



Oaklands Community Primary School - Science Knowledge Builder

	Plants	Animals including Humans	Living Things and their Habitats	Materials	Light and Sound	Force and Electricity
EYFS	<ul style="list-style-type: none"> There are different parts of a plant: root, stem, leaf and flower. 	<ul style="list-style-type: none"> Sheep, cows, pigs, chickens live on a farm in our country. Minibeasts are small creatures that live outside and have more than 4 legs. Some animals hibernate during winter. 		<ul style="list-style-type: none"> Materials are what an object is made from. Some materials are better suited for different purposes. 		
Year 1	<ul style="list-style-type: none"> Trees and plants can be identified by the shape of their leaves or the colour and shape of their flower. Deciduous trees lose their leaves in the autumn every year. Whereas evergreen trees have green leaves all year round. The main parts of a tree are: roots, trunk, branch, twig, leaves and bark. The main parts of a flowering flower are: roots, stem, leaf, seeds and flower. 	<ul style="list-style-type: none"> Fish, amphibians, reptiles, birds and mammals are types of animal. A carnivore is an animal that eats meat; herbivores eat plants and omnivores eat both meat and plants. The five senses are: sight, smell, taste, touch and hearing and rely on different parts of our body. 		<ul style="list-style-type: none"> All objects are made from one or more materials. Everyday materials include; wood, plastic, glass, metal and rock and they all have their own properties. 	<ul style="list-style-type: none"> There are four seasons: Autumn, winter, spring and summer. Changes happen across the four seasons. The weather changes throughout the seasons and so does the length of our day. Weather symbols can be used to show what the weather is like. Sunrise is the time in the morning when the sun first appears and sunset is the time in the evening when the sun disappears out of sight in the sky. 	
Year 2	<ul style="list-style-type: none"> Plants need water, light, a suitable temperature and space to grow and stay healthy. Seeds and bulbs germinate and grow into seedlings which grow into mature plants. 	<ul style="list-style-type: none"> Animals, including humans, have offspring which grow into adults. The young of some animals don't look like their parents e.g. butterfly and frog. The basic needs of animals, including humans, for survival are: water, food, air and shelter. To grow into healthy adults, animals, including humans, need exercise, the right amounts of different types of food and good hygiene. 	<ul style="list-style-type: none"> Everything is either living, dead, or has never been alive. Plants and animals live in different habitats where their basic needs are met. A food chain shows the plants and animals that an animal may eat. 	<ul style="list-style-type: none"> Everyday materials are chosen to be used because of their properties. The shape of solid objects can be changed by squashing, bending, twisting and stretching. An object that is flexible bends easily without breaking; a rigid object is unable to bend or be forced out of shape. Materials can be either transparent, translucent or opaque depending on how much light they let through. Materials can be reflective or non-reflective. Some materials are absorbent and can soak up liquid easily. 		
Year 3	<ul style="list-style-type: none"> Each part of a flowering plant has a different function. Pollination is when insects, such as bees and wasps, transfer the pollen from the male part of a flower to the female part of other flower. Seeds can develop after pollination. They can be found in berries or fruits. Seeds can be dispersed in different ways, for example, wind, animals or water. 	<ul style="list-style-type: none"> That animals, including humans, cannot make their own food; they get nutrition from what they eat. There are five main food groups that provide the body with the right types and amounts of nutrients. Humans and some other animals have a skeleton made up of bones and muscles for support, protection and movement. 		<ul style="list-style-type: none"> There are 3 types of rocks: sedimentary, metamorphic and igneous. Fossils were formed millions of years ago when things that have lived are trapped within rock. That soils are made from ground-up rocks, plant and animal remains. 	<ul style="list-style-type: none"> You need light in order to see things and that dark is the absence of light. Light is reflected from surfaces. Shiny surfaces reflect light better than matt surfaces. Light from the sun can be dangerous and damage your eyes. Shadows are formed when the light from a light source is blocked by a solid object. The size of a shadow can be changed by changing the position of the light source/object or surface where the shadow is being made. 	<ul style="list-style-type: none"> A force is a push or a pull. Objects move differently on different surfaces; this depends on the amount of friction. Magnets have two poles (north and south) and opposite poles attract (pull towards) whereas same poles repel (push away). A magnet attracts magnetic materials.
Year 4		<ul style="list-style-type: none"> There are three main types of teeth: incisors are used to bite; canines are used to tear; molars are to chew. The digestive system breaks down food and includes the mouth, stomach, small and large intestine. Food chains can be made up of producers, predators and prey. 	<ul style="list-style-type: none"> A classification key is used to group, identify and name living things by answering a series of yes/no questions. Environmental changes such as flooding, deforestation and plastics in oceans can pose dangers to living things. 	<ul style="list-style-type: none"> Materials are either a solid, liquid or gas depending on the space between the molecules. Melting is a change of state from solid to liquid. Freezing is a change of state from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas. Water boils when it is heated to 100°C. Evaporation is the change from a liquid to a gas caused by heat. Condensation is the change from a gas to a liquid, caused by cooling. 	<ul style="list-style-type: none"> Sounds are made by vibrations that travel through air or water to the ear. The pitch of a sound is how low or high the sound is. The volume of a sound depends on the strength of the vibrations producing it. Sounds get fainter the further away from them you are. To make a sound quieter you can insulate it using a material which blocks sound. 	<ul style="list-style-type: none"> Electricity is a form of energy used for lighting, heating, making sound and making machines work and can be mains or battery powered. A simple electrical circuit needs cells and wires and either a bulb or buzzer to be complete. A switch breaks the circuit so that it is not complete and electricity cannot flow. Conductors allow electricity to flow through them whereas insulators do not.



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Year 5		<ul style="list-style-type: none"> • Puberty is the time when your body begins to develop and change as you become an adult. • Menstruation is when a woman has a period and she loses a small amount of blood each month. • In humans, a sperm cell from a male fertilises an egg from a female to produce a baby. • The gestation period is the length of time a mammal carries her offspring inside her body before giving birth. • Life expectancy is the length of time that an animal is normally likely to live. 	<ul style="list-style-type: none"> • A life cycle shows how things are born, how they grow and how they reproduce. • Mammals, amphibians, insects and birds all have different life cycles. • Most animals reproduce sexually. Plants reproduce both sexually and asexually. • Sexual reproduction in plants occurs through pollination usually involving wind or insects. Asexual reproduction involves only one parent using bulbs, runners or cuttings. 	<ul style="list-style-type: none"> • Dissolving, mixing, melting and freezing are reversible changes. • Some materials will dissolve in liquid to form a solution. • Mixtures can be separated through filtering, sieving and evaporating. • Some changes result in the formation of new materials: an irreversible change such as burning. 	<ul style="list-style-type: none"> • The sun is a star at the centre of our solar system. • There are 8 named planets in our solar system that all orbit around the sun. • The Earth orbits the sun. It takes 365 days to complete its orbit. • The moon orbits the Earth. It takes about 28 days to complete its orbit. • The Earth rotates (spins) on its axis once every 24 hours and this gives us day and night. 	<ul style="list-style-type: none"> • Forces make objects start moving, stop moving, speed up, slow down or change direction. • The unit for measuring force is Newtons and they are measured using a forcemeter. • Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • Air resistance, water resistance and friction affect a moving object. • Some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
Year 6		<ul style="list-style-type: none"> • The circulatory system circulates blood through the body. • The heart pumps blood around the body • Blood vessels are the tubes which our blood flows through and are named arteries, veins and capillaries. • Blood transports oxygen, nutrients and water to all the parts of the body. • Each time the heart beats it can be felt as a pulse in the wrist or neck. • Diet, exercise, drugs and other lifestyle choices affect how well our heart works. • Living things produce offspring of the same kind that have inherited characteristics from their parents. 	<ul style="list-style-type: none"> • Micro-organisms are tiny living creatures. Most can only be seen through a microscope. • Plants can be divided into two main groups: flowering plants and non-flowering plants. • Invertebrate animals have no backbone and vertebrate animals do have a backbone. • Plants and animals have characteristics that have adapted to make them suited to their environment. • Natural selection is the survival of animals and plants that are best suited to an environment. 		<ul style="list-style-type: none"> • Light travels in straight lines. • We see things because light travels from light sources to our eyes. • For objects that are not a light source, light must be reflected from the object into our eye for us to see the object. 	<ul style="list-style-type: none"> • By changing the electrical components in a circuit you can affect the brightness of a bulb or the sound of a buzzer. • Recognised symbols can be used when representing a simple circuit in a diagram. • Volts are a measure of the energy of a flow of electricity.

*Science in EYFS is covered in the 'Understanding the World' area of the EYFS Curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.

Children will be able to comment and ask questions about where they live and talk about some of the things they have observed such as what a plant needs to grow, which animals live on a farm, which materials are best to build a boat and what mini beasts are.

Through the '**Personal, Social and Emotional Development**' area of the Curriculum, children in EYFS will be able to manage their own needs: personal hygiene, handwashing, healthy eating.