growing vegetables for food.

### GD

#### **Working Scientifically:**

Pupils make simple, formal predictions prior to investigating and recognise whether their prediction was correct after investigating. They make relevant observations and measure quantities, such as length or mass, using standard units. They give explanations for observations and for patterns in measurements they have made and recorded, using accurate scientific language.

#### **Scientific Knowledge:**

Pupils provide their own examples for topics and can classify according to their own criteria in more than one way, and explain their reasoning. They use simple scientific ideas, with evidence they have collected and their experience of the world, to give explanations.

# SCIENCE Standards Map

## Year 3:

### AT

#### **Working Scientifically:**

Pupils ask relevant questions and suggest their own ideas about how to investigate or find answers. They use texts to find information and set up simple practical enquires. They begin to recognise risks with help. They carry out fair tests, with help, recognising and explaining what makes them fair. They make simple predictions prior to investigating and recognise whether their prediction was correct after. They make relevant observations and measure quantities, such as length or mass, using standard units and a range of simple equipment provided. They record observations / measurements in different ways, including tables or charts provided. They give explanations for observations and for patterns in measurements they have made and recorded. They communicate using scientific language, drawing simple conclusions: explaining patterns or changes and identifying whether results answer the research question.

#### **Scientific Knowledge:**

Pupils use knowledge and understanding of topics to recognise, describe and compare a range of examples provided, identifying their properties and explaining how they are suited to a purpose (when relevant). They recognise and describe similarities and differences between examples and changes they observe, being able to classify them into groups in a variety of ways using characteristics provided. They use simple scientific ideas, with evidence they have collected and their experience of the world, to give explanations. They identify science in everyday contexts and say whether it is helpful.

### GD

#### **Working Scientifically:**

With some help, pupils decide on an appropriate scientific enquiry type to answer a question. They independently plan fair test practical enquires, deciding which information needs to be collected and make predictions based on scientific knowledge. They record observations / measurements in a wider range of ways. They communicate using more precise scientific language, beginning to link cause and effect, and when prompted, begin to evaluate their investigations, suggesting improvements in their methods.

#### **Scientific Knowledge:**

Pupils use appropriate terminology to describe processes and phenomena related to topics in more depth. They classify according to characteristics that they have thought of and occasionally provide their own examples to classify.

# SCIENCE Standards Map

## Year 4:

### AT

#### **Working Scientifically:**

With help, pupils decide on an appropriate scientific enquiry type to answer a question. They set up simple practical enquiries, deciding which information needs to be collected and make predictions based on scientific knowledge. Using a wide range of equipment provided, they make systematic and careful observations and take accurate measurement using standard units. Following instructions, they take action to control obvious risks to themselves. They record their observations, comparisons and measurements in a wider range of ways, using tables and bar charts and beginning to plot points to form simple line graphs. They interpret data containing positive and negative numbers. They begin to relate their conclusions to patterns in data / graphs and to scientific knowledge and understanding. They communicate their simple conclusions using scientific language, explaining patterns, similarities or differences, identifying whether their prediction was correct and whether the results answer the research question. They evaluate their own investigations, suggesting improvements in their methods and raising further questions based on the results.

#### **Scientific Knowledge:**

Pupils draw on scientific knowledge and understanding, using appropriate terminology, to identify and describe processes and phenomena related to topics. They compare a range of examples (including their own), identifying their properties / function and explaining their purpose (when relevant). They recognise and describe similarities and differences between examples (including their own) and changes they observe, being able to classify them (occasionally using their own classification criteria), using classification keys, in a variety of ways.

### GD

#### **Working Scientifically:**

With some help, pupils raise their own questions and plan the most appropriate enquiry type to use. They select apparatus according to its suitability and recognise which variables may have an effect on results and control them accurately. They take repeat readings when appropriate, and plan further comparative tests based on results. Their conclusions show an understanding of cause and effect and explain how their results support scientific concepts in more depth.

#### **Scientific Knowledge:**

Pupils use appropriate and specific scientific language in their explanations. They compare a range of examples (including their own), explaining how they are suited to a specific purpose. They recognise some applications of science in the real world and cause and effect, for example how people, weather and the environment can affect living things. They show more sophisticated classification criteria for example the impact temperature has on certain materials.

# SCIENCE Standards Map

## Year 5:

### AT

#### **Working Scientifically:**

With some help, pupils raise their own questions and plan the most appropriate enquiry type to use. They select which apparatus to use and recognise and control variables accurately, deciding what measurements/ observations to use and how long for. They make predictions supported with scientific knowledge. Using a range of scientific equipment, they obtain data systematically with increasing accuracy and precision (including standard units), taking repeat readings when appropriate. They recognise hazards and make, and act on, simple suggestions to control obvious risks to themselves and others. Recording of increasingly complex data is presented in a variety of ways, including tables, graphs and classification keys. They analyse findings to draw scientific conclusions that are consistent with the evidence, explaining relationships and identifying whether their prediction was correct and if the results answer the research question. They recognise that evidence can support or refute scientific ideas, such as the classification of reactions as reversible and irreversible. They evaluate their working methods to make practical suggestions for improvements, using test results to make further predictions based on scientific knowledge and plan further comparative tests.

#### **Scientific Knowledge:**

Pupils draw on scientific knowledge and understanding, using appropriate and specific scientific terminology, to identify and describe processes and phenomena related to topics. They explain processes and phenomena, in more than one step or using a model, such as the main stages of the life cycles of humans and flowering plants. They compare a range of examples (including their own), identifying their properties / function and explaining how they are suited to a specific purpose (when relevant). They recognise and describe similarities and differences between examples (including their own) and changes they observe, being able to classify them in a variety of ways (including classification keys). They recognise some applications and implications of science, for example streamlining and air resistance.

### GD

#### **Working Scientifically:**

Pupils independently raise questions and plan the most appropriate enquiry type to use, explaining why it's the most suitable choice. Using a range of scientific equipment selected for its suitability, they obtain data more systematically with more accuracy and precision. Recording of increasingly complex data is more effective and presented in a variety of ways to suit the data i.e. selecting the most appropriate graph type for the data. Their conclusions explain how their results support scientific ideas and they link conclusions to other scientific knowledge or findings. They evaluate their data and working methods for reliability and make more specific practical suggestions for improvements.

#### **Scientific Knowledge:**

Pupils' explain scientific processes and phenomena related to topics with clarity, using scientific language to show a deeper understanding. They apply and use knowledge and understanding in unfamiliar contexts, for example how water causes resistance to floating objects. They explain the importance of some applications and implications of science, such as the production of new materials with specific desirable properties.

# SCIENCE Standards Map

## Year 6:

### AT

#### **Working Scientifically:**

Pupils raise questions and plan the most appropriate enquiry type to use. They select apparatus according to its suitability and recognise and control variables accurately, deciding what measurements/ observations to use and how long for. They make predictions supported with scientific knowledge. Using a range of scientific equipment, they obtain reliable data with accuracy and precision (including standard units), taking repeat readings when appropriate. They recognise a range of familiar risks and take action to control them. Recording of increasingly complex data is effective and presented in a variety of ways to suit the data, including tables, the selection of the most appropriate graph type and classification keys. They analyse findings to draw accurate scientific conclusions that are consistent with the evidence, explaining relationships, similarities (in support of) or differences (refuting) to scientific ideas and processes and identifying whether their prediction was correct and if the results answer the research question. They evaluate their data and working methods for reliability and make practical suggestions for improvements. They use test results to make further predictions based on scientific knowledge and carry out further comparative tests.

#### **Scientific Knowledge:**

Pupils draw on scientific knowledge and understanding, using the most appropriate scientific terminology, to identify and describe processes and phenomena related to topics. They take account of a number of factors, including use of abstract ideas, in their explanations of processes and phenomena, such as the evolution of animals over thousands of years. They apply and use knowledge and understanding in unfamiliar contexts, such as a food web in a habitat. They compare a range of examples (including their own), identifying their properties / function and explaining how they are suited to a specific purpose (when relevant). They recognise and describe similarities and differences between examples (including their own) and changes they observe, being able to classify them in a variety of ways (including classification keys). They explain the importance of some applications and implications of science, such as the use of selective breeding.

### GD

#### **Working Scientifically:**

Pupils independently raise questions and plan the most appropriate enquiry type to use, explaining why it's the most suitable choice. They recognise which variables cannot readily be controlled and take steps to reduce their impact on the results. They plan which equipment to use in advance and select methods to obtain reliable data systematically with accuracy and precision (including standard units with fine scale divisions). They begin to consider whether the data they have collected is sufficient for the conclusions they have drawn and they can explain how scientific ideas have developed over time based on findings in the science community.

#### **Scientific Knowledge:**

Pupils describe a wide range of processes and phenomena related to topics in detail, with clarity, using scientific language to show a deeper understanding. They make links between different areas of science in their explanations and analyse the advantages and disadvantages of specific scientific concepts, such as adaptations – being on two feet rather than four feet. They describe and explain the importance of a range of applications and implications of science in familiar contexts, such as alternative methods of electricity generation.