

Year 4 Curriculum

<u>Autumn</u>		<u>Spring</u>		<u>Summer</u>	
States of matter	Sound	Electricity	Living things and their habitats	Animals Including Humans	
Seasonal Changes					
Science Objectives	Key knowledge	Core Vocabulary	POP tasks	Links to Curriculum Drivers	Resources
<p><u>Throughout the year</u>  <b>Working Scientifically:</b>            ~ Asking relevant questions            ~ Set up simple practical enquires            ~make systematic observations and take accurate measurements            ~Gather, record, classify, and present data            ~Record findings using scientific language, drawings, diagrams etc.            ~ Report on findings from enquiries, including oral and written explanations            ~ Use results to draw simple conclusions, make predictions and suggest improvements            ~ Identify differences, similarities or changes related to scientific ideas.</p>		<p><b>LKS2:</b>            Research – relevant questions, scientific enquiry            comparative and fair test, systematic, careful observation, accurate measurements            Equipment – thermometer, data logger            Data – gather, record, classify, present            Record – drawings, labelled diagrams, keys, bar charts, tables            Oral and written explanations            Conclusion, predications, differences, similarities, changes, evidence, improve, secondary sources, guides, keys, construct, interpret.</p>			

<p><b>Autumn 1</b>  <b>States of matter</b>  Year 2:  ~ Identify and compare suitability of everyday material  ~ Find out how shapes of solids can be changed</p> <p><b>Year 4</b>  ~ <b>Compare and group materials based on solid, liquid, gas</b>  ~ <b>Observe that some materials change state when heated or cooled</b>  ~ <b>Identify the part played by evaporation and condensation in the water cycle</b></p>	<p>A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid.</p> <p>Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling.</p> <p>Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc.</p>	<p>object, material, hard, soft, stretchy, shiny, dull, rough, plastic, wood, metal, glass, paper, brick, fabric, stone, water, smooth, bendy, not bendy, waterproof, not waterproof, absorbent, not absorbent, transparent, opaque suitability, properties, squash, bend, twist, stretch, flexible</p> <p><b>Year 4</b>  <b>States of matter, solids, liquids, gases, water vapour, melt, freeze, evaporate, condense, precipitation</b></p>	<p><b>Basic:</b>  Observe and describe the typical properties of solids, liquids and gases.  <b>Advancing:</b>  Compare and contrast solids, liquids and gases.  <b>Deep:</b> True or false?  Solids keep their shape unless they are altered by a force.</p>	<p><b>Possibilities – Scientist</b></p>	
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	This is known as precipitation. This is the water cycle.				
<b>Autumn 2</b> <b>Sound</b> ~ Identify how sounds are made ~ Recognise vibrations from sounds travel ~ find patterns about pitch ~ Find patterns about volume and strength of vibration	<p>A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.</p> <p>The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively.</p> <p>Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.</p>	<b>Vibration, sounds wave, volume, amplitude, pitch, ear, particles, distance, soundproof, absorb sound, vacuum, ear drum</b>	<b>Basic:</b> Draw a labelled diagram that shows how vibrations travel through a medium to the ear. <b>Advancing:</b> Compare and contrast the effectiveness of different mediums in transmitting sounds <b>Deep:</b> Suggest reasons why dolphins and whales communicate over long distances.	<b>Possibilities</b> - <b>Musician</b>	
<b>Spring 1</b> <b>Electricity</b> ~ Identify appliances that run on electricity	Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the	<b>Electricity, generate, renewable, non-renewable, appliances, battery, circuit, electrons</b>	<b>Basic:</b> Observe and record how different materials act as	<b>Possibilities</b> - <b>Electrician</b>	

<p>~ <b>Construct a simple electrical circuit</b>  ~<b>Identify whether a lamp will light in a circuit</b>  ~ <b>recognise a switch opens and closes a circuit</b>  ~<b>Recognise some common conductors and insulators</b></p>	<p>component will not work. A switch can be added to the circuit to turn the component on and off.</p> <p>Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity.</p>		<p>conductors and insulators of electricity.  <b>Advancing:</b> Categorise materials on the basis of their conductivity.  <b>Deep:</b> True or false? Everything on Earth either conduct electricity, including humans.</p>		
<p><b>Spring 2</b>  <b>Living things and their habitats</b>  <b>Year 2</b>  ~ Explore and compare living, dead and things that have never been alive.  ~ Describe how habitats provide basic needs  ~ Identify and name habitats  ~ Describe how animals obtain food – food chain.  <b>Year 4</b>  ~ <b>Recognise that living things can be grouped in a variety of ways</b>  ~ <b>Explore and use classification key to group, identify and</b></p>	<p>Living things can be grouped (classified) in different ways according to their features. Classification keys can be used to identify and name living things.</p> <p>Living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). These environments also change with the seasons; different living things can</p>	<p>living, dead, never living, life processes – move, breath, sense, grow, make babies, waste, energy, food chain, food sources, habitat, microhabitat, depend, survive.  <b>Year 4: Organism, variation, classification, vertebrates, invertebrates, mammal, amphibian, bird, reptile, endangered, extinct, conservation, environment, habitat, key</b></p>	<p><b>Basic:</b> Describe how a change to an environment is a danger to specific habitats.  <b>Advancing:</b> Compare changes in two or more habitats and categorise</p>	<p><b>Community – Local environment</b></p>	

<p><b>name living things in their environment</b> ~ Recognise that environments can change.</p>	<p>be found in a habitat at different times of the year.</p>		<p>the effects of the changes. <b>Deep:</b> Explain the concept of conservation and how groups are trying to preserve habitats.</p>	
<p><b>Summer 1</b> <b>Animals Including Humans</b> <b>Year 3</b> ~Identify that animals need the right types and amount of nutrition and cannot make own nutrition ~ Identify that animals have skeletons and muscles and how they are used. <b>Year 4</b> ~ <b>Describe the simple functions of the digestive system</b> ~ <b>Identify teeth and their functions</b> ~ <b>Construct and interpret food chains</b></p>	<p>Food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added.</p> <p>The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet.</p> <p>Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).</p>	<p>healthy, nutrients, energy, saturated fats, unsaturated fats, vertebrate, invertebrate, muscles, tendons, joints, human skeleton – bones carbohydrates, protein, fibre, fats, vitamins, minerals, water <b>Year 4: Digest, oesophagus, stomach, small intestine, large intestine, rectum, herbivore, carnivore, omnivore, producer, predator, prey</b></p>	<p><b>Basic:</b> Describe the functions of the human digestive system. <b>Advancing:</b> Relate the human digestive system to the way humans get nutrition. <b>Deep:</b> Suggest reasons why humans may suffer from digestion problems.</p>	<p><b>Wellbeing – Keeping healthy</b></p>

	Living things can be classified as producers, predators and prey according to their place in the food chain.			
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