

# SCIENCE BUILDER ( end of year.....)

Yr 2		Yr 4		Yr6	
Questions (Learning)	Answers (Knowledge)	Questions (Learning)	Answers (Knowledge)	Questions (Learning)	Answers (Knowledge)
<p><b>Animals including Humans</b> What are the 5 senses? What do we call animals that eat only plants? Can you name me a specific animal that only eats meat? Name the groups of animals, which have a backbone? What are animals without bones called? Why are nutrients important for human beings? Can you name the 5 food groups Which group would a potato belong? <b>Plants</b> What are the parts of a plant? How does the root help the plant? Why are the leaves green? What does the seed need to grow? <b>Living things and their Habitats</b> How can you tell if an animal is living or dead? What is a home of a plant or an animal called? Give the habitat of a camel, lion, polar bear, cactus, shark Give a simple example of a food chain <b>Materials</b> What material can an eating plate made of? Which material will you use to keep the ice-lolly from melting, which material will keep away rain ? <b>Seasons</b> Do you live in a cold country or hot country? Why do you think that?</p>	<p>See, touch, smell, taste, hearing Herbivore, Lion( any carnivore) Mammals, birds, fish, reptiles and amphibians Invertebrates Protect from diseases, repair and building our body, provide energy, and healthy growth development Fruit/vegetable, starchy foods, diary, sweets, sugars and oils. carbohydrate Root, stem, seed, leaf and flower Function of a root—it holds( anchors) the plant and absorbs water and minerals from the soil to make the plant grow. Leaves have chlorophyll which traps the sunlight and makes starch /food for the plant.—Photosynthesis. Plants grow from seeds. 7 life-processes of a living thing—nutrition, respiration, reproduction, movement, excretion, sensitivity and growth. Habitat Different types of habitats. grass →insect →frog</p> <p>Types of materials: plastic, paper, metal, polystyrene Properties of materials: Insulator, water-proof</p> <p>Difference between weather and climate</p>	<p><b>Animals-including Humans—Moving and Growing: Teeth and Digestive System</b> What are the functions of the skeleton? Which is the longest and the shortest human bone? How do the muscles help you move? What are the types and functions of the teeth? Name parts of a tooth How will you keep your teeth healthy? Explain tooth decay. What is an organ? What organs make up your digestive system? How does your food change into poo? Why is your poo brown? <b>Plants</b> Which part of the plant helps in reproduction? What is pollination? How does the water and minerals reach the whole plant? What do seeds need to germinate? Why dispersal of seeds is important? <b>Living things and their Habitats</b> How does removal of one species from an environment, affect others? Explain how human activities affects the environment. <b>Electricity</b> Which material will you use to make a switch? What is a circuit? What does a switch do? What do you use in a torch and how does your oven work? How will you keep safe while using electricity? <b>Forces –Magnets</b> What can pull and push do? What happens when you bring two magnets near each other? Give 3 uses of magnets <b>Materials—Rocks and soil</b> What are 3 types of rocks? Which rock out of chalk, granite or limestone will you use as a kitchen top? Why? In which rock will you find a fossil? What is a fossil? Why loamy soil is best for growing plants? <b>Materials—States of matter</b> Explain how a state of matter can be changed. What factors affect the rate of evaporation? <b>Energy—Light</b> Will you use cellophane or a card to make a shadow? Which material will create a dark shadow and why? What happens to your shadow at midday and in the evening? Examples of natural phenomena of shadows. <b>Energy—Sound</b> What is sound? How we hear?</p>	<p>Functions of the skeleton: movement, support, protection, make blood cells and store minerals. Name few bones in the body Muscles attach to bones helps us move, bend, stretch. Canine—tear and rip; incisors—cut and bite; molars- grind and crush food premolar—crush food parts of a tooth—enamel, dentine, crown, pulp, nerves, root, cementum Sugars in the food increase bacteria that produces acid, which causes tooth decay. An organ is group of tissues that performs specific function. The parts of digestive system are , mouth, oesophagus, stomach, liver, pancreas, gall bladder , small intestine, large intestine, rectum and anus. Once foods are broken into small enough parts, your body can absorb and move the nutrients to where they are needed. Your large intestine absorbs water, and the waste products of digestion become stool. The brown colour is due to a chain of processes, which begins with the breakdown of old red blood cells to produce a chemical called bilirubin. Flowers are the reproductive organ of a plant. Stem helps in transporting the water and minerals to all the parts of a plant and support and keeps the leaves in the sunlight. Seeds need water, warmth and air to germinate. Seed dispersal allows plants to spread out from a wider area and avoid competing with one another for light, water and nutrients from the soil. If, an organism is removed from a food chain, it will disrupt the energy flow in the ecosystem. The organisms that depend on it will also die. Human activities—deforestation, pollution (air and water), affects which in turn affects the food chain and as a result ecosystem is disrupted resulting in global warming and climate change. Switch—use conductors. Switch makes or breaks a circuit. A circuit is the path along which electricity moves. Mains and batteries. Never put fingers or other objects in an outlet. Keep metal objects out of toasters. Never use anything with a cord or plug around water. Never pull a plug out by its cord. Stay away from substations and power lines. Don't climb on power poles. Never fly kites near power lines. Change frayed wires, don't overload a socket. Different types of forces— change shape, change speed and change direction. Either Attract or repel. Like poles attract, similar poles repel. Uses of magnets –</p>	<p><b>Animals including Humans—Life Cycles and Circulatory System</b> What are the stages in the life cycle of butterfly? ( insect) How is it different from that of a bird?( Aves) and a cat( mammal) What are parts of circulatory system? How will you keep your lungs healthy? How does the blood flows through your body? How will you keep your heart healthy? What are the functions of blood? <b>Plants(microorganism)/Habitats /Evolution</b> Why a camel is called a ship of the desert? How is a cactus adapted to survive in a desert? How is a polar bear adapted to live in the arctic ocean? Why do we need to study fossils? What is evolution and can explain what it is? Can you grow plants from stem or root instead of a seed? What is yeast? Why is it used in making bread? <b>Forces</b> Why do things move or remain in their place? Why does a ball stop after sometime after it has been kicked? How will you make a paper glider or a spinner stay in flight for a longer time? Why planets stay in an orbit? Why do you have tides? Where friction is useful and where it is harmful? How can you reduce air resistance? <b>Materials—Materials (Mixtures and Separation and Changing State)</b> What is the difference between mixing and dissolving? What is a solution? Can you get back the flour when you have baked it to make bread? Give two examples of methods of separation giving reasons <b>Energy—Light</b> How do you see? What is reflection? Where are different mirrors used ? Why can you see yourself in a shiny surface? How is a camera like your eye? Why do we have solar and lunar eclipse? Why do we see a rainbow? <b>Energy- Electricity</b> Why does your Christmas lights do not work if one bulb fuses? Why can you make an oven work and keep the microwave switched off? What is a fuse? What do you mean by the bulb is fused? <b>Earth and Space</b> Why do we have day and night? Why do we have seasons? Why we see different phases of moon?</p>	<p>Life cycle of insect—egg, larva, pupa and adult life cycle of bird—egg, chick, nestling, fledgling, juvenile, adult and old age. Life cycle of a mammal— embryo, adolescence, adult and senior Parts of circulatory system—heart, blood vessels (arteries, veins and capillaries) and blood. Functions of blood are— transporting oxygen and nutrients to the lungs and tissues. Forming blood clots to prevent excess blood loss. Carrying cells and antibodies that fight infection. Bringing waste products to the kidneys and liver, which filter and clean the blood. Regulating body temperature. For healthy lungs: Stop smoking, exercise regularly, reduce your exposure to pollutants, avoid infections, do breathing exercises – yoga, eat healthy food, wash your hands and take appropriate vaccines against pneumonia. For Healthy heart: Exercise, eat healthy balanced diet, don't smoke, avoid alcohol, use herbs and spices instead of salt, eat less fried and fatty foods, be active, sleep recommended hours. Camel—The long eyelashes keep sand out of the camel's eyes. Thick eyebrows shield the eyes from the desert sun. A camel's nostrils can close so it doesn't get sand up its nose. A camel can go a week or more without water, and they can last for several months without food. Camels store fat in the hump, not water. a healthy camel's body temperature fluctuates (changes) throughout the day Camels feet are wide so they can walk on sand more easily. Their huge feet help them to walk on sand without sinking into it. Camels have thick lips so they can eat the prickly desert plants without feeling pain. The colour of their bodies helps them to blend into their environment. Camel's ears are covered with hair, even on the inside. The hair helps keep out sand or dust that might blow into the animal's ears. Cactus—succulent green stem to store water, leaves modified to spines to reduce water loss due to transpiration. Wide and deep roots absorb rainwater on the surface and reach the underground deep water. Polar bear– Polar bears have thick, whitish fur covering black skin. The fur and a thick layer of fat keep them warm. The black skin helps to absorb heat from the Sun. Polar bears even have fur on the soles of their feet. This fur protects the feet and keeps them from slipping. Sharp claws also help polar bears to walk on ice and to kill prey. Fossils provide information about living things that inhabited the Earth millions of years ago. Fossils can show the evolution of species over time Evolution is a process witnessed in living entities wherein gradual changes are observed in the characteristics of species over generations attributed to the process of natural selection. Yes through Asexual reproduction Yeast is a single cell microorganism that is part of the fungus family. Yeast has two roles in bread, one main function and a secondary function. The primary function of yeast in bread is as a leavening agent. This means it gives rise to the bread and creates a more open and airy texture. The secondary function of yeast in bread is to add strength to the dough. This, in conjunction with the gluten adds a strength to the dough that allows the air bubbles produced to be held into a strong structure. Force can make things move, change shape or change their speed. The ball stops after some time due to the force of friction between the ball and the ground. Change shape, weight, tail etc. Gravitational force</p>

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What is pitch and volume?

Igneous, metamorphic and sedimentary. Properties of rocks decide their use, example granite strong, durable, shiny, attractive, hard so used as kitchen tops. Fossils are the remains or traces of plants and animals that lived long ago. Fossils are found in sedimentary rocks because no heat is used while their formation. Heating and cooling can change the states of matter.

Factors that affect Evaporation are surface area, temperature, wind speed and humidity. Light travels in a straight line

. Shadows are formed when an object blocks light. The size of shadow depends on the distance of the object from the source of light

Real life examples of shadows –eclipses.

Sound is vibrations that travel through a medium.

Pitch is how high or low a sound is. Volume is how loud or quiet a sound is. Sound vibrations in form of waves enter your ear, the vibrations travel down the ear canal until they reach the eardrum that starts vibrating. The eardrum sends the vibrations through the middle ear bones (the hammer, the anvil and the stirrup) into the inner ear. The inner ear is known as the cochlea and is shaped a bit like a snail. There are thousands of tiny hair cells inside the cochlea. These hair cells change the vibrations into electrical signals that are sent to the brain through the hearing nerve. The brain tells you that you are hearing a sound and what that sound is.

Useful – Driving of a vehicle on a surface. Applying brakes to stop a moving vehicle. Skating. Walking on the road. Writing on notebook/ blackboard. Flying of aeroplanes. Drilling a nail into wall. Sliding on a garden slide.,

Disadvantages of friction: Friction produces heat which damages the moving parts of a machine. Friction produces wear and tear on the contacting surfaces. This reduces the life of machine parts, tyres and shoe soles. A lot of energy is wasted in overcoming the friction before an object starts moving.

A mixture where two or more substances are physically but not chemically combined and can be separated again by physical methods such as sieving, filtering, evaporating etc. When the mixture is a solid in a liquid it will either produce a solution or a suspension.

A solution is clear and will never settle out, a suspension is cloudy and will eventually settle out.

Solution-If the solid(solute) dissolves in the liquid (solvent), a solution is formed.

Reversible and irreversible change

Filtering, distillation, sieving,

The images we see are made up of light reflected from the objects we look at. Light enters the eye through the cornea. . The pupil adjusts in response to the light. The lens focuses the light onto the retina. The light is focused onto the retina. . The optic nerve transmits visual information to the brain.

Reflection occurs when a light ray hits a surface and bounces off.

A plane mirror is used in kaleidoscopes in our homes plane mirrors are used by all the persons. They are used in brushing, shaving, and makeup. Plane mirrors are used by a dentist to see the inside of the mouth. They are also used in microscopes to reflect the beam of light. Plane mirrors are used in solar cookers because they excellently reflect solar rays. Plane mirrors are also used for security purposes in big shops. Convex mirrors are used as side mirrors in vehicles They are also used in sunglasses to reflect all the rays coming from the sun. They are also used in magnifying glasses. used in street lights to reflect light on the road. concave mirrors are used in reflecting telescopes used in headlights and in torches

Solar eclipses occur when the Moon passes between Earth and the Sun, leaving a moving region of shadow on Earth's surface. Lunar eclipses occur when Earth passes between the Sun and the Moon, casting a shadow on the Moon.

Refraction and dispersion of light

Because they are in series. Current follows a single direction, if circuit breaks, they stop working.

Parallel circuit. The fuse breaks the circuit if a fault in an appliance causes too much current to flow. This protects the wiring and the appliance if something goes wrong. As the Earth moves around the Sun it rotates on its axis, so we have day and night. The side of the Earth facing the Sun is bathed in light and heat (daytime). The side of the Earth facing away from the Sun, out towards space, is darker and colder (night time).

As the earth spins on its axis, producing night and day, it also moves about the sun in an elliptical (elongated circle) orbit that requires about 365 1/4 days to complete. The earth's spin axis is tilted with respect to its orbital plane. This is what causes the seasons.

The Moon itself does not generate light; it is lit up by the Sun. As the Moon orbits the Earth, the portion of illuminated Moon that we see changes – giving rise to the phases of the Moon. Starting at the New Moon phase, the Moon appears to expand in illumination. Once it reaches the Full Moon phase, it then seems to decrease in illumination until we reach the New Moon again after one month.

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