

Science Curriculum Map – Year 4



Year 1	Main Objectives of Unit:	Key Learning:	Working Scientifically Skill Focus:	By the end of this topic, the children will know this vocabulary:
Autumn 1	<p><u>Electricity – Circuits and Conductors:</u></p> <ul style="list-style-type: none"> • Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors 	<p><u>Electricity – Circuits and Conductors:</u></p> <ul style="list-style-type: none"> • 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 component will not work. A switch can be added to the circuit to turn the component on and off. • 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><u>Electricity – Circuits and Conductors:</u></p> <ul style="list-style-type: none"> • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. 	<p><u>Electricity – Circuits and Conductors:</u> Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol</p>

	and insulators, and associate metals with being good conductors.			
Autumn 2	<p><u>Sound – Changing Sound:</u></p> <ul style="list-style-type: none"> • Identify how sounds are made, associating some of them with something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear. • Find patterns between the pitch of a sound and features of the object that produced it. • Find patterns between the volume of a sound and the strength of the vibrations that produced it. • Recognise that sounds get fainter as the distance from the sound source increases. 	<p><u>Sound – Changing Sound:</u></p> <ul style="list-style-type: none"> • 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. • 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. • Pitch is the highness or 	<p><u>Sound – Changing Sound:</u></p> <ul style="list-style-type: none"> • Asking relevant questions and using different types of scientific enquiries to answer them. • Identifying differences, similarities or changes related to simple scientific ideas and processes. 	<p><u>Sound – Changing Sound:</u></p> <p>Sound, source, vibrate, vibration, travel, pitch, high, low, volume, faint, loud, insulation.</p>

		<p>lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.</p>		
Spring 1	<p><u>Animals including humans - Teeth and Digestion:</u></p> <ul style="list-style-type: none"> Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. 	<p><u>Animals including humans - Teeth and Digestion:</u></p> <ul style="list-style-type: none"> 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. 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 	<p><u>Animals including humans - Teeth and Digestion:</u></p> <ul style="list-style-type: none"> Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 	<p><u>Animals including humans - Teeth and Digestion:</u></p> <p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars</p>

		<p>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> <ul style="list-style-type: none"> • Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing). 		
Spring 2	<p><u>Animals including humans- Food chains</u></p> <ul style="list-style-type: none"> • Construct and interpret a variety of food chains, identifying producers, predators and prey. 	<p><u>Animals including humans- Food chains</u></p> <ul style="list-style-type: none"> • Living things can be classified as producers, predators and prey according to their place in the food chain. 	<p><u>Animals including humans- Food chains</u></p>	<p><u>Animals including humans- Food chains</u></p> <p>Herbivore, carnivore, omnivore, producer, predator, prey, food chain</p>
Summer 1	<p><u>States of Matter:</u></p> <ul style="list-style-type: none"> • Compare and group materials together, according to whether they are solids, liquids or gases. • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in 	<p><u>States of Matter:</u></p> <ul style="list-style-type: none"> • 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 	<p><u>States of Matter:</u></p> <ul style="list-style-type: none"> • Set 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. 	<p><u>States of Matter:</u></p> <p>Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p>

	<p>degrees Celsius (°C).</p> <ul style="list-style-type: none">• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	<p>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> <ul style="list-style-type: none">• 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		
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		<p>change back from a gas to a liquid caused by cooling.</p> <ul style="list-style-type: none"> • 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. This is known as precipitation. This is the water cycle. 		
<p>Summer 2</p>	<p><u>Living things and their habitats – Living in Environments:</u></p> <ul style="list-style-type: none"> • Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. • Recognise that environments can 	<p><u>Living things and their habitats – Living in Environments:</u></p> <ul style="list-style-type: none"> • Living things can be grouped (classified) in different ways according to their features. Classification keys can be used to identify and name living things. • Living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may 	<p><u>Living things and their habitats – Living in Environments:</u></p> <ul style="list-style-type: none"> • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. 	<p><u>Living things and their habitats – Living in Environments:</u> Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p>

	<p>change and that this can sometimes pose dangers to living things.</p>	<p>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 be found in a habitat at different times of the year.</p>		
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