

## Science Key Stage 2

## National Curriculum Overview



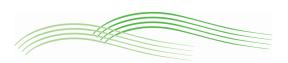




Science Years 3 and 4					
Working Scientifically	Plants	Animals, inc Humans	Rocks	Light	Forces & Magnets
During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:  - asking relevant questions 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	Pupils should be taught to:  identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers  explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant  investigate the way in which water is transported within plants  explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Pupils should be taught to:  Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat  Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Pupils should be taught to:  compare and group together different kinds of rocks on the basis of their appearance and simple physical properties  describe in simple terms how fossils are formed when things that have lived are trapped within rock  recognise that soils are made from rocks and organic matter.	Pupils should be taught to:  recognise that they need light in order to see things and that dark is the absence of light  notice that light is reflected from surfaces  recognise that light from the sun can be dangerous and that there are ways to protect their eyes  recognise that shadows are formed when the light from a light source is blocked by a solid object  find patterns in the way that the size of shadows change.	Pupils should be taught to:  compare how things move on different surfaces  notice that some forces need contact between two objects, but magnetic forces can act at a distance  observe how magnets attract or repel each other and attract some materials and not others  compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials  describe magnets as having two poles  predict whether two magnets will attract or repel each other,



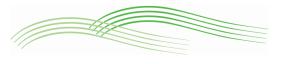




enquiries, including oral and written explanations, displays or presentations of results and conclusions			depending on which poles are facing.
<ul> <li>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>			
<ul> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> </ul>			
<ul> <li>using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>			







Science Years 5 and 6					
Working Scientifically	Living things and their	Animals, inc Humans	Properties and changes	Earth & Space	Forces
	habitats		of materials		
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:  • 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	Pupils should be taught to:  describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird  describe the life process of reproduction in some plants and animals.	describe the changes as humans develop to old age.	Pupils should be taught to:  compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets  know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution  use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating  give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic  demonstrate that dissolving, mixing and	Pupils should be taught to:  describe the movement of the Earth, and other planets, relative to the Sun in the solar system  describe the movement of the Moon relative to the Earth  describe the Sun, Earth and Moon as approximately spherical bodies  use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	Pupils should be taught to:  explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object  identify the effects of air resistance, water resistance and friction, that act between moving surfaces  recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.





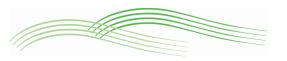


findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations  dentifying scientific evidence that has been used to support or refute ideas or arguments.	changes of state are reversible changes  explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
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Science Years 5 and 6					
Working Scientifically	Living things and their habitats	Animals, inc Humans	Evolution & Inheritance	Light	Electricity
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:  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	Pupils should be taught to:  describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals  give reasons for classifying plants and animals based on specific characteristics.	Pupils should be taught to:  identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood  recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function  describe the ways in which nutrients and water are transported within animals, including humans.	Pupils should be taught to:  recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago  recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents  identify how animals and plants are adapted to suit their environment in	Pupils should be taught to:  recognise that light appears to travel in straight lines  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  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	Pupils should be taught to:  associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit  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







when appropriate  recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs		different ways and that adaptation may lead to evolution.	use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	switches  use recognised symbols when representing a simple circuit in a diagram.
<ul> <li>using test results to make predictions to set up further comparative and fair tests</li> </ul>				
<ul> <li>reporting and presenting 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</li> </ul>				
<ul> <li>identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>				





