



## Scientific Knowledge

### EYFS

#### Understand the world educational programme:

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

#### Early Learning Goal: The Natural World - by the end of Reception we aim for pupils to:

Explore the natural world around them, making observations and drawing pictures of animals and plants.

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.

Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Year 1	Year 2	Year 3
<p>Pupils should be taught to:</p> <p><b>Plants</b></p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p><b>Animals, including humans</b></p> <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).</p> <p>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><b>Everyday materials</b></p> <p>distinguish between an object and the material from which it is made.</p>	<p>Pupils should be taught to:</p> <p><b>Living things and their habitats</b></p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>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.</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>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.</p> <p><b>Plants</b></p> <p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p><b>Animals, including humans</b></p> <p>Notice that animals, including humans, have offspring which grow into adults.</p>	<p>Pupils should be taught to:</p> <p><b>Plants</b></p> <p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>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.</p> <p>Investigate the way in which water is transported within plants.</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p><b>Animals, including humans</b></p> <p>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>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p><b>Rocks</b></p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>

<p>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p><b>Seasonal changes</b></p> <p>Observe changes across the 4 seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>	<p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p><b>Uses of everyday materials</b></p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Recognise that soils are made from rocks and organic matter.</p> <p><b>Light</b></p> <p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>Find patterns in the way that the size of shadows change.</p> <p><b>Forces and magnets</b></p> <p>Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>Describe magnets as having 2 poles.</p> <p>Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.</p>
Year 4	Year 5	Year 6
<p>Pupils should be taught to:</p> <p><b>Living things and their habitats</b></p> <p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p><b>Animals, including humans</b></p> <p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p>	<p>Pupils should be taught to:</p> <p><b>Living things and their habitats</b></p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p> <p><b>Animals, including humans</b></p> <p>Describe the changes as humans develop to old age.</p> <p><b>Properties and changes of materials</b></p> <p>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>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p>	<p>Pupils should be taught to:</p> <p><b>Living things and their habitats</b></p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p> <p><b>Animals including humans</b></p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p><b>Evolution and inheritance</b></p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p>

<p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p><b>States of matter:</b></p> <p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>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)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p><b>Sound</b></p> <p>Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p> <p><b>Electricity</b></p> <p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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><b>Earth and space</b></p> <p>Describe the movement of the Earth and other planets relative to the sun in the solar system.</p> <p>Describe the movement of the moon relative to the Earth.</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><b>Forces</b></p> <p>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>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p><b>Light</b></p> <p>Recognise that light appears to travel in straight lines.</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p><b>Electricity</b></p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
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## BIOLOGY

Year	Life Processes	Structure and Function of Plants	Structure and Function of Animals and humans	Classification	Life Cycles	Interdependence
<b>EYFS</b> By the end of Rec we aim for pupils to:	Begin to understand the need to respect and care for the natural environment and all living things.	Plant seeds and care for growing plants.			<p>Know that a seed will grow into a plant when planted into soil, watered and placed in sunlight. <i>Understand the key features of the life cycle of a plant.</i></p> <p>With the support of adults know how to care for animals (food, drink, home, care). Know that animals grow when cared for. <i>Understand the key features of the life cycle of an animal.</i></p> <p>Observe and describe the changes that happen as natural materials decay. <i>Show and explain the concepts of growth, change and decay with natural materials.</i></p>	
<b>1</b>	To know: Different animals need different types of food	<p>To know: Flowering plants have different parts – roots, stems, leaves, flowers, fruit, seeds <i>Identify and name basic (visible) parts of a variety of contrasting common flowering plants. For example: leaves; flowers; petals; roots; stem; trunk; branches; fruit.</i></p> <p>How to identify and describe the basic structure of a variety</p>	<p>To know: Animals, including humans, have different body parts ... and these have special functions to help them survive (including senses) <i>Can identify and name at least ten basic parts of the human body. For example: head; neck; arm; elbow; hands; legs; knees; feet; face; ears; eyes; nose; mouth; teeth.</i></p>	<p>To know: Plants are grouped into common wild and garden plants, deciduous and evergreen trees. Animals are grouped into fish, amphibians, reptiles, birds, mammals. How to Identify and name a variety of common wild and</p>		

		<p>of common flowering plants, including trees</p> <p><i>Describe in simple terms the structure of a variety of common flowering plants from the locality. For example: pansy; dandelion; daffodil; cherry tree; horse chestnut tree.</i></p>	<p>How to identify and name basic body parts and say which part is associated with which sense</p> <p><i>Can say which part of the body is associated with each of the five sense including: eyes - seeing; ears - hearing; skin - touching; nose - smelling; mouth - tasting.</i></p>	<p>garden plants. Including deciduous and evergreen trees.</p> <p><i>Identify and name four to six examples of wild plants from the locality. For example: dandelion; nettle; daisy.</i></p> <p><i>Identify and name four to six examples of garden plants from the locality. For example: pansy; rose; geranium.</i></p> <p><i>Identify and name six to eight examples of deciduous and evergreen trees from the locality. For example: holly; pine; horse chestnut; oak.</i></p> <p>How to identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals.</p> <p><i>Can identify animals that are fish, amphibians, reptiles, birds and mammals.</i></p> <p><i>Can name:</i></p> <p><i>two to three common species of fish, for example salmon, clown fish and plaice</i></p> <p><i>two to three common species of amphibians, for example newt, frog and toad</i></p> <p><i>two to three common species of reptiles, for example snake, lizard and iguana</i></p> <p><i>Four to five common species of birds for example pigeon, eagle.</i></p>		
2	<p>To know:</p> <p>Describe and test how plants need water, light and warmth to survive.</p> <p><i>Recognise the differences, based on their observations, between a healthy and an unhealthy plant. Identify the needs of a plant for healthy survival: water; light; a suitable temperature.</i></p>	<p>To know:</p> <p>And describe how seeds and bulbs grow into mature plants</p> <p><i>Explain, based on previous observations, that different seeds and bulbs grow into different types of plant. For example: beans; peas; quick-growing seeds; a variety of plants that grow from bulbs.</i></p> <p><i>Describe how seeds and bulbs change as they grow over time to become mature plants.</i></p>		<p>To know:</p> <p>Animals and plants can be identified and grouped linked to habitat.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats</p>	<p>To know:</p> <p>Plants: seeds and bulbs grow into plants.</p> <p>Animals, including humans, reproduce offspring which grow into adults (<a href="#">PSHE link</a>)</p> <p><i>When asked, can say that humans have young, called babies, which grow into adults.</i></p> <p><i>Can name the young of at least two other animals, and explain</i></p>	<p>To know:</p> <p>Different plants and animals live in different habitats to which they are suited—by giving them food and shelter.</p> <p><i>Can identify at least three examples of living things in a suitable habitat, giving reasons for suitability based on need. For example: a salmon living in the</i></p>

<p>Describe how to care for a plant, identifying what a plant they have cared for needed to grow and stay / become healthy. Find out about and describe how animals need water, food and air to survive.</p> <p><i>Can describe the three basic needs for survival of animals, including humans (water, food and air). Can describe what would happen without the basic needs (death). Can identify two or more needs that affect the survival of some animals. For example: warmth; shelter; care from an adult; interaction with others of the same or different species.</i></p> <p>And describe how to stay healthy animals including humans need exercise, a balanced diet and hygiene (PSHE and PE link)</p> <p><i>Can describe the importance of daily physical exercise to humans, including children, that it raises heart rate, helps make us stronger by stretching and lifting, where and when they can exercise and can name at least three types of exercise.</i></p> <p><i>Can describe the importance of eating the right amount of different types of foods for humans. This includes describing a daily diet of: Plenty of fruit and vegetables (at least five portions a day) and name at least four</i></p> <p><i>Plenty of bread, rice, pasta and starchy foods and name at least four</i></p>	<p><i>Compare the growth of different plants from both seeds and bulbs.</i></p>			<p><i>that they grow into animals of the same kind.</i></p> <p><i>Can name at least one animal whose offspring may not look like the adult of the species when young. For example: caterpillar - butterfly / moth; tadpole - frog / toad.</i></p> <p>Explore and compare the differences between things that are living, dead and things that have never been alive</p> <p><i>Can compare and give reasons to explain the differences between things that are living, have once lived and have never lived, with reference to at least three different sets of examples: Can name three living things (anything that is currently alive, such as an animal or plant, including seeds, berries or fruits, as these have the capacity to grow and are therefore alive). Can name three things that have once lived, such as a dead plant or animal, an empty seed case, bark, an empty shell or a feather. Can name three things that have never lived (these can be naturally occurring, such as rock, air, water or manufactured such as metal or plastic).</i></p>	<p><i>river because it needs to be in water / can only breathe in water, and its food source is there; a woodlouse under a log as it is dark and damp and there are dead leaves there to eat; a rabbit in a burrow near a tree because the grass and plants to eat are nearby, and the ground is sheltered for a burrow.</i></p> <p><i>Can say why some habitats are unsuitable for an animals. For example: a worm cannot live in the Arctic Circle as there is no leaf litter for it to eat and it is too cold. Can give at least two examples of plants and animals depending on each other. For example: some birds eat worms of snails; butterflies lay their eggs on plants and the young (caterpillars) eat the leaves; woodpeckers live mainly on trees, where they can nest and find insects to eat.</i></p> <p>Animals get their food from plants and other animals and in turn are consumed by other animals using the idea of a simple food chain, and identify and name different sources of food.</p> <p><i>Can identify and name the foods of at least three animals they are familiar with. For example: rabbit - grass; fox - rabbit, mouse or squirrel.</i></p> <p><i>Can describe how at least three animals they are familiar with obtain food from plants and/or other animals. For example: a mouse picks berries with its paws and eats on its hind legs; a squirrel picks nuts with its front legs and eats on its hind legs; an owl spots a rabbit, squirrel or mouse from a tree or while flying, swoops down and grabs the</i></p>
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	<p><i>Eat some meat, fish, eggs, beans and other non-dairy proteins and name at least four</i></p> <p><i>Eat a small amount of food and drink high in fat and sugar, and name at least four.</i></p>					<p><i>animal with its strong, curved claws.</i></p> <p><i>Can use the idea of a simple food chain with three steps to link plants to animals and animals to other animals. For example: berries - mouse - fox.</i></p>
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Year	Life Processes	Structure and Function of Plants	Structure and Function of Animals and humans	Classification	Life Cycles	Interdependence
3	<p>To know:</p> <p>And explore how to stay healthy plants need light, water, nutrients and room to grow and how this varies from plant to plant. Animals cannot make their own food - they get nutrition from what they eat</p> <p>And identify that animals, including humans, need the right types and amount of nutrition (link to DT and healthy diet)</p> <p><i>Use at least three examples to explain that animals, including humans, cannot make their own food. For example, humans eat fruit and vegetables, frogs eat flies and cows eat grass. Children may point out that mammals produce food for their young. This is correct, but it is not a sustainable sole food source into adulthood.</i></p> <p><i>Can name at least four of the five nutrients in food for humans and what they are used for:</i></p> <p><i>Carbohydrates - energy and warmth</i></p> <p><i>Proteins - growth</i></p> <p><i>Fats - warmth</i></p> <p><i>Roughage - healthy digestion</i></p>	<p>To know:</p> <p>Identify and describe different parts of flowering plants have different functions Roots and stems/trunk – nutrition, transport of water and support</p> <p>Leaves – nutrition Flowers – reproduction</p> <p><i>Identify different parts of a variety of flowering plants, e.g. roots, stem, trunk, leaves, flowers.</i></p> <p><i>Describe the job each part does for the plant.</i></p> <p>And investigate the way in which water is transported within plants.</p> <p><i>Say how a plant gets the water it needs.</i></p> <p><i>Describe the job done by the stem (or trunk and branches) in transporting water around a plant.</i></p>	<p>To know:</p> <p>Many animals, including humans, have skeletons and muscles for support, protection and movement</p> <p><i>Can identify that humans and at least four other animals (vertebrates) have skeletons inside their bodies. For example: penguin; human; cow; clown fish; crocodile.</i></p> <p><i>Can name two animals that do not have a skeleton inside their body. For example: snail; earthworm.</i></p> <p><i>Can identify three jobs that skeletons do for humans:</i></p> <p><i>Support</i></p> <p><i>Protection</i></p> <p><i>Movement.</i></p>	<p>To know:</p>	<p>To know:</p> <p>Plants make seeds to produce more plants (sexual reproduction)</p> <p>And explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p><i>Identify the flower as the part of the plant where seeds are formed.</i></p> <p><i>Identify parts of a flower that are important in pollination and seed formation, but not necessarily name them.</i></p> <p><i>Describe the stages of the life cycle of flowering plants using appropriate scientific vocabulary correctly (pollen / pollination, seed / seed formation, seed dispersal).</i></p>	



	Minerals and vitamins - healthy skins, gums, bones, joints and teeth.					
4	To know:	To know:	<p>To know:</p> <p>Animals and humans have teeth to help them eat And identify the different types of teeth in humans and their simple functions <i>Can identify different types of human teeth including canine, molar and incisor.</i> <i>Can identify the different functions of human teeth:</i> <i>Canine - ripping and tearing</i> <i>Molar - crushing and grinding</i> <i>Incisor - cutting and snipping.</i> <i>Can identify that humans have two sets of teeth: milk teeth and permanent teeth.</i></p> <p>Food is broken down further in the stomach and intestine and absorbed into the blood stream with water And describe the simple functions of the basic parts of the digestive system in humans <i>Can describe the simple functions of the basic parts of the human digestive system. Children should use at least four of the following terms accurately:</i> <i>Mouth - both mechanically (teeth) and chemically (saliva), the mouth break downs the food. The tongue helps roll food into a ball to help with swallowing.</i> <i>Oesophagus - tube for transportation from mouth to stomach.</i> <i>Stomach - both mechanically (churning) and chemically (enzymes) break down the food further.</i> <i>Small intestine - further breakdown of food chemically.</i> <i>Large intestine - remaining food passes through but water is removed here and used elsewhere in the body.</i></p>	<p>To know:</p> <p>Plants and animals can be grouped using a wider range of characteristics <i>Sort and group living things in different ways using their own or given criteria, based on observable similarities and differences.</i> <i>Recognise that living things can be grouped by common physical characteristics. For example: shape or structure of leaves; vertebrates' body coverings (scales, skin, fur, feathers).</i> Keys are used for the identification of animals and plants Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment <i>Use a variety of classification keys as tools to help group, identify and name examples of:</i> <i>Plants (including trees)</i> <i>Vertebrate animals</i> <i>Invertebrate animals.</i> <i>Identify questions that might be used in a classification key. For example, to identify animals in a pond or at the seashore.</i></p>	To know:	<p>To know:</p> <p>Nutrients made by plants move to primary consumers and then to secondary consumers through food chains Construct and interpret a variety of food chains, identifying producers, predators and prey. <i>Can construct at least two food chains with at least three steps in the chain.</i> <i>Can identify:</i> <i>Producers - the start of a food chain and usually a green plant</i> <i>Predator - a living thing that preys on another living thing for food</i> <i>Prey - the living thing that is seized for food</i> <i>May also identify consumer - all living things beyond the producer in the food chain.</i> <i>Can identify from a variety of food chains: producer; predator; prey; anything that is both predator and prey.</i> And Recognise that environments can change and that this can sometimes pose dangers to living things relate this to environmental issues <b>(link to geography)</b> <i>Describe some ways in which humans have changed both the local and global environment.</i> <i>Identify ways in which these changes have affected living things, both positive and negative, within particular environments.</i></p>



			Rectum - solid waste not able to be used elsewhere is stored here until you are able to go to the toilet.			
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Year	Life Processes	Structure and Function of Plants	Structure and Function of Animals and humans	Classification	Life Cycles	Interdependence
5	<p>To know: Plants and animals need to reproduce And describe the life process of reproduction in some plants and animals (links to PSHE)</p>				<p>To know: Life cycles differ for different species And describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird <i>Can describe at least four difference between the life cycles of a mammal (for example, an elephant), an amphibian (for example, a toad), an insect (for example, a bumblebee) and a bird (for example, a blue tit) using the key terms:</i> <i>Birth</i> <i>Growth</i> <i>Reproduction</i> <i>Ageing</i> <i>Death.</i> <i>Can describe at least four similarities when comparing the life cycles of a mammal, an amphibian, an insect and a bird.</i> Plants can reproduce asexually Human development has different stages between birth and death and describe the stages. <i>Can describe at least three of the changes that happen as humans develop to old age, using the following as a prompt:</i> <i>Birth</i> <i>Growth</i> <i>Baby</i></p>	

					<p> <i>Toddler</i>  <i>Child</i>  <i>Teenager</i>  <i>Adult</i>  <i>Elderly</i>  <i>Pregnancy / gestation</i>  <i>Ageing</i>  <i>Puberty</i>  <i>Childhood</i>  <i>Death.</i>  <i>Can describe the two main types of plant reproduction:</i>  <i>Sexual (flowering plants involving male and female parts). For example: apple; tulip; daisy; dandelion.</i>  <i>Can describe the life process of reproduction in two of the following four types of animals:</i>  <i>Amphibians - sexual reproduction. Female eggs fertilised on the outside of her body; lay many jelly covered eggs in water; male fertilisers with cloud of sperm; sperm enters eggs; cells divide; form tadpoles ready to hatch.</i>  <i>Insects - sexual reproduction. Female of some species can reproduce without a male, such as stick insects.</i>  <i>Birds - sexual reproduction. Sperm from the male of the species fertilises female eggs inside her body.</i>  <i>Mammals - sexual reproduction. All mammals reproduce with sperm from the male of the species fertilising the egg inside the female body.</i> </p>	
6	<p>To know:</p> <p>Some substances and lifestyle choices can have a negative impact on health. And recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>		<p>To know:</p> <p>Oxygen is taken into the blood in the lungs; the blood is pumped by the heart to take oxygen and nutrients to the muscles</p> <p>And identify and name the main parts of the human circulatory system, and</p>	<p>To know:</p> <p>And describe how a wider range of living things including micro-organism can be identified and classified into broad groups according to common observable characteristics and based</p>	<p>To know:</p> <p>Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p><i>Recognise that living things produce offspring of the same kind as their parents.</i></p>	<p>To know:</p> <p>Environmental change and human impact affects different habitats differently</p> <p>And Identify that plants and animals are adapted to suit their environment and</p>

	<p><i>Can give at least three examples that show understanding that diet affects how our bodies function. At least one should refer to a balanced diet. For example, eating plenty of vitamins and minerals will reduce the risk of type 2 diabetes and help skin and teeth stay healthy. We can get lots of vitamins and minerals from fruit and vegetables. We should aim for at least five portions a day.</i></p> <p><i>Can give at least three examples that show understanding of the impact of exercise on the way our bodies function. For example, taking regular exercise such as football training once a week plus matches at the weekend is good for our bodies as it raises the heart rate and gives the heart exercise and makes muscles stronger. If we don't exercise regularly, we may become overweight.</i></p>		<p>describe the functions of the heart, blood vessels and blood. Can name and identify the heart, blood vessels and blood as the main parts of the human circulatory system.</p> <p><i>Can describe the function of the heart as a strong muscle that pumps blood around the body.</i></p> <p><i>Can describe the functions of the blood vessels as tubes that carry the blood around the body. They should know the three main types are:</i></p> <p><i>Veins - carry blood back to the heart</i></p> <p><i>Arteries - carry blood away from the heart</i></p> <p><i>Capillaries - small blood vessels that carry blood through the various tissues of the body.</i></p> <p><i>Can describe the function of the blood as the liquid that carries oxygen and nutrients to every part of the body. They should know that it is made of:</i></p> <p><i>Plasma - clear liquid that carries the platelets, red and white blood cells and contains sugar, fat, protein and salt solution. Makes up 55% of the blood.</i></p> <p><i>Platelets - tiny cell fragments that help with blood clotting.</i></p> <p><i>Red blood cells - carry oxygen from the lungs to the body's living tissues and carbon dioxide away from the them. Makes up 40-50% of the blood.</i></p> <p><i>White blood cells - defend your body against disease and usually only 1% of the blood.</i></p> <p>And describe the ways in which nutrients and water are transported within animals, including humans.</p> <p><i>Can say where the water in the human body comes from and describe what happens if we have too little or too much water.</i></p> <p><i>Can identify ways in which animals including:</i></p> <p><i>to replace lost fluids through sweat, exercise, urination and breathing</i></p>	<p>on similarities and differences.</p> <p><i>Describe how a wide variety of living things can be classified into broad groups according to their common observable characteristics. Living things should include examples of:</i></p> <p><i>Vertebrates, such as fish, amphibians, reptiles, birds and mammals</i></p> <p><i>Invertebrates, such as insects, spiders, snails and worms</i></p> <p><i>Micro-organisms</i></p> <p><i>Plants.</i></p> <p><i>Identify through direct observations (where possible) similarities and differences between a wide variety of living things from the immediate environment or further afield, and use this information to aid classification.</i></p> <p><i>Use identified similarities and differences to classify living things into broad groups and into sub-groups.</i></p> <p>And give reasons for classifying plants and animals based on specific characteristics.</p> <p><i>Explain that plants are classified based on specific characteristics, some of which are directly observable and some of which are not.</i></p> <p><i>Explain that animals are classified based on specific characteristics, some of which are directly observable and some of which are not.</i></p> <p><i>Give reasons why certain living things are classified as belonging to one group and not another</i></p>	<p><i>Recognise that offspring normally vary and are similar, but not identical, to their parents.</i></p> <p><i>Describe how environmental factors as well as inherited characteristics can cause variation between living things.</i></p>	<p>that adaptation may lead to evolution.</p> <p><i>Describe the conditions of an environment and identify characteristics that help some plants that grow there to survive. Describe the conditions of an environment and identify characteristics that help some animals that live there to survive. Recognise that some plants and animals become better adapted to survive in particular environments and that over time, plants and animals develop characteristics that help them to survive there.</i></p> <p>And recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p><i>Recognise that all living things, including plants and animals, have changed over millions of years.</i></p> <p><i>Recognise that we can find out about ancient living things that inhabited the Earth millions of years ago from fossils.</i></p>
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			<p>to regulate temperature</p> <p>to lubricate joints</p> <p>to protect organs and tissues</p> <p>to help the kidneys and liver to flush out waste products</p> <p>to help prevent constipation</p> <p>to help dissolve some minerals and nutrients so that parts of the body can absorb them</p> <p>(as part of the blood) to carry oxygen and nutrients to cells.</p>			
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## CHEMISTRY

Year	DESCRIBING AND USING MATERIALS	CHANGING MATERIALS	MIXING AND SEPARATING MATERIALS
EYFS By the end of Rec we aim for pupils to:	<p>Use all their senses in hands-on exploration of natural materials.</p> <p>Explore collections of materials with similar and/or different properties.</p> <p>Make collections of natural materials to investigate and talk about.</p>	<p>Explore how materials change from one state to another. Provide children with opportunities to change materials from one state to another.</p> <p>Suggestions: • cooking – combining different ingredients, and then cooling or heating (cooking) them.</p> <p>• melting – leave ice cubes out in the sun, see what happens when you shake salt onto them</p> <p><i>Talk about the differences between materials and changes they notice.</i></p>	
<b>1</b>	<p>To know:</p> <p>There are different materials and they are used to make different objects</p> <p>Different materials, including rocks, have different properties. Materials can be sorted into groups according to their observable properties.</p> <p>Identify and name common materials, including wood, rock, glass, metal</p> <p><i>Can name samples of wood, plastic, glass, metal, rock, brick, paper, fabric and water.</i></p> <p>And distinguish between objects and the material it is made from</p>		

	<p>Can recognise which of the materials an object is made from.</p> <p>And describe simple properties of everyday materials based on their physical properties</p> <p>Can use senses of sight and touch to explore materials and describe how they look or feel using the words 'hard', 'soft', 'rough', 'smooth', 'shiny', 'dull', 'heavy', 'light', 'bendy', 'not bendy', 'stretchy', 'stiff'.</p> <p>Identify more than one property of a given material.</p> <p>Compare and classify materials based on their physical properties</p> <p>Group materials that have the same property or properties.</p>		
2	<p>To know:</p> <p>Different materials are suitable for different uses (properties that can be observed)</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (<a href="#">Link to DT</a>)</p> <p>Select materials that are suitable for particular uses.</p> <p>Identify properties that make a material suitable for a particular use and any properties that make it unsuitable for that use.</p> <p>If appropriate, name more than one material that may be suitable for a purpose, but say why one or more may be more suitable than others. For example: cotton is good for making clothes because it is soft and it is easy to cut and stitch, but Lycra is better for sports clothes because it stretches.</p>	<p>To know:</p> <p>The shape of some solid materials can be changed by a contact force acting on them</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (<a href="#">Link to Art</a>)</p> <p>Carry out the actions of squashing, bending, twisting and stretching, distinguishing between them.</p> <p>By handling objects and materials, identify those that can and cannot be changed by each of the actions.</p> <p>Correctly use the terms 'flexible', 'rigid', 'squashy', 'stretchy', 'elastic' and 'stiff' to describe materials that can and cannot be changed by the actions.</p>	
3	<p>To know:</p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Use observations and simple tests to distinguish between rocks on the basis of colour, texture (grain size, presence of crystals, roughness, shininess), weight, hardness and whether they absorb water (permeability).</p> <p>Use characteristics and properties to name common rocks encountered during the module, such as limestone, chalk, granite, marble, slate, sandstone (using keys or descriptions; recognition through recall not needed).</p> <p>Group rocks that have common characteristics and properties.</p> <p>And describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that fossils are made from plant and animal remains or traces (faeces, footprints).</p> <p>Sequence the process of fossilisation, recognising that it takes place over thousands of years.</p>	<p>To know:</p>	<p>To know:</p> <p>Soils are a mixture of rocks and organic matter.</p> <p>Name the major components of soil - rocks and organic matter.</p> <p>Describe, simply, the breaking down of rocks by the weather, water, plants and human wear.</p> <p>Recognise that the type of rock and amount of organic matter affects the characteristics of the soil.</p> <p>Fossils are formed when trapped within rock.</p>

Year	DESCRIBING AND USING MATERIALS	CHANGING MATERIALS	MIXING AND SEPARATING MATERIALS
4	<p>To know:</p> <p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p><i>Know that solids retain their shape unless a force is applied, have constant volume and are not always hard or opaque. Recognise powders as being solids made up of small grains that form a pile when poured.</i></p> <p><i>Know that liquids change shape but have a constant volume. They flow when poured, forming a pool and maintaining a horizontal surface. They may be thin or viscous and can be coloured and opaque.</i></p> <p><i>Know that gases change in volume and shape to fill the space they are in. They can be compressed. They are often colourless and cannot be seen. They are lighter (less dense) than solids and liquids.</i></p> <p><i>Use knowledge of these properties to identify a material as being a solid, liquid or gas.</i></p>	<p>To know:</p> <p>Some materials change state when heated or cooled Heating causes melting and evaporation Removing heat causes condensing and solidifying (freezing).</p> <p><i>Recognise, through direct experience, melting, freezing, evaporating, condensing and boiling.</i></p> <p><i>Describe these as changes of state and know which state the material is changing from and to and whether the change results from heating or cooling.</i></p> <p><i>Know that different materials have specific temperatures at which they melt / freeze and boil / condense, with water freezing at 0 °C and boiling at 100 °C.</i></p> <p>And measure or research the temperature at which materials change state in degrees Celsius (°C)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature (<a href="#">link to Geography</a>)</p> <p><i>Describe evaporation as a change of state from liquid to gas that occurs at all temperatures at which a material is liquid (as distinct from boiling, which occurs as a specific temperature).</i></p> <p><i>Describe condensation as the change of state from gas to liquid when the gas is cooled.</i></p> <p><i>Recognise where in the water cycle the processes of evaporation and condensation occur.</i></p> <p><i>Identify conditions, including increased temperature, which increase the rate of evaporation.</i></p>	
5	<p>To know:</p> <p>Different properties make materials suitable for different uses (properties that can be measured) and give reasons for the particular uses of everyday materials, including metals, wood and plastic</p> <p><i>Compare the same type of object made from different materials, including different types of metal and plastic, giving reasons why each is suited to its specific function.</i></p> <p><i>Suggest, with reasons, suitable materials for specific purposes, based on testable properties.</i></p> <p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility,</p>	<p>To know:</p> <p>And demonstrate that dissolving, mixing and changes. of state are reversible changes.</p> <p><i>Know that reversible changes are those where the original materials can be recovered because they have not been permanently altered.</i></p> <p><i>Be able to describe how a change of state can be reversed by heating or cooling, a mixture can be separated by sieving or filtering and a solution can be separated by evaporating the liquid.</i></p> <p>Some materials will dissolve in a liquid to form a solution, and describe how to recover a substance from a solution</p> <p><i>Know, through practical experience, how solid materials of different grain size or large pieces of solid in a liquid can be separated using a sieve with a suitably sized mesh.</i></p>	<p>To know:</p> <p>Mixtures can be separated by filtering, sieving and evaporating.</p> <p><i>Know, through practical experience, how solid materials of different grain size or large pieces of solid in a liquid can be separated using a sieve with a suitably sized mesh.</i></p> <p><i>Know, through practical experience, how filtering is used to separate solid material that has not dissolved from a liquid.</i></p> <p><i>Know, through practical experience, how evaporation is used to separate a dissolved solid from a liquid.</i></p> <p><i>Know, through practical experience, that dissolving (addition of water) followed by filtration can be used to separate a soluble and insoluble solid.</i></p>

	<p>transparency, conductivity (electrical and thermal), and response to magnets</p> <p><i>Correctly use the vocabulary: hardness; transparent; translucent; opaque; electrical conductor; electrical insulator; thermal conductor; thermal insulator; magnetic; flexibility; flexible; rigid; elastic; stiff; strength; absorbent; permeable; impermeable (waterproof); viscosity; brittle; ductile; malleable; durable. (Words in bold may not have been explicitly taught before. The definitions of others may have been refined during this module.) Can identify materials that have those properties.</i></p> <p><i>Please note that solubility is assessed separately in the Solutions snapshot, as it is taught as part of module 5: Marvellous Mixtures. However, children may use the term if the selection of materials includes salt or sugar.</i></p>	<p><i>Know, through practical experience, how filtering is used to separate solid material that has not dissolved from a liquid.</i></p> <p><i>Know, through practical experience, how evaporation is used to separate a dissolved solid from a liquid.</i></p> <p><i>Know, through practical experience, that dissolving (addition of water) followed by filtration can be used to separate a soluble and insoluble solid.</i></p> <p><i>Choose and name, giving reasons based on the states and properties of the materials, suitable methods for separating mixtures of: two or more solids (including an insoluble solid and a soluble solid of similar grain size); an insoluble solid and a liquid; a soluble solid and a liquid.</i></p> <p><b>Changes including baking, burning and the reaction of certain chemicals result in new materials.</b></p> <p><i>Know that non-reversible changes are those in which materials have changed (reacted with) each other in a way that creates new materials.</i></p> <p><i>Recognise that gas being produced, when materials are mixed rather than heated (for example bicarbonate of soda and vinegar), a change of colour (e.g. rusting) or heat being produced (e.g. burning a candle, mixing Plaster of Paris and water) can indicate that a non-reversible change is happening.</i></p> <p><i>Know that rusting is a change to metal that requires water and air.</i></p> <p><i>Know that burning requires heat, oxygen and fuel.</i></p> <p><b>And 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.</b></p>	<p><i>Choose and name, giving reasons based on the states and properties of the materials, suitable methods for separating mixtures of: two or more solids (including an insoluble solid and a soluble solid of similar grain size); an insoluble solid and a liquid; a soluble solid and a liquid.</i></p>
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## Physics

Year	LIGHT	SOUND	ELECTRICITY	FORCES	EARTH AND SPACE
<b>EYFS</b> By the end of Rec we aim for pupils to:	<p>Explore how you can shine light through some materials, but not others.</p> <p><i>Talk about the differences between materials and changes they notice.</i></p> <p>Investigate shadows.</p> <p>Describe what they <b>see</b> whilst outside.</p>	<p>Describe what they <b>hear</b> outside.</p>		<p>Explore the effect of forces such as:</p> <ul style="list-style-type: none"> <li>-how the water pushes up when they try to push a plastic boat under it</li> <li>-how they can stretch elastic, snap a twig, but cannot bend a metal rod.</li> </ul> <p>Explore magnetic attraction and repulsion</p> <p><i>Explore and talk about different forces they can feel.</i></p> <p>Explore how different materials sink and float.</p>	<p><i>Talk about the differences between materials and changes they notice.</i></p> <p>Describe some of the changes that happen during spring, summer, autumn, and winter.</p> <p><i>Understand the effect of changing seasons on the natural world around them.</i></p>



				Describe what they feel <b>whilst</b> outside.	
1	To know: We see with our eyes	To know: We hear with our ears			To know: Temperature and day length changes over the year – this pattern is referred to as the seasons <i>Name the four seasons (and the months in which each season occurs).</i> <i>Describe seasonal change in the natural world, including plants, animals and the local environment.</i>
2				To know: Pushing and pulling can make things change shape.	
3	<p>To know: We need light to see things. Darkness is the absence of light. <i>Recognise that in order to see something, there must be a light source.</i> <i>Recognise that the eyes are needed to see.</i> <i>Understand that darkness means that there is no light at all and therefore nothing can be seen. As children rarely experience true darkness, they may think that they can see in the dark because, for example, they can see in their bedroom when their light is turned off. This is because of light from other sources entering the room and their eyes adjust to the low light levels.</i></p> <p>When light hits a material, some of it is reflected off the material. <i>Describe reflection as light from a light source bouncing from a surface to our eyes.</i> <i>Recognise that shiny surfaces reflect light better than dull surfaces.</i> And recognise that shadows are formed when the light</p>			<p>To know: Pushing and /or pulling can make things start moving, stop, go faster or slower. <i>Use the word 'forces' to describe pushes and pulls that make objects move in different ways.</i> And compare how things move on different surfaces. <i>Recognise that changes in movement (stop, start, slow down, speed up) are brought about by the action of forces.</i> <i>Recognise that when one object moves over another there is a force that opposes motion.</i> <i>Explain how the type of surface affects whether an object moves slowly or quickly across</i></p> <p>Some forces need contact between two objects. Some forces act between objects although they are not in contact. <i>Distinguish forces that need contact to change the movement of something from magnet forces that act at a distance.</i> When one object moves over another one there will be a force between them that opposes motion. This is called friction. Magnets can act at a distance. Some materials are magnetic, some are not. Compare and group together a variety of materials on the basis of whether they are attracted to a magnet. <i>Recognise that a magnet produces a force that attracts or repels another magnet.</i></p>	

	<p>from a light source is blocked by an opaque object.</p> <p><i>Recognise that shadows are formed when there is light.</i></p> <p><i>Recognise that no light can pass through an object made of opaque material and that some light is blocked by an object made of translucent material.</i></p> <p><i>Recognise that shadows are produced in the area behind the object blocking the light.</i></p> <p><i>Recognise that shadows are similar in shape to the objects forming them.</i></p> <p>Sunlight can be dangerous and that there are ways to protect their eyes.</p> <p><i>Recognise that light from the sun can be dangerous to eyes and skin.</i></p> <p><i>Recognise that light passes through some materials and is blocked by others</i></p> <p><i>Suggest ways to protect ourselves from the Sun.</i></p> <p>The size of shadows change according to the size and shape of objects and distance from the light source.</p> <p>And find patterns in the way that the size of shadows change</p> <p><i>Recognise that the size of shadows varies depending on the distance of the light-blocking object from the light source.</i></p> <p><i>Describe how the size of shadow increases the closer the object is to the light source.</i></p> <p><i>Explain how to make shadows bigger or smaller.</i></p>			<p><i>Recognise that a magnet produces a force that pulls on some metals.</i></p> <p>And describe magnets as having two poles</p> <p><i>States that a magnet has both a north and a south pole</i></p> <p>And predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>Recognise that a magnet produces a force that attracts or repels another magnet.</p> <p>Recognise that a magnet produces a force that pulls on some metals.</p>	
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Year	LIGHT	SOUND	ELECTRICITY	FORCES	EARTH AND SPACE
4		<p>To know:</p> <p>Sounds are made when something vibrates.</p> <p><i>Use the terms sound source to describe something the produces a sound and vibration to identify the movement causing the sound. Recognise that different sources make sounds that are different and distinct. Describe a vibration as small backwards and forwards movements that may be too small to be seen. Make sounds using musical instruments, household objects or body parts and state what is vibrating to cause the sounds.</i></p> <p>And recognise that vibrations from sounds travel through a medium to the ear</p> <p><i>Know that sound travels in all directions from a source and can be heard even when the source is out of light. Identify what sound is travelling through to reach the ears.</i></p> <p>Sounds get fainter the further they are from the source.</p> <p><i>Recognise that sounds get fainter as the distance from the sound source increases.</i></p> <p>The volume of a sound can be changed and find patterns between the volume of a sound and the strength of the vibrations that produced it.</p>	<p>To know:</p> <p>Electrical appliances need a source of electricity to work.</p> <p><i>Identify several common appliances that run on electricity. Describe the difference between how mains power, battery operated and rechargeable appliances are used.</i></p> <p>A complete circuit is needed for an electric current to flow.</p> <p>A circuit is made up of different components and draw simple circuits as the physical objects rather than a circuit diagram.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts (Link to DT and computing)</p> <p><i>Construct a simple circuit, controlled by a switch, to light a bulb or make a buzzer buzz. Identify and name a cell, wire, bulb, buzzer and switch.</i></p> <p>A switch opens and closes a circuit.</p> <p><i>Describes a switch as a controlled break in a circuit that stops electricity flowing to all components. Demonstrates how to open and close either a school-made toggle or press switch to turn a bulb off and on. Explains how either a school-made toggle or press switch works, referring to the path of electricity through the circuit.</i></p> <p>Some materials are better conductors than others and recognise some common conductors and insulators &amp; associate metals with being good conductors.</p> <p><i>Identify and name materials that are good electrical conductors and insulators. Recognise that metals are good conductors. Describe some used of conductors and insulators.</i></p> <p>And use learning to identify whether a lamp will light in a simple series circuit and explain why.</p> <p><i>Recognise that for a circuit to work, it must be complete. Recognise the need for good connections in a circuit.</i></p>		

		<p><i>Know that the volume of a sound is how loud it is, and describe and compare the sounds using the words loud, louder, quiet / soft, quieter / softer.</i></p> <p><i>Associate loud sounds with strong vibrations and quiet sounds with smaller vibrations.</i></p> <p><i>Recognise that the size of what is vibrating and the material it is made from affect the loudness of the sound produced.</i></p> <p><i>Describe how to make a sound louder by, for example, striking with more force, plucking with more force, blowing harder, shaking more vigorously.</i></p> <p>The pitch of a sound can be changed and find patterns between the pitch of a sound and features of the object that produced it.</p>			
5				<p>To know:</p> <p>Drag forces resist movement.</p> <p>The force of gravity caused by the Earth pulls objects towards its centre and to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p><i>Recognise that gravity is the force of attraction between an object and the Earth.</i></p> <p><i>Recognise that gravity pulls all objects towards the centre of the Earth.</i></p> <p>And recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p><b>(link to DT)</b></p> <p><i>Recognise that mechanisms are devices that change the effect of a force.</i></p> <p><i>Identify levers, pulleys and gears.</i></p>	<p>To know:</p> <p>And describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>The Earth is one of eight planets that orbit the Sun.</p> <p>The Earth orbits the Sun once every year.</p> <p>The Earth rotates on its own axis once every 24 hours</p> <p><i>Recognise that the Sun is located at the centre of the Solar System, which includes the Earth and other planets.</i></p> <p><i>Describe the movement of the Earth around the Sun, in an elliptical orbit that takes 365.25 days, which is equivalent to 1 year in our calendar.</i></p> <p><i>Describe the movement of other planets around the Sun, making comparisons of the shape and length of different planets' orbits.</i></p>

				<p>Describe how these affect movement, indicating where a force is increased or decreased.</p> <p>And identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that air resistance is the contact force of air that opposes the movement of objects through it.</p> <p>Recognise that water resistance is the contact force of water that opposes the movement of objects through it.</p> <p>Recognise that friction is a contact force that opposes motion between moving surfaces.</p> <p>Identify how these drag forces affect their own movement or that of familiar objects.</p>	<p>The Moon orbits the Earth and looks different at different times of the month.</p> <p>Describe how the Moon orbits the Earth approximately every 27 days.</p> <p>Recognise that the face of the Moon that we see from Earth remains the same because the Moon's rotation on its axis takes about the same time as its orbit of the Earth.</p> <p>Describe the phases of the Moon and explain why it appears to change shape as it orbits the Earth.</p> <p>And 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>Recognise that the Earth rotates. Uses this rotation to explain how day and night happen.</p> <p>Use the idea of the Earth's rotation to explain the apparent movement of the Sun across the sky.</p> <p>Describe how the Earth rotates anticlockwise (when viewed from pole star) once every 24 hours.</p>
Year	LIGHT	SOUND	ELECTRICITY	FORCES	EARTH AND SPACE
6	<p>To know:</p> <p>Light travels in straight lines.</p> <p>Describe light travelling in straight lines from a light source.</p> <p>And Use the idea that light travels in straight lines to create diagrams to explain that objects are seen because they give out or reflect light into the eye</p> <p>Use the idea that light travels to explain how objects are seen.</p> <p>Recognise that light travels in straight lines; either from a light source into the eye or from a light source and is reflected by an object into the eye.</p>		<p>To know:</p> <p>There are recognised symbols for circuits and their components and to use them in a simple circuit diagram.</p> <p>Recognise standard symbols for electrical components.</p> <p>Represent circuits using standard symbols.</p> <p>Construct circuits following a circuit diagram.</p> <p>An increase in voltage will cause an increase in current and associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>Recognise that voltage is the push that causes electricity to flow around a circuit (the current): higher voltage means a larger push.</p> <p>Recognise that increasing the number of cells in a circuit will increase the voltage.</p> <p>Explain that increasing the voltage in a circuit will increase the brightness of bulbs and the loudness of buzzers.</p> <p>Recognise that the relationship between voltage and resistance (the work the current does) affects the flow of current and how components function.</p>		

<p>Recognise that in order to be seen, a non-light source must reflect light.</p> <p>And explain that we see light from a source reflected off an object into our eyes.</p> <p>Explain that we need a light source, an object and our eyes to see things.</p> <p>Explain that in order to be seen, all objects that are not light sources (non-luminous) must reflect light.</p> <p>Explain that light travels in a straight line from a light source to an object and is reflected from the object to our eyes.</p> <p>Shadows have the same shape as the object that casts them because light travels in straight lines.</p> <p>Recognise that the shape of a shadow is determined by the shape of the object that produces it.</p> <p>Recognise that the shadow is a similar shape to the object because light travels in straight lines.</p> <p>Show in a diagram how an opaque object blocks all the light rays hitting it to form a shadow.</p>		<p>Recognise that resistance describes how hard it is for electricity to flow through a circuit.</p> <p>Recognise that adding bulbs, buzzers, motors or thinner wire increases resistance.</p> <p>Explain that increasing the resistance will decrease the brightness of bulbs and the loudness of buzzers.</p> <p>Recognise that the relationship between voltage and resistance affects the flow of current and how components function.</p> <p>Some components can resist the current more than others</p> <p>Recognise that resistance describes how it is hard for electricity to flow through a circuit.</p> <p>Recognise that adding bulbs, buzzers, motors or thinner wire increases resistance.</p> <p>Explain that increasing the resistance will decrease the brightness of bulbs and loudness of buzzers.</p> <p>Recognise that the relationship between voltage and resistance affects the flow or current and how components function.</p>		
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