



Wheelock  
Primary School

# Steps in Science

- National Curriculum

# Wheelock Steps in Science- National Curriculum

Step One	Step Two	Step Three	Step Four	Step Five	Step Six
<p align="center"><u>Working Scientifically</u></p> <ul style="list-style-type: none"> <li>I can ask simple scientific questions and recognising that they can be answered in different</li> <li>I can use simple equipment to make close observations,</li> <li>I can carry out simple tests.</li> <li>I can identify and classify things.</li> <li>I can suggest what I have found out.</li> <li>I can gather, record and use simple data to answer questions.</li> </ul>		<p align="center"><u>Working Scientifically</u></p> <ul style="list-style-type: none"> <li>I can ask relevant scientific questions.</li> <li>I can use a range of scientific enquiries and knowledge to answer questions.</li> <li>I can set up a simple enquiry to explore a scientific question.</li> <li>I can set up a fair test, explain why it is fair and compare variables.</li> <li>I can use a range of equipment, thermometers/data loggers to make measurements.</li> <li>I can gather, record, classify and present data in different ways to help answer questions.</li> <li>I can create and interpret diagrams, keys, bar charts and tables; using scientific language.</li> <li>I can use findings to report results and conclusions in different ways, including oral and written explanations, presentation.</li> <li>I can make a predictions and conclusions; suggest improvements; and raise further questions.</li> <li>I can identify differences, similarities and changes related to an enquiry.</li> </ul>		<p align="center"><u>Working Scientifically</u></p> <ul style="list-style-type: none"> <li>I can plan different types of scientific enquiry.</li> <li>I can control variables in an enquiry.</li> <li>I can measure accurately and precisely using a range of equipment, taking repeat measurements when appropriate.</li> <li>I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>I can use the outcome of test results to make predictions and set up a further comparative fair test.</li> <li>I can report findings from enquiries in a range of ways.</li> <li>I can explain a conclusion from an enquiry.</li> <li>I can suggest and analyse the reliability of observations/data gathered.</li> <li>I can relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.</li> <li>I can read, spell and pronounce scientific vocabulary accurately.</li> </ul>	
<p align="center"><u>Biology</u></p> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>I can name a variety of common wild and garden plants.</li> <li>I can name the petals, stem, leaf and root of a plant.</li> <li>I can name the root, trunk, branches and leaves of a tree.</li> </ul> <p><b>Animals and Humans</b></p> <ul style="list-style-type: none"> <li>I can name a variety of animals including fish, amphibians, reptiles, birds and mammals.</li> <li>I can classify and name animals by what they eat (carnivore, herbivore and omnivore).</li> <li>I can sort animals into categories (including fish, amphibians, reptiles, birds and mammals).</li> <li>I can sort living and non-living things.</li> <li>I can name parts of the human body that I can see.</li> <li>I can link the correct part of the human body to each sense.</li> </ul>	<p align="center"><u>Biology</u></p> <p><b>Living things and Habitats</b></p> <ul style="list-style-type: none"> <li>I can identify things that are living, dead and never lived.</li> <li>I can describe how a specific habitat provides for the basic needs of living things there (plants and animals).</li> <li>I can identify and name plants and animals in a range of habitats.</li> <li>I can match living things to their habitat.</li> <li>I can describe how animals find their food and explain a simple food chain.</li> <li>I can name some different sources of food for animals.</li> </ul> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>I can describe how and what plants need in order to grow and stay healthy (water, light, and suitable temperature)</li> </ul> <p><b>Animals and Humans</b></p> <ul style="list-style-type: none"> <li>I can explain the basic stages of the life cycle including humans.</li> <li>I can describe what animals and humans need to survive.</li> <li>I can describe why exercise, a balanced diet and good hygiene are important for humans.</li> </ul>	<p align="center"><u>Biology</u></p> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>I can describe the parts of plants and trees.</li> <li>I can explore and describe the needs of different plants for survival.</li> <li>I can explore and describe how water is transported within plants.</li> <li>I can describe the plant life cycle, especially the importance of flowers.</li> </ul> <p><b>Animals and Humans</b></p> <ul style="list-style-type: none"> <li>I can explain the importance of a nutritious and balanced diet.</li> <li>I can explain how nutrients, water and oxygen are transported within animals and humans.</li> <li>I can describe and explain the skeletal system of a human.</li> <li>I can describe and explain the muscular system of a human.</li> <li>I can describe the purpose of the skeleton in humans and animals.</li> </ul>	<p align="center"><u>Biology</u></p> <p><b>Living things and Habitats</b></p> <ul style="list-style-type: none"> <li>I can use classification keys to group, identify and name living things.</li> <li>I can create classification keys to group, identify and name living things (for other use).</li> <li>I can describe how changes to an environment could endanger living things.</li> </ul> <p><b>Animals and Humans</b></p> <ul style="list-style-type: none"> <li>I can identify and name parts of the human digestive system.</li> <li>I can describe the functions of the organs in the human digestive system.</li> <li>I can identify and describe the different types of teeth in humans.</li> <li>I can describe the functions of different human teeth.</li> <li>I can use food chains to identify producers, predators and prey.</li> <li>I can construct food chains to identify producers, predators and prey.</li> </ul>	<p align="center"><u>Biology</u></p> <p><b>Living things and Habitats</b></p> <ul style="list-style-type: none"> <li>I can describe the life cycle of different living things (mammals, amphibians, insects and birds).</li> <li>I can describe the differences between different life cycles.</li> <li>I can describe the process of reproduction in plants.</li> <li>I can describe the process of reproduction in animals.</li> </ul> <p><b>Animals and Humans</b></p> <ul style="list-style-type: none"> <li>I can create a timeline to indicate stages of growth in humans.</li> </ul>	<p align="center"><u>Biology</u></p> <p><b>Living things and Habitats</b></p> <ul style="list-style-type: none"> <li>I can classify living things into group based on their characteristics, similarities and differences.</li> <li>I can describe how living things have been classified.</li> <li>I can give reasons for classifying plants and animals in a specific way.</li> </ul> <p><b>Animals and Humans</b></p> <ul style="list-style-type: none"> <li>I can identify and name the main parts of the human circulatory system.</li> <li>I can describe the function of the heart, blood vessels and blood.</li> <li>I can discuss the impact of diet, exercise, drugs and life style on health.</li> <li>I can describe the ways in which nutrients and water are transported in animals, including humans.</li> </ul> <p><b>Evolution and Inheritance</b></p> <ul style="list-style-type: none"> <li>I can describe how the earth and living things have changed over time</li> <li>I can explain how fossils can be used to find out about the past.</li> <li>I can explain about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents).</li> <li>I can explain how animals and plants are adapted to suit their environment.</li> </ul>

					<ul style="list-style-type: none"> <li>I can explain evolution.</li> </ul>
<p><b><u>Chemistry</u></b></p> <p><b>Everyday Materials</b></p> <ul style="list-style-type: none"> <li>I can distinguish between an object and the material it is made from.</li> <li>I can explain the materials that an object is made from.</li> <li>I can name wood, plastic, glass, metal, water and rock.</li> <li>I can describe the properties of everyday materials.</li> <li>I can group objects based on the materials they are made from.</li> </ul>	<p><b><u>Chemistry</u></b></p> <p><b>Everyday Materials</b></p> <ul style="list-style-type: none"> <li>I can identify and name a range of materials, wood, plastic, metal, glass, brick, rock, paper and cardboard.</li> <li>I can suggest why a material might or might not be used for a specific job.</li> <li>I can explore how shapes can be changed by squashing, bending, twisting and stretching.</li> </ul>	<p><b><u>Chemistry</u></b></p> <p><b>Rocks</b></p> <ul style="list-style-type: none"> <li>I can compare and group rocks based on their appearance and physical properties.</li> <li>I can describe how fossils are formed.</li> <li>I can describe how soil is made.</li> <li>I can describe and explain the difference between sedimentary and igneous rock.</li> </ul>	<p><b><u>Chemistry</u></b></p> <p><b>States of Matter</b></p> <ul style="list-style-type: none"> <li>I can group materials based on their stage of matter (solid, liquid, gas).</li> <li>I can describe how some materials can change state.</li> <li>I can explore how materials change state.</li> <li>I can measure the temperature at which materials change state.</li> <li>I can describe the water cycle.</li> <li>I can explain the part played by evaporation and condensation in the water cycle.</li> </ul>	<p><b><u>Chemistry</u></b></p> <p><b>Properties and Changes of Materials</b></p> <ul style="list-style-type: none"> <li>I can compare and group materials based on their properties (hardness, solubility, transparency, conductivity and response to magnets).</li> <li>I can describe how a material dissolves to form a solution, explaining the process of dissolving.</li> <li>I can describe and show how to recover a substance from a solution.</li> <li>I can describe how some materials can be separated (e.g. through filtering, sieving and evaporating).</li> <li>I know and can demonstrate that some changes are reversible and some are not.</li> <li>I can explain how some changes result in the formation of a new material and that this usually irreversible.</li> </ul>	<p><b><u>Chemistry</u></b></p>
<p><b><u>Physics</u></b></p> <p><b>Seasonal Changes</b></p> <ul style="list-style-type: none"> <li>I can observe and comment on the changes in the seasons.</li> <li>I can name the seasons and suggest the type of weather in each season.</li> </ul>	<p><b><u>Physics</u></b></p>	<p><b><u>Physics</u></b></p> <p><b>Light</b></p> <ul style="list-style-type: none"> <li>I can explain that dark is the absence of light.</li> <li>I can explain that light is needed in order to see.</li> <li>I can explain that light is reflected from a surface.</li> <li>I can explain and demonstrate how a shadow is formed.</li> <li>I can explore shadow size and explain my findings.</li> <li>I can explain the danger of direct sunlight and describe how to keep protected.</li> </ul> <p><b>Forces and Magnets</b></p> <ul style="list-style-type: none"> <li>I can explore and describe how objects move on different surfaces.</li> <li>I can explain how some forces require contact and some do not and give examples.</li> <li>I can explore and explain how objects attract and repel in relation to objects and other magnets.</li> <li>I can predict whether objects will be magnetic and carry out an enquiry to test this out.</li> <li>I can describe how magnets work.</li> <li>I can predict whether magnets will attract or repel and give a reason.</li> </ul>	<p><b><u>Physics</u></b></p> <p><b>Sound</b></p> <ul style="list-style-type: none"> <li>I can describe how sound is made.</li> <li>I can explain how sound travels from a source to our ears.</li> <li>I can explain the place of vibration in hearing.</li> <li>I can explore the correlation between pitch and the object producing a sound.</li> <li>I can explore the correlation between the volume of a sound and the vibrations that produced it.</li> <li>I can describe what happens to a sound as it travels away from its source.</li> </ul> <p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>I can identify and name appliances that require electricity to function.</li> <li>I can construct a series circuit.</li> <li>I can identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers).</li> <li>I can draw a circuit diagram.</li> <li>I can predict and test whether a lamp will light within a circuit.</li> <li>I can describe the function of a switch in a circuit.</li> <li>I can describe the difference between conductors and insulators and give examples of each.</li> </ul>	<p><b><u>Physics</u></b></p> <p><b>Earth and Space</b></p> <ul style="list-style-type: none"> <li>I can describe and explain the movement of the Earth and other planets in relation to the sun.</li> <li>I can describe and explain the movement of the moon relative to the Earth.</li> <li>I can explain and demonstrate how night and day are created.</li> <li>I can describe the Sun, Earth and Moon (using the term spherical).</li> </ul> <p><b>Forces</b></p> <ul style="list-style-type: none"> <li>I can explain what gravity is and its impact on our lives.</li> <li>I can identify and explain the effect of air resistance.</li> <li>I can identify and explain the effect of friction.</li> <li>I can explain how levers, pulleys and gears allow a smaller force to have a greater effect.</li> </ul>	<p><b><u>Physics</u></b></p> <p><b>Light</b></p> <ul style="list-style-type: none"> <li>I can explain how light travels.</li> <li>I can explain and demonstrate how we see objects.</li> <li>I can explain why shadows have the same shape as the object that casts them.</li> <li>I can explain how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.</li> </ul> <p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>I can explain how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.</li> <li>I can compare and give reasons for why components work and do not work in a circuit.</li> <li>I can draw circuit diagrams using correct symbols.</li> </ul>

## **Key stage 1**

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 key stage 2 – years 3 and 4**

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 key stage 2 – years 5 and 6**

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.