





Coverage of non-statutory guidance and working scientifically

Year 5

	<u>Tick as appropriate</u>		<u>Activities we currently do</u>
<p><u>Living things and their habitats</u> Pupils should study and raise questions about their local environment throughout the year. They should 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. They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. Pupils might work scientifically by: 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. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. 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.</p>	Observing over time		<ul style="list-style-type: none"> - classify animal classifications - Researched the life habits of a range of animals - Investigate life cycles of a range of animals - Comparisons of animal groups through research - pupils create own investigation to Investigate links between life cycle of mammals - research animal behaviourist David Attenborough - identifying parts of a flowering plant – bring in plants to observe - Pupils create their own plant based investigation testing growing conditions using cress - Create films explaining pollination - ‘The Big Grow’ investigation – growing peas, spinach and cress
	Identifying and classifying		
	Pattern seeking		
	Comparative and fair testing		
	Research using secondary resources		

Animals, including humans

Pupils should **draw a timeline** to indicate stages in the growth and development of humans. They should **learn about** the changes experienced in puberty.

Pupils could work scientifically by **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.

Observing over time

- Summarising human life cycle – showing timeline and growth differences
- Investigation on gestation periods of mammals

Identifying and classifying








Pattern seeking






Comparative and fair testing

Research using secondary resources

<p>Properties and changes of materials</p> <p>Pupils should build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials, including relating these to what they learnt about magnetism in year 3 and about electricity in year 4. They should explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes. Pupils should explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda. They should find out about how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton.</p> <p>Note: Pupils are not required to make quantitative measurements about conductivity and insulation at this stage. It is sufficient for them to observe that some conductors will produce a brighter bulb in a circuit than others and that some materials will feel hotter than others when a heat source is placed against them. Safety guidelines should be followed when burning materials.</p> <p>Pupils might work scientifically by: 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?' 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. 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.</p>	Observing over time		<ul style="list-style-type: none"> - Investigate properties of materials - Separating materials using equipment (sieves and funnels)
	Identifying and classifying		
	Pattern seeking		
	Comparative and fair testing		
	Research using secondary resources		

<p>Earth and Space</p> <p>Pupils should be introduced to a model of the Sun and Earth that enables them to explain day and night. Pupils should learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006). They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones). Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.</p> <p>Pupils should find out 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.</p> <p>Pupils might work scientifically by: comparing the time of day at different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.</p>	Observing over time		<ul style="list-style-type: none"> - Video created describing orbit of the planets - Ordering of Solar system - Investigating lunar and solar eclipses - Research distances between planets and other planet facts relating to size, orbits etc.
	Identifying and classifying		
	Pattern seeking		
	Comparative and fair testing		
	Research using secondary resources		

<p>Forces</p> <p>Pupils should explore falling objects and raise questions about the effects of air resistance. They should explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. They should experience forces that make things begin to move, get faster or slow down. Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel. Pupils should explore the effects of levers, pulleys and simple machines on movement. Pupils might find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation. Pupils might work scientifically by: 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. They might explore resistance in water by making and testing boats of different shapes. They might design and make products that use levers, pulleys, gears and/or springs and explore their effects.</p>	Observing over time		<ul style="list-style-type: none"> - Explanation of gravity - Research Aristotle and Galileo and their theories on gravity - Experiment on amount of friction on a range of surfaces - Test air resistance and surface using paper helicopters (use parachute outside as well) - Test plasticine in water to investigate water resistance - Explanation of pulleys, levers and gears using equipment and testing best ways to operate.
	Identifying and classifying		
	Pattern seeking		
	Comparative and fair testing		
	Research using secondary resources		