

Bishop Aldhelm's CE Primary School - Science

Our school values in science are developed by:

We show love by fostering a joy of discovery.

We show courage by being brave, challenging thinking, asking questions and investigating new ideas. We show courage knowing that we won't always find the answer.

We show unity by working collaboratively to discover more.

We show inspiration by not giving up and thinking creatively to seek answers.

Our curriculum

Our science curriculum is designed to foster a love of discovery in our children, with them being able to challenge what they already know, have a deep respect for the natural world and know that they can make a difference to the future. Knowledge and skills are progressed over time to prepare children not only for their next stage of education but also to equip them with the foundations to be the scientists of the future. Science topics are planned with practical hands-on experiences that encourage curiosity and questioning. We want children to secure their scientific knowledge and vocabulary through stimulating and challenging experiences that promote a love of learning.

Our curriculum is based on key concepts that thread through our science curriculum from pre-school to Year 6. This helps build on prior learning and support pupils making strong links in their knowledge. Throughout each of the topics, children develop and progress their knowledge of how to work scientifically. The concept map on the right shows how our curriculum has been designed.

Importance to Bishop Aldhelm's children and local links:

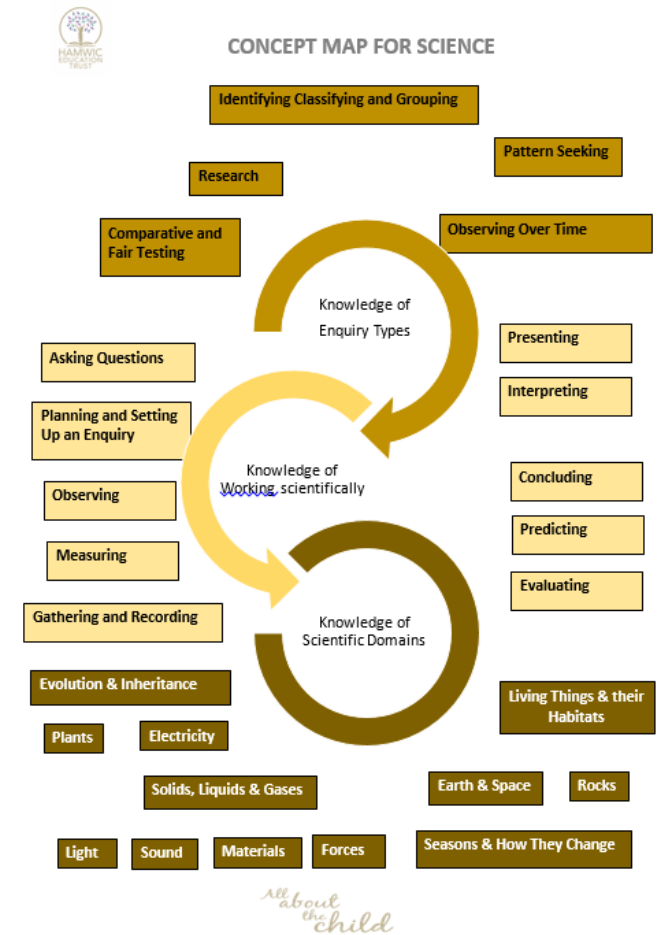
At Bishop Aldhelm's we are fortunate to live next to a range of habitats including heathland, beaches, forests and cliffs. We are one of the only schools in the country that has a SSSI (site special scientific interest) on our grounds. This means that children can experience a range of habitats and locations first-hand through our science teaching. In Poole, we have a number of factories including Sunseeker, Lush and Ryvita. Explicit links are made in relevant topics to these industries as well as visits/visitors where possible to show how their learning is relevant in real life.

We want children to leave Bishop Aldhelm's being able to:

- feel confident that they can challenge ideas
- pose questions and come up with ways that they can be answered
- be scientifically literate- being able to use the language of science and apply it to contexts around them
- take their knowledge and values to inform and influence others.
- use their previously learnt knowledge to continue to deepen their understanding of scientific concepts
- believe that they are scientists!

How all children are included in science:

- Pre-teaching is used to explain key vocabulary and concepts prior to the lesson.
- Partner and group work is encouraged to develop children's explanations.
- Alternative ways of recording/scaffolds are used for children so that they can demonstrate their scientific knowledge in accessible ways.
- Where possible, practical demonstrations, equipment or videos are used to explain concepts to children.
- Investigates are used as often as possible to make learning relevant.



Science Knowledge Progression Curriculum

Year 3					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Animals including Humans	Forces and Magnets	Light and Shadow	Plants	Rocks and Soils	
Seasonal Change in relation to animals, plants and habitats (observed and discussed throughout the year)					

Year 4					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Electricity	Living things and their habitats	States of Matter	Animals including Humans		Sound
Seasonal Change in relation to animals, plants and habitats (observed and discussed throughout the year)					

		Year 3	Year 4
PLANTS	Objectives	<ul style="list-style-type: none">• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers• explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant• investigate the way in which water is transported within plants• explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	
	Links to previous learning	<p>Objectives:</p> <p><i>Y2 - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</i></p> <p><i>Y2 -Observe and describe how seeds and bulbs grow into mature plants.</i></p> <p>Knowledge:</p> <p><i>Y2 - The roots absorb water and nutrients from the soil and anchor the plant in place.</i></p> <p><i>Y2 - Different plants require different conditions for germination and growth.</i></p> <p><i>Y2 - The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food.</i></p>	
	Knowledge	<p>Key vocabulary Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal</p> <hr/> <p>Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. Some plants produce flowers which enable the plant to reproduce.</p>	
	Type s of Enquiry	<p>Observing over time -</p> <p>Research from secondary sources via teacher presenting information to the children</p>	
	Working Scientifically (skills and equipment needed)	<p>Observing over time by completing seed diary</p> <p>Asking questions</p> <p>Identifying, grouping and classifying seeds, including by how they are dispersed</p> <p>Comparative/fair testing –</p> <p>Research from secondary sources - via teacher presenting information to the children and some researching themselves</p> <p>Pattern seeking –</p> <p>Problem solving -</p>	
	What/Implementations	<p>Learn about the structure of plants</p> <p>Observe flowers carefully to identify the pollen</p>	

		<p>Observe plants and flowers for scientific drawing</p> <p>Learnt about different types of seed dispersal</p> <p>Classify seeds in a range of ways including by how they are dispersed</p> <p>Plant dissection</p> <p>Seed dispersal - 4 ways, link to Drama</p> <p>Create a new species of flowering plant</p> <p>Home Learning:</p> <p>Plant a seed and observe, keeping a diary.</p>	
	<p>Awe and wonder</p> <p>(if WS is not covered enough)</p>		
		Year 3	Year 4
ANIMALS INCLUDING HUMANS	Objectives	<ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify that humans and some other animals have skeletons and muscles for support, protection and movement. 	<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 construct and interpret a variety of food chains, identifying producers, predators and prey.
	Links to previous learning	<p>Objectives:</p> <p>Y2 - identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Y2 - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Recap on Year 1 topic of animals.</p> <p>Knowledge:</p> <p>Y2 – Humans have keys parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.</p> <p>NB. Although we often use our fingers and hands to feel objects the children should understand that we can feel with many parts of our body. Recap on Year 1 topic of animals.</p>	<p>Objectives:</p> <p>Y3 - identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>Y3 - identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Knowledge:</p> <p>Y3 – Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, water. A piece of food will often provide a range of nutrients.</p> <p>Humans and some other animals have skeletons and muscles which help them move and provide protection and support</p>
	Knowledge	<p>Key vocabulary:</p> <p>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, skeleton, bones, muscles, skull, ribs, spine, joints, dairy</p>	<p>Key vocabulary:</p> <p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain</p>

		<p>Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, and water. A piece of food will often provide a range of nutrients.</p> <p>Humans and some other animals have skeletons and muscles which help them move and provide protection and support</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. 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, molars and premolars for grinding (chewing).</p> <p>Living things can be classified as producers, predators and prey according to their place in the food chain.</p>
	Types of Enquiry	<p>Observation over time –</p> <p>Identifying, grouping and classifying –</p> <p>Research from secondary sources - via teacher presenting information to the children and some researching themselves</p> <p>Pattern seeking -</p>	<p>Observation over time –</p> <p>Identifying, grouping and classifying –</p> <p>Research from secondary sources –</p> <p>Pattern seeking -</p>
	Working Scientifically (skills and equipment needed)	<p>Comparative/fair testing –</p> <p>Observation over time –</p> <p>Identifying, grouping and classifying –</p> <p>Research from secondary sources - via teacher presenting information to the children and some researching themselves</p> <p>Pattern seeking –</p> <p>Problem solving -</p>	<p>Comparative/fair testing –</p> <p>Observation over time –</p> <p>Identifying, grouping and classifying –</p> <p>Research from secondary sources - via teacher presenting information to the children and some researching themselves</p> <p>Pattern seeking –</p> <p>Problem solving -</p>
	What/Implementation	<p>Classify food in a range of ways (link to DT)</p> <p>Use food labels to explore the nutritional content of a range of food items (link to DT)</p> <p>Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain?</p> <p>How much sugar is in soft drinks? (link to DT)</p> <p>Plan a daily diet contain a good balance of nutrients</p> <p>Explore the nutrients contained in fast food</p> <p>Design and create skeletons using knowledge of the functions of the skeleton</p> <p>Compare, contrast and classify skeletons of different animals</p>	<p>Research the function of the parts of the digestive system</p> <p>Create a model of the digestive system using household objects (digestive system experiment)</p> <p>Explore eating different types of food, to identify which teeth are being used for cutting, tearing and grinding (chewing)</p> <p>Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls</p> <p>Use food chains to identify producers, predators and prey within a habitat</p> <p>Food chain</p> <p>Humans teeth and digestive</p> <p>Digestive system experiment</p> <p>Teeth decay experiment – put egg shell in different drinks and observe effects (coke, water, milk etc)</p> <p>Tasting foods with different textures to identify which teeth are being used</p>
	Awe and wonder (if needed)		

		Year 3	Year 4
ROCKS	Objectives	<ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter. 	
	Links to previous learning	<i>No previous learning.</i>	
	Knowledge	<p>Key vocabulary: Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p> <hr/> <p>Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock piece and the amount of organic matter affect the property of the soil. Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.</p>	
	Types of Enquiry	Observing over time - Pattern seeking - Research from secondary sources via teacher presenting information to the children about animals and life cycles	
	Working Scientifically (skills and equipment needed)	Comparative/fair testing – Observation over time – Identifying, grouping and classifying – Research from secondary sources - via teacher presenting information to the children and some researching themselves Pattern seeking – Problem solving -	
	What/Implementation	<p>Observe rocks and fossils closely</p> <p>Classify rocks and fossils in a range of ways based on their appearance</p> <p>Devise a test to investigate the hardness of a range of rocks</p> <p>Devise a test to investigate how much water different rocks absorb</p> <p>Observe how rocks change over time e.g. gravestones or old building</p> <p>Observe soils closely</p> <p>Classify soils in a range of ways based on their appearance</p> <p>Investigate the makeup of different types of soil (investigation)</p> <p>Observe how soil can be separated through sedimentation</p> <p>Research the work of Mary Anning (fossils) – link to DanceLearn about the formation of fossils and why they are often found under the sea</p>	

		<div>Chocolate rocks?</div> <div>Mary Anning museum trip</div> <div>Trip to Lulworth (fossils)</div> <div>Exploring other rocks and fossils</div> <div>Soil Investigations</div>	
	Awe and wonder (if needed)		

		Year 3	Year 4
LIGHT	Objectives	<ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes (link to safety curriculum) recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change. 	
	Links to previous learning	<i>No previous learning.</i>	
	Knowledge	<p>Key vocabulary: Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</p> <hr/> <p>We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. The light from the sun can damage our eyes and therefore we should not look directly at the Sun and can protect our eyes by wearing sunglasses or sunhats in bright light. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface.</p>	
	Types of Enquiry	<p>Observing over time - the life cycles of frogs and caterpillars</p> <p>Pattern seeking - the life cycles of frogs and caterpillars</p> <p>Research from secondary sources via teacher presenting information to the children about animals and life cycles</p>	
	Working Scientifically (skills and equipment needed)	<p>Comparative/fair testing –</p> <p>Observation over time –</p> <p>Identifying, grouping and classifying –</p> <p>Research from secondary sources - via teacher presenting information to the children and some researching themselves</p> <p>Pattern seeking – shadow investigation?</p> <p>Problem solving -</p>	
	What/Implementation	<p>Learn about how different objects are more or less visible in different levels of lighting</p> <p>Explore how objects with different surfaces e.g. shiny vs matt are more or less visible</p> <p>Explore how shadows vary as the distance between a light source, an object or surface is changed</p> <p>Explore shiny/reflective surfaces</p> <p>Shadow investigation – moving the distance between light sources and objects to observe the change in shadow size (pattern seeking)</p>	

	Awe and wonder (if needed)		
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		Year 3	Year 4
FORCES AND MAGNETS	Objectives	<ul style="list-style-type: none">• compare how things move on different surfaces• notice that some forces need contact between two objects, but magnetic forces can act at a distance• observe how magnets attract or repel each other and attract some materials and not others• compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials• describe magnets as having two poles• know whether two magnets will attract or repel each other, depending on which poles are facing.	
	Links to previous learning	<i>No previous learning.</i>	
	Knowledge	<p>Key vocabulary: Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole</p> <hr/> <p>A force is a push or a pull. When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. A magnet attracts magnetic material. Iron and nickel and other materials containing these e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles e.g. a north and south, are brought together they will pull together – attract. For some forces to act there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts.</p>	
	Types of Enquiry	Observing over time - Pattern seeking - Research from secondary sources	
	Working Scientifically (skills and equipment needed)	Comparative/fair testing – testing magnet strength Observation over time – Identifying, grouping and classifying – Research from secondary sources - via teacher presenting information to the children and some researching themselves Pattern seeking – Problem solving -	
	What/Implementation	Explore what materials are attracted to a magnet Classify materials according to whether they are magnetic Explore the way that magnets behave in relation to each other Use a marked magnet to find the unmarked poles on other types of magnets Explore how magnets work at a distance e.g. through the table, in water, jumping paper clip up off	

		<div>the table</div> <div>Devise an investigation to test the strength of magnets</div> <div>Investigation to test magnet strength</div>	
	Awe and wonder (if needed)		

		Year 3	Year 4
LIVING THINGS AND THEIR HABITATS	Objectives		<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 change and that this can sometimes pose dangers to living things.
	Links to previous learning		<p>Objectives:</p> <p><i>Y1 - identify and name a variety of plants and animals in their habitats, including microhabitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food</i></p> <p><i>Y2 - explore and compare the differences between things that are living, dead, and things that have never been alive</i></p> <p><i>identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</i></p> <p>Knowledge:</p> <p><i>Y1 – Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect what plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.</i></p> <p><i>Y2 - All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (this is a simplification but appropriate for year 2 children). An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels).</i></p> <p><i>Animals and plants live in a habitat to which they are suited which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water.</i></p>
	Knowledge		<p>Key vocabulary</p> <p>Classification, classification keys, environment, habitat, human impact, migrate, hibernate.</p> <hr/> <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 be found in a habitat at different times of the year</p>
	Types of Enquiry		<p>Observing over time - the life cycles of frogs and caterpillars</p> <p>Pattern seeking - the life cycles of frogs and caterpillars</p> <p>Research from secondary sources via teacher presenting information to the children about animals and life cycles</p>

	Working Scientifically (skills and equipment needed)		<p>Comparative/fair testing – testing magnet strength</p> <p>Observation over time –</p> <p>Identifying, grouping and classifying –</p> <p>Research from secondary sources - via teacher presenting information to the children and some researching themselves</p> <p>Pattern seeking –</p> <p>Problem solving -</p>
	What/Implementation		<p>Learn about and classify animals in different habitats throughout the year (link to geography and climate)</p> <p>Compare and contrast the living things and why certain habitats suit certain animals</p> <p>Use classification keys to name and sort living things (animals)</p> <p>Create a simple identification key based on observable features</p> <p>Use fieldwork (heath, SSSI, pond) to explore human impact on the local environment e.g. litter, tree planting, heath fires</p> <p>Use secondary sources to find out about how environments may naturally change</p> <p>Use secondary sources to find out about human impact, both positive and negative, on environments</p> <p>Using classification key for living animals and plants.</p> <p>Fieldwork to explore human impact</p> <p>Create own classification key</p> <p>Researching about environment changing seasons - habitats</p> <p>Researching about human impacts on habitats- plastic/littering, deforestation (revisited through Beach walk and Carey Camp in the Summer Term)</p> <p>Boat trip around Poole to observe wildlife</p>
	Awe and wonder (if needed)		

		Year 3	Year 4
STATES OF MATTER	Objectives		<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 degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
	Links to previous learning		<i>No previous learning.</i>
	Knowledge		<p>Key vocabulary</p> <p>Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p> <hr/> <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. This is known as precipitation. This is the water cycle</p>
	Types of Enquiry		<p>Observing over time - the life cycles of frogs and caterpillars</p> <p>Pattern seeking - the life cycles of frogs and caterpillars</p> <p>Research from secondary sources via teacher presenting information to the children about animals and life cycles</p>
	Working Scientifically (skills and equipment needed)		<p>Comparative/fair testing – testing magnet strength</p> <p>Observation over time –</p> <p>Identifying, grouping and classifying –</p> <p>Research from secondary sources - via teacher presenting information to the children and some researching themselves</p> <p>Pattern seeking –</p> <p>Problem solving -</p>

	What/Implementation		<p>Observe closely and classify a range of solids</p> <p>Observe closely and classify a range of liquids</p> <p>Observe making gases visible e.g. squeezing sponges underwater to see bubbles, and showing their effect e.g. using straws to blow objects, trees moving in the wind</p> <p>Classify materials according to whether they are solids, liquids and gases</p> <p>Observe a range of materials melting e.g. chocolate, butter</p> <p>Investigate how to melt ice more quickly</p> <p>Observe the changes when making rocky road cakes or ice-cream</p> <p>Investigating melting point of different materials e.g. ice, margarine, butter and chocolate</p> <p>Explore freezing different liquids e.g. tomato ketchup, oil, shampoo</p> <p>Use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration)</p> <p>Observe water evaporating and condensing e.g. on cups of icy water and hot water – children set up investigations to explore changing the rate of evaporation e.g. washing, puddles, handprints on paper towels, liquids in containers</p> <p>Use secondary sources to find out about the water cycle (Water Wise visit – where does water come from?)</p> <p>Theory of S L G</p> <p>Observing SLG + classify</p> <p>Investigation melting points</p> <p>Investigation evaporation</p> <p>DT topic Making Biscuits – talk about the effects of heat on ingredients such as butter</p> <p>LUSH visit to make bath bombs</p> <p>Water Wise (Wessex Water) visit</p> <p><u>Home Learning:</u></p> <p>Observe the changes when making rocky road cakes or ice-cream</p> <p>Investigating melting point of different materials e.g. ice, margarine, butter and chocolate</p> <p>Explore freezing different liquids e.g. tomato ketchup, oil, shampoo</p>
	Awe and wonder (if needed)		

		Year 3	Year 4
SOUND	Objectives		<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.
	Links to previous learning		<i>No previous learning.</i>
	Knowledge		Key Vocabulary Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation <hr/> A sound source 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 lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.
	Types of Enquiry		
	Working Scientifically (skills and equipment needed)		Comparative/fair testing – Observation over time – Identifying, grouping and classifying – Research from secondary sources - via teacher presenting information to the children and some researching themselves Pattern seeking – Problem solving -
	What/Implementation		Classify sound sources – what is sound? Different types of sound (high/low pitch etc) Explore making sounds with a range of objects such as musical instruments and other household objects Explore how string telephones or ear gongs work Explore using objects that change in feature to change pitch and volume such as length of guitar string, bottles of water or tuning forks Measure sounds over different distances – how far away can we go to still hear? What sounds are easier to hear from far away? How does sound travel? What blocks sound?

			<div>Measure sounds through different insulation materials (tuning forks in water experiment, observe effects of putting materials over the tuning forks in terms of insulating sound)</div> <div>Look at the workings of the ear and the names and jobs of the different parts</div> <div>Paper cups - making string telephones</div>
	Awe and wonder (if needed)		

		Year 3	Year 4
ELECTRICITY	Objectives		<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 and insulators, and associate metals with being good conductors.
	Links to previous learning		<i>No previous learning.</i>
	Knowledge		Key Vocabulary 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 NB: Children in year 4 do not ned to use standard symbols as this is taught in year 6 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
	Types of Enquiry		
	Working Scientifically (skills and equipment needed)		Comparative/fair testing – Observation over time – Identifying, grouping and classifying – Research from secondary sources - via teacher presenting information to the children and some researching themselves Pattern seeking – Problem solving -
	What/Implementation		Construct a range of circuits Explore which materials can be used instead of wires to make a circuit Classify the materials that were suitable/not suitable as conductors of electricity Explore how to connect a range of different switches and investigate how they function in different ways

			<div>Choose switches to add to circuits to solve particular problems such as which switch would be best for different scenarios</div> <div>Making circuits</div> <div>N.B. Children should be given one component at a time to add to circuits.</div>
	Awe and wonder (if needed)		