Long Term Framework 2324 for Science with Takeaways

	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
Whole school opportunities and experiences						
Nursery	**I wonder what is special.** Talk about the differences between materials (S)	**I wonder what is special.** Talk about the differences between materials (S)	**I wonder how things change.** To be able to say if it is warm or cold (S)	**I wonder how things change.** To be able to say if it is warm or cold (S)	**I wonder what happens next.** To know one thing that makes them similar and different to someone else (S)	**I wonder what happens next.** To know one thing that makes them similar and different to someone else (S)
Reception			**I wonder how things change.** To talk about why some things happen e.g. melting, freezing, floating, sinking (S).	**I wonder how things change.** To talk about why some things happen e.g. melting, freezing, floating, sinking (S).	**I wonder what happens next.** Make observations of their local area, animals and plants (S). To know that as the seasons change, what we see and hear also changes (S) To know there are 4 seasons and their names (S). To know that in Spring and Summer plants bloom and grow (S). Talk about some life cycles such as a butterflies (S),	**I wonder what happens next.** Make observations of their local area, animals and plants (S). To know that as the seasons change, what we see and hear also changes (S) To know there are 4 seasons and their names (S). To know that in Spring and Summer plants bloom and grow (S). Talk about some life cycles such as a butterflies (S),
Year 1	**Everyday Materials** I know that a material is what it is made from. I can name 6 materials (Wood, plastic, glass, metal, water, rock) I can identify something made from the above materials. I can sort objects by material for example – wood, not wood	**Everyday Materials** I can sort objects by at least 3 materials – wood, metal, glass I can name a property for the materials I know – for example wood is hard. I know the properties – hard/soft, rough smooth, shiny/ dull, bendy/ not bendy I understand that some materials are waterproof. I understand that some materials are absorbent.	**Seasonal Change** I know that it is colder in winter and warmer in the summer. I can describe weather in winter and summer. I know amount of daylight is less in the winter. I can describe seasonal change that I have observed such as how trees change through the different seasons.	**Plants** I have looked closely at plants in the school gardens. I can name 4 common garden plants. (such as daffodil, rose etc) I can name 4 common wild plants. (such as daisy, dandelion etc) I can name the parts of a plant. (petal, flower, stem, leaf, root) I can name parts of a tree (roots, trunk, branches, leaves)	**Animals, including Humans** I can sort living and non-living, I can classify and name animals based on what they eat (herbivores, carnivores and omnivores) I can sort animals into categories.(Inc. fish, amphibians, reptiles, birds and mammals) I can name parts of my body that I can see. I can link a body part to each sense.	**Animals, including Humans** I can sort living and non-living, I can classify and name animals based on what they eat (herbivores, carnivores and omnivores) I can sort animals into categories.(Inc. fish, amphibians, reptiles, birds and mammals) I can name parts of my body that I can see. I can link a body part to each sense.
Year 2	**Uses of everyday materials** I can name the materials form Y1 as well as brick, paper and cardboard I can find an object made from the above materials. I can sort the above materials. I can explain that a property is what a material is like and how a material behaves. I can explain squash, bend, twist and stretch. I am aware of opaque and transparent materials. I can suggest why a material might/might not be suitable for a particular purpose.	**Animals including humans** I can explain the basic life cycle for a frog. I can explain the life cycle for a chicken. I can explain the lifecycle for a human. I know animals need water, air and food. I know why exercise, a healthy diet and good hygiene are important for humans.	**Animals including humans** I can explain the basic life cycle for a frog. I can explain the life cycle for a chicken. I can explain the lifecycle for a human. I know animals need water, air and food. I know why exercise, a healthy diet and good hygiene are important for humans.	**Plants** I know seeds and bulbs grow into plants. I have planted seeds. I have grown a seed into a plant. I know plants need water to grow. I know plants need light and suitable temperatures to grow and stay healthy.	**Living things and their habitats.** I can identify 3 things that are living, dead and have never lived. I know that a habitat is the natural place something lives (such as an ocean, a river or a rainforest) I can identify and name plants and animals in a variety of habitats (desert, woodland, pond, arctic) I can match living thing to their habitat. I can describe how animals find their food. I can name some different sources of food for animals. I can explain a simple food chain.	**Living things and their habitats.** I can identify 3 things that are living, dead and have never lived. I know that a habitat is the natural place something lives (such as an ocean, a river or a rainforest) I can identify and name plants and animals in a variety of habitats (desert, woodland, pond, arctic) I can match living thing to their habitat. I can describe how animals find their food. I can name some different sources of food for animals. I can explain a simple food chain.
Year 3	**Rocks** I can describe sedimentary and igneous rocks and explain the difference. I can describe how soil is made from a mixture of water, air, minerals and organic matter. I can describe how fossils are formed over a long period of time. I can compare and group rocks based on appearance and physical properties. I can explain my reasons for grouping the rocks.	**Light** I know dark is the absence of light. I know I need light to see. I know light can be reflected from a surface. I can explain how a shadow is formed and how I can change the shadow size. I can explain the danger of direct sunlight and how to protect myself.	**Forces and Magnets** I know that a force is a push or a pull. I know that magnetic forces can act at a distance. I know that magnets can attract or repel. I can sort materials on the basis of whether they are attracted to a magnet. I know a magnet has 2 poles. I can predict whether magnets will attract or repel each other, depending on which poles are facing.	**Animals including humans (Nutrition & skeleton)** I know that a balanced diet means eating food from different food groups. I know animals need water, food and air to stay healthy and these are transported through the body. I know that humans and some animals have a skeleton and I can describe it.	**Plants** I know the function of roots, stem, leaves, and flowers. I know that plants need water, light, and nutrients from the soil, air and space to grow. I know that different plants need different amounts of these – for example a cactus needs little water. I know water is absorbed by the roots, travels up the stem and evaporates from the leaves, causing more water to be absorbed.	**Plants** I know the function of roots, stem, leaves, and flowers. I know that plants need water, light, and nutrients from the soil, air and space to grow. I know that different plants need different amounts of these – for example a cactus needs little water. I know water is absorbed by the roots, travels up the stem and evaporates from the leaves, causing more water to be absorbed.

				I know that humans have muscles which work in pairs to move the bones. I know the purpose of the skeleton is to protect organs, allow movement and support the body.	I know the lifecycle of a plant and that the flower's purpose is to create seeds which are then dispersed and begin to grow into a new plant.	I know the lifecycle of a plant and that the flower's purpose is to create seeds which are then dispersed and begin to grow into a new plant.
Year 4	**Animals including humans** I can identify and name the parts of the human digestive system. I can explain the functions of the organs in the human digestive system. I can identify the different types of teeth in humans. I can describe the functions of the different teeth in humans. I can use and construct food chains to identify producers, predators and prey.	**Sound** I know that sound is a type of energy. Sounds are created by vibrations which spread out over distance. I know that sound vibrations pass through air particles until the particle next to your ear vibrates. I know how sound travels through the ear and then is changed into electrical signals which are sent to the brain. I know that pitch is how high or low a sound is and this can be changed. Faster vibrations create a higher pitch and sower vibrations create lower pitch. I know that the size of the vibration affects the volume of the sound.	**Living things and their habitats- Environmental Changes and Dangers** I know that changes to an environment can be natural or caused by humans. I know that changes can be positive as well as negative. I can explain how changes might endanger living things. I can give 2 examples of natural things that can change an environment (such as storms or earthquakes) I can give 2 examples of human made changes (such as pollution or deforestation).	**Electricity** I can identify and name 6 appliances that require electricity to function. I know that a circuit is a pathway that electricity can flow around. I can construct a series circuit. I can identify and name the components in a series circuit (cells, wires, bulbs, switches and buzzers.) I can draw a circuit diagram. I can predict and test whether a lamp will light in my circuit. I can describe the difference between a conductor and an insulator. I can give an example of a conductor and an insulator. (E.g. Metal is a good conductor and wood is a good insulator.)	**States of Matter** I can group materials based on whether they are a solid, a liquid or a gas. I can describe how materials can change state (such as heat causing solids to change to liquids and vice versa) I can explore and explain how water changes state. I can measure the temperatures at which water changes state. I can explain the water cycle. I can explain evaporation and condensation in the water cycle.	**Living things and their habitats- Grouping of Animals / classification keys** I know that plants and animals can be grouped in different ways based on their characteristics. I know that classification keys can be used to help group, identify and name living things. I can create my own classification key.
Year 5	**Properties and changes of materials** I know a solution is made when solid particles mixed with liquid particles. I know a solution is made when solid particles are mixed with liquid particles. I know a suspension is when particles do not dissolve. I know materials which dissolve are soluble and materials which don't are insoluble.	**Properties and changes of materials** I know reversible changes are when materials can be separated by filtering, sieving and evaporating. I can give an example of a reversible change. I can discuss an irreversible change for example burning wood. I can give evidenced reasons why materials should be used for a specific purpose, such as a good thermal insulator. I can give evidenced reasons why materials should not be used for a specific purpose	**Forces and motion** I can explain what gravity is. I can explain the impact gravity has on our lives. I know that friction is a force that acts between two surfaces or objects that are moving, or trying to move, across each other. I can discuss the effects if friction. I can explain that air resistance is a type of friction caused by air pushing on any moving object. I can explain that water resistance is a type of friction caused by water pushing on any moving object. I can give examples of air and water resistance.(e.g. In parachuting or swimming)	**Forces and motion** I know how pulleys can be used to make a small force lift a heavier load. The more wheels in a pulley, the less force is needed to lift a weight. I know gears or cogs can be used to change the speed, force or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other. I can explain how levers can be used to make a small force lift a heavier load. A lever always rests on a pivot.	**Earth and Space** I can describe and explain the movement of the Earth and other planets in relation to the Sun. I can describe and explain the movement of the Moon in relation to the Earth. I can explain how night and day are caused by the rotating of the Earth. I can describe the Sun, Earth and Moon (including the term spherical.)	**Living Things and their habitats & Animals including humans** I can describe the changes as humans develop to old age. I can describe the life cycle of a mammal, an amphibian, an insect and a bird. I can describe the differences between the different lifecycles. I can describe the process of reproduction in plants. I can describe the process of reproduction in animals.
Year 6	**Electricity and Circuits** I can explain that the number and voltage of cells will make a bulb brighter or dimmer in a circuit. I can explain that the number and voltage of cells will make a buzzer louder or quieter in a circuit. I know resistance is the difficulty an electric current has when flowing around the circuit. I can compare and give reasons for why components work and do not work in a circuit. I can draw circuit diagrams using the correct symbols for bulb, wire, motor, buzzer, switch, cell and battery.	**Living Things and Habitats** I know that the Linnaeus system can be used to classify living creatures. I know Scientists group similar things together then split them again and again based on differences to classify them. I can explain how a creature has been classified.(such as a dog)	**Light** I know light waves travel out from sources of light in straight lines. I know light waves can travel through a vacuum such as space. I know light travels from the sun, hits an object and then travels in a straight line to the eye. This is how we can see.	**Light** I know that a shadow is the same shape as the object that cast it and can explain why. I can explain how simple optical instruments work including periscope, telescope, binoculars, mirror and magnifying glass.	**Animals** I know the circulatory system includes the heart, veins, arteries and blood. I know the circulatory system transports substances around the body. I can describe the function of the heart, blood vessels and blood. I can discuss the impact of diet, exercise, drugs and lifestyle on health (including humans). I know that blood transports nutrients and water in animals and humans.	**Evolution and Inheritance** I can describe how the earth and living things have changes over time. I can explain how fossils (as preserved remains of ancient plants or animals) can be used to find out about the past. I know that animals and plants reproduce and produce offspring and that offspring are not identical to their parents. I can explain how animals and plants are adapted to suit their environment. For example a polar bear has white fur to camouflage with the snow. I can link adaptation over time to evolution. I can explain evolution is the gradual process by which different kinds of living organisms have developed from earlier forms over millions of years.