



## Science Progression of Knowledge and Skills – Year 5

	Working Scientifically	Knowledge	Vocabulary
Year 5	Living things and their habitats	Living things and their habitats	Biology
	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> <li>observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences.</li> <li>They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs.</li> <li>They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.</li> <li>They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall.</li> </ul>	<ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>Describe the life process of reproduction in some plants and animals.</li> <li>Observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment.</li> <li></li> </ul>	Life cycle, amphibian, reptile, reproduction, seeds, stem and root cuttings, tubers, bulb, reproduce, grow, sexual, asexual, mammal, insect, bird
	Animals including humans	Animals including humans	Biology
	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> <li>Researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.</li> <li>Pupils should draw a timeline to indicate stages in the growth and development of humans.</li> </ul>	<ul style="list-style-type: none"> <li>Describe the changes as humans develop to old age.</li> </ul>	Growth, development, puberty, gestation
	Properties and changes of materials	Properties and changes of materials	Chemistry
	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> <li>Carrying out tests to answer questions, for example, ‘Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?’</li> <li>They might compare materials in order to make a switch in a circuit. They could observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes.</li> <li>They might research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> </ul>	Solids, liquids, gases, state, matter, Properties Transparency, conductivity, thermal, magnetic, dissolve, solution, mixture, separated, evaporation, reversible, irreversible





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<ul style="list-style-type: none"> <li>• They might research how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton.</li> </ul>	<ul style="list-style-type: none"> <li>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>• Demonstrate that dissolving, mixing and 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.</li> </ul>	
<b>Earth and Space</b>	<b>Earth and Space</b>	<b>Physics</b>
<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> <li>• Comparing the time of day at different places on the Earth through internet links and direct communication.</li> <li>• Creating simple models of the solar system.</li> <li>• Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day.</li> <li>• Finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.</li> <li>• Research about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</li> <li>• Describe the movement of the Moon relative to the Earth.</li> <li>• Describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>• Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<p>Axis ,spherical, clockwise, anti-clockwise, rotation, gravity, planet, dwarf planet, moon, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune</p>
<b>Forces and Magnets</b>	<b>Forces and Magnets</b>	<b>Physics</b>
<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> <li>• exploring falling paper cones or cup-cake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective.</li> <li>• They might explore resistance in water by making and testing boats of different shapes.</li> <li>• They might design and make products that use levers, pulleys, gears and/or springs and explore their effects.</li> <li>• Research how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.</li> </ul>	<ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</li> <li>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>	<p>Air resistance, water resistance, friction, mechanism, lever, pulley/gear, force, slow, fast</p>





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