

Science Knowledge Builder

	Plants	Animals Including Humans	Living Things and Their Habitats	Materials	Light and Sound	Forces and Electricity
Y E A R 1	<p>Trees and plants can be identified by the shape of their leaves or the colour and shape of their flower.</p> <p>Deciduous trees lose their leaves in the autumn every year. Whereas, evergreen trees have green leaves all year round.</p> <p>The main parts of a tree are: roots, trunk, branch, twig, leaves and bark.</p> <p>The main parts of a flowering plant are: roots, stem, leaf, seeds and flower.</p>	<p>Fish, amphibians, reptiles, birds and mammals are types of animal.</p> <p>A carnivore is an animal that eats meat; herbivores eat plants and omnivores eat both meat and plants.</p> <p>Name, describe and compare the structure of a variety of common animals.</p> <p>Identify, name, draw and label the basic parts of the human body.</p> <p>The five senses are: sight, smell, taste, touch and hearing and rely on different parts of the body.</p>		<p>All objects are made from one or more materials. Everyday materials include; wood, plastic, glass, metal, rock and they all have their own properties. Everyday materials can be grouped together on the basis of their simple physical properties</p>	<p>There are four seasons: Autumn, winter, spring, and summer.</p> <p>Changes happen across the four seasons.</p> <p>The weather changes throughout the seasons and so does the length of our day.</p> <p>Weather symbols can be used to show what the weather is like.</p> <p>Sunrise is the time in the morning when the sun first appears and sunset is the time in the evening when the sun disappears from sight in the sky.</p>	
Y E A R 2	<p>Plants need water, light, and a suitable temperature to grow and stay healthy.</p> <p>Seeds and bulbs grow into seedlings which grow into mature plants.</p>	<p>Animals, including humans, have offspring which grow into adult.</p> <p>The young of some animals don't look like their parents e.g. butterfly and frog</p> <p>The basic needs of animals, including humans, for survival are: water, food, air, and shelter.</p> <p>To grow into healthy adults, animals, including humans, need exercise, the right amounts of different types of food (dairy, meat, sugars, fruit and vegetables and grains) and good hygiene.</p>		<p>Everyday materials are chosen to be used because of their properties. Some materials are absorbent and can soak up liquids easily. 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 to change shape.</p>	<p>Everyday materials are chosen to be used because of their properties. Some materials are absorbent and can soak up liquids easily. 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 to change shape.</p>	
Y E A R 3	<p>Each part of the flowering plant has a different function.</p> <p>Water is transported within plants.</p> <p>Plants need air, light, water, nutrients from soil and room to grow to grow and stay healthy. These needs will vary from plant to plant.</p>	<p>Animals including humans, cannot make their own food, they get their nutrition from what they eat.</p> <p>There are food groups that provide the body with the right types and amounts of nutrients: Fats, dairy, protein, carbohydrates, fibre, minerals and vitamins and water.</p>		<p>There are 3 types of rocks: Sedimentary, metamorphic and igneous.</p> <p>You can compare and group kinds of rocks based on their appearance and simple physical properties</p> <p>Soils are made from ground up rocks, and plant and animals remains.</p>	<p>You need light in order to see things and dark is the absence of light. Light is reflected from surfaces. Some surfaces reflect light better than others. Light from the sun can be dangerous and damage your eyes. There are ways to protect your eyes. Shadows are formed when the light from a light</p>	<p>A force is a push or a pull. Some forces need contact between 2 objects, but magnetic forces can act at a distance. Objects move differently on different surfaces. Friction changes how the same object moves. Magnets can attract or repel each other and attract some</p>

	<p>Flowers have a role in the Flowering plants have a life cycle that involves germination, pollination, seed formation and seed dispersal.</p> <p>Role of the flower in the above processes.</p> <p>Pollination is when insects, such as bees, transfer the pollen.</p> <p>Seeds can be dispersed in different ways, wind, animals or water.</p>	<p>Humans and some other animals have skeletons and muscles for support, protection and movement</p> <p>Muscles and skeletons have special functions.</p> <p>Some animals have a skeleton outside their body called an exoskeleton.</p> <p>Some animals do not have a hard skeleton</p>		<p>Fossils were formed millions of years ago when things that lived there were trapped within the rock.</p>	<p>source is blocked by a solid object. Materials can be transparent, translucent or opaque depending on how much light they let through. The size of a shadow can be changed by changing the position of the light source or object.</p>	<p>materials and not others</p> <p>Magnets have two poles (north and south). Opposite poles attract (pull towards) whereas the same poles repel (push away). A magnet attracts magnetic materials. You can compare and group materials based on whether they are attracted to a magnet.</p>
Y E A R 4		<p>There are three main types of teeth: incisors are used to bite; canines are used to tear; molars are to chew.</p> <p>The digestive system breaks down food and includes the mouth, stomach, small and large intestine.</p> <p>Food chains can be made up of producers, predators and prey.</p>	<p>Living things can be grouped in a variety of ways 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.</p>	<p>Materials can be grouped according to whether they are 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°. Boiling is a change of state from liquid to gas. Water boils when it is heated to 100°. Evaporation is the change of state from liquid to gas caused by heat. Condensation is the change from a gas to a liquid, caused by cooling. Evaporation and condensation happen as part of the water cycle and are linked to temperature.</p>	<p>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 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.</p>	<p>Many appliances use electricity. Electricity is a form of energy used for lighting, heating making sound and making machines work. Electricity can be mains or battery powered. A simple electrical circuit needs cells and wires and either a bulb or buzzer to be complete. A circuit is broken and electricity will not flow if it is not part of a complete loop. 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. Name good conductors, such as metals and good insulators, such as wood.</p>
Y E A R 5	<p><i>In Science NC this the plant element is included within Animals and Living Things.</i></p> <p>Sexual reproduction in plants occurs through pollination usually involving wind or insects.</p> <p>Sexual reproduction in plants occurs through pollination usually involving wind or insects.</p>	<p>Puberty is the time when your body begins to develop and change as you become an adult.</p> <p>Humans experience changes as they grow and develop into old age.</p> <p>The gestation period is the length of time a mammal carries her offspring inside her body before giving birth.</p>	<p>A life cycle shows how things are born, how they reproduce. Mammals, amphibians, insects and birds all have different lifecycles. Reproduction is a life process for animals and plants. Most animals reproduce sexually. Plants reproduce sexually and asexually.</p>	<p>Materials can be compared and grouped based on their properties (including hardness, solubility, transparency, conductivity and response to magnets). Materials have properties that make them suitable for certain tasks.</p> <p>Some materials will dissolve in liquid to form a solution. A substance can be</p>	<p>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 1/4 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</p>	<p>Forces make objects start moving, stop moving, speed up, slow down or change direction. 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,</p>

			Sexual reproduction in plants occurs through pollination usually involving wind or insects. Asexual reproduction involves only one parent	recovered from a solution. Mixtures can be separated through filtering, sieving and evaporating. Dissolving, mixing, melting and freezing are reversible changes. Some changes result in the formation of new materials. These are normally irreversible changes. Burning and the action of acid on bicarbonate of soda are irreversible changes.	gives us day and night. The sun, Earth and moon are approximately spherical bodies.	pulleys and gears allow a smaller force to have a greater effect.
Y E A R 6	<p><i>In Science NC this the plant element is included within Animals and Living Things.</i></p> <p>Plants can be classified into flowering and non-flowering plants.</p>	<p>The circulatory system circulates blood through the body.</p> <p>The heart pumps blood around the body.</p> <p>Blood vessels are the tubes through which our blood flows. They are called arteries, veins and capillaries.</p> <p>Blood transports oxygen, nutrients and water to all the parts of the body.</p> <p>Each time the heart beats it can be felt as a pulse in the wrist or neck</p> <p>Diet, exercise, drugs and other lifestyle choices affect how well our hearts work.</p>	<p>Living things can be classified into broad groups. Reasons can be given for classifying plants and animals. Animals can be classified into invertebrates and vertebrates. Plants can be classified into flowering and non-flowering plants. Micro-organisms are tiny living creatures. Most can only be seen through a microscope.</p>	<p>Evolution and Inheritance</p> <p>Plants and animals have characteristics that have adapted to make them suited to their environment. The adaptations have led to evolution. Natural selection is the survival of animals and plants that are best suited to it environment. Living things have changed over time. Fossils provide evidence about living things that inhabited the earth millions of years ago. Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p>	<p>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. Shadows have the same shape as the objects that cast them because light travels in straight lines.</p>	<p>By changing the electrical components in a circuit you can affect the brightness of a lamp or the volume of a buzzer</p> <p>Recognised symbols can be used when representing a simple circuit in a diagram</p> <p>Volts are a measure of flow of electricity</p>