

Below outlines the learning focus for each term

Term	Learning Focus		Conceptual Development
	Knowledge	Skills	
Autumn 1	<p>Forces Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>To experience forces that make things begin to move, get faster or slow down.</p> <p>Find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.</p>	<p>To explore falling paper cones or cup-cake cases, and designing</p> <p>Explore falling objects and raise questions about the effects of air resistance.</p> <p>To make a variety of parachutes and carrying out fair tests to determine which designs are the most effective.</p> <p>Explore resistance in water by making and testing boats of different shapes.</p> <p>Design and make products that use levers, pulleys, gears and/or springs and explore their effects.</p> <p>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</p>	<p>Build upon Comparing how things move on different surfaces – Year 3</p> <p>Prepare for – <i>To understand forces arising from the interaction between two objects</i></p> <p><i>Use force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces</i></p> <p><i>Forces are associated with -deforming objects -- stretching and squashing – eg springs; -with pushing things out of the way; resistance to motion of air and water</i></p> <p><i>Learn that forces are measured in newtons</i> KS3</p>
Autumn 2	<p>Living things and their habitats To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>To describe the life process of reproduction in some plants and animals.</p> <p>To find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals</p> <p>To study and raise questions about their local environment throughout the year.</p>	<p>To observe and compare 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)</p> <p>To asking pertinent questions and suggesting reasons for similarities and differences.</p> <p>To grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs.</p> <p>To observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals</p>	<p>Build upon: To recognise that living things (including those in the locality) can be grouped in a variety of ways</p> <p>To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment – Year 4</p> <p>Prepare for: Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and</p>

	<p>To find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall.</p> <p>.</p>	reproduce and grow	animals – Year 6
Spring 1	<p>Properties and changes of materials 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</p> <p>To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>To demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>To 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.</p> <p>To 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>To explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes.</p> <p>To explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda.</p> <p>Carry 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?’</p> <p>Compare materials in order to make a switch in a circuit.</p> <p>Observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes.</p> <p>Research and discuss how chemical changes have an impact on our lives, for example, cooking</p> <p>Discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.</p>	<p>Build upon: 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.</p> <p>Prepare for: <i>Learn about Physical changes including -</i></p> <ul style="list-style-type: none"> • <i>conservation of material and of mass</i> • <i>reversibility in melting, freezing, evaporation, sublimation, condensation, dissolving</i> • <i>similarities and differences, including density differences, between solids, liquids and gases</i> • <i>Brownian motion in gases</i> • <i>diffusion in liquids and gases driven by differences in concentration</i> • <i>the difference between chemical and physical changes.</i> <p>KS3</p>
	<p>Earth and space 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</p>	<p>Comparing the time of day at different places on the Earth through internet links and direct communication</p>	<p>Build upon: Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p>

<p>Summer 1</p>	<p>Describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p>To be introduced to a model of the Sun and Earth that enables them to explain day and night.</p> <p>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).</p> <p>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).</p> <p><i>Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.</i></p> <p>To 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>Creating simple models of the solar system</p> <p>Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day</p> <p>Finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.</p>	<p>To recognise that shadows are formed when the light from a light source is blocked by a solid object - Year 3</p> <p>Prepare for: <i>gravity force,</i> <i>weight = mass x gravitational field strength (g), on Earth g=10 N/kg, different on other planets and stars;</i> <i>gravity forces between Earth and Moon, and between Earth and Sun (qualitative only)</i> <i>Our Sun as a star, other stars in our galaxy, other galaxies</i> <i>The seasons and the Earth's tilt, day length at different times of year, in different hemispheres</i> <i>the light year as a unit of astronomical distance</i></p>
<p>Summer 2</p>	<p>Animals, including humans</p> <p>Describe the changes as humans develop to old age. Draw a timeline to indicate stages in the growth and development of humans. Learn about the changes experienced in puberty.</p>	<p>work scientifically by researching the gestation periods of other animals and comparing them with humans</p> <p>finding out and recording the length and mass of a baby as it grows</p>	<p>Build upon: Notice that animals, including humans, have offspring which grow into adults – Year 2</p> <p>Prepare for : <i>To recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function</i></p> <p><i>To learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body – Year 6</i></p>