



Long Term Science Plan - PKC

Science						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Autumn/ Humans	Autumn/ Floating and Sinking	Winter and Animals	Plants/ Springs and Magnets	Plants and Minibeasts	Summer and Minibeasts
Year 1	<p>The Human Body</p> <p>To know our body has 5 senses.</p> <p>To know that we use our eyes to see.</p> <p>To know that sounds travel through our ears to send messages to our brain.</p> <p>To know that our senses help us to understand the world around us.</p> <p>To understand that some people have problems with their senses e.g. blindness or deafness.</p> <p>Significant People: Helen Keller</p>	<p>Animals and their Needs</p> <p>To name and describe common animals.</p> <p>To know that scientists group animals according to their features.</p> <p>To understand that we can group animals according to what they eat.</p> <p>To describe the needs of a pet.</p> <p>To describe an animal using scientific words.</p>	<p>Taking Care of the Earth</p> <p>To describe different ways that we damage the Earth.</p> <p>To know that there are natural and man-made resources that people on Earth use.</p> <p>To identify logging as a way of harvesting the Earth's natural resources.</p> <p>To know that people create pollution which can harm the environment.</p> <p>To know that recycling means turning old things into something new.</p>	<p>Materials and Magnets</p> <p>To recognise everyday materials.</p> <p>To identify the properties of materials.</p> <p>To explain why materials are chosen for specific tasks.</p> <p>To understand that materials can be sorted according to whether they are or are not attracted to magnets.</p> <p>To investigate which materials would be most suitable for a waterproof coat.</p> <p>Significant People: Charles Macintosh</p>	<p>Plants</p> <p>To know what plants, need in order to grow.</p> <p>To name and describe the parts of a plant.</p> <p>To understand that plants spread their seeds to make new plants.</p> <p>To understand that some trees are evergreen and that some are deciduous.</p> <p>To recognise which parts of plants we eat.</p>	<p>Seasons and Weather</p> <p>To name and describe the four seasons.</p> <p>To know that tools are used to gather information about the weather.</p> <p>To present data using a graph.</p> <p>To know that there are different types of cloud.</p> <p>To understand that weather forecasts help people prepare for different types of weather.</p> <p>To understand that different types of weather can be dangerous.</p>
Year 2	<p>Materials and Matter</p> <p>To know that materials have specific uses based on their properties.</p> <p>To know that inventors think carefully about materials and their properties.</p> <p>To know that scientists use microscopes to see very small things around us.</p> <p>To know that the shapes of solid objects made from some materials can be changed.</p> <p>To understand that water can be solid and also a liquid.</p>	<p>The Human Body</p> <p>To know that animals including humans need food, air and water to survive.</p> <p>To know that our skeleton and our muscles help us to move.</p> <p>To understand that our bodies digest our food.</p> <p>To know that our heart pumps blood around our body.</p> <p>To understand that scientists have found ways to keep us healthy.</p> <p>Significant People: Edward Jenner and Louis Pasteur</p>	<p>Electricity</p> <p>To identify things that use electricity.</p> <p>To know that electricity is useful but it can also be dangerous.</p> <p>To construct an electrical circuit.</p> <p>To identify materials that conduct electricity.</p>	<p>Living Things and their Environments</p> <p>To know the differences between living, dead and never been alive.</p> <p>To know that a habitat is the name given to where plants or animals live.</p> <p>To describe rainforests as hot and moist and deserts as dry and hot or cold.</p> <p>To know that each habitat has plants and animals adapted to survive.</p>	<p>Plants</p> <p>To know that there are many different kinds of plants.</p> <p>To know that seeds and bulbs grow into mature plants.</p> <p>To know healthy plants need light and water to grow.</p> <p>To understand that plants are grown for food.</p>	<p>Astronomy</p> <p>To know there are eight planets in our solar system.</p> <p>To know that Earth travels around the sun.</p> <p>To know that the moon orbits the Earth.</p> <p>To know that groups of stars are called constellations.</p> <p>To know that scientists, including astronomers, learn from each other to make new discoveries about space.</p> <p>Significant People: Tim Peake and Abd al-Rahman al-Sufi</p>



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	Significant People: George De Mestral			To name and describe animals who live in underground habitats. To know that a food chain describes 'who eats what' within a habitat.		
Year 3	<p>Rocks</p> <p>To know there are many different types of rocks. To know that geologists sort rocks into three main groups. To understand that some rocks allow water to pass through but others to not. To know that some rocks contain fossils which can tell us about life millions of years ago. To recognise that soils are made from rocks and organic matter.</p> <p>Significant People: Mary Anning</p>	<p>Light</p> <p>To understand that we need light in order to see things. To know that transparent materials let light through and opaque materials block light from passing through. To know that mirrors can reflect light in different ways based on their shape. To investigate how shadows change in size and shape throughout the day.</p>	<p>Forces and Magnets</p> <p>To know that a force is a push or a pull. To know that friction is the force between two surfaces. To investigate that magnets have an invisible push or pull force. To know that magnets have poles and a magnetic field. To know that magnetic forces are not all the same strength.</p> <p>Significant People: Leonardo da Vinci and Isaac Newton</p>	<p>Plants</p> <p>To understand that flowering plants all have roots, a stem or trunk but do not all look the same. To know that different plants need different amounts of things in order to thrive. To investigate how water moves from the roots of a plant upwards via the stem. To know that pollination is needed for flowering plants to reproduce. To understand that plants spread their seeds in many different ways to reproduce.</p> <p>Significant People: Joseph Banks and Agnes Arber</p>	<p>The Human Body</p> <p>To know that we can control our voluntary muscles but that we do not control our involuntary muscles. To know our bones help us to move and protect some parts of our bodies. To know that the brain is the centre of the nervous system. To understand that animals get nutrition from what they eat. To describe the simple functions of the basic parts of the digestive system in humans.</p>	<p>Cycles in Nature</p> <p>To know that our natural environment changes as the seasons change. To understand how plants change through the seasons. To know that plants grow, live and reproduce. To know that some animals migrate. To recognise the different stages in the life cycle of a frog.</p>
Year 4	<p>States of Matter</p> <p>To know and compare three main states of matter; solid, liquid and gas. To know that evaporation occurs when a liquid turns into a gas. To know that condensation occurs when gas turns into liquid (water vapour into liquid water). To know that precipitation returns water to the surface of the Earth.</p>	<p>Sound</p> <p>To understand how sound is produced and how it travels. To know sound travels through the air. To know the difference between pitch and volume. To understand how the human voice makes different sounds. To know vibrations in sound waves, travel through the different parts of the ear.</p>	<p>Classification of Plants and Animals</p> <p>To understand that we can classify animals and plants. To know that fish and amphibians are vertebrates. To know some of the key features of reptiles, birds and mammals. To understand and describe key features of insects, arachnids and molluscs. To know that plants can be classified into two main</p>	<p>The Human Body</p> <p>To know that cells are the building blocks of the human body, and we need nutrition to keep our bodies working as they should. To identify the different type of teeth in humans and their simple functions. To understand how the brain and mouth start the digestive process. To know how food is digested and excreted.</p>	<p>Electricity</p> <p>To know that electricity is useful but also very dangerous. To construct an electrical circuit. To understand switches open and close a circuit. To know that the lightbulb was a very important invention. To identify materials that conduct electricity.</p>	<p>Ecology</p> <p>To know that living things depend on their habitat. To understand that living things are linked within a food chain. To know that living things depend on each other in an ecosystem. To understand that air pollution is a human threat to the environment. To know how humans have changed the environment in our local area.</p>



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	To know how water changes state within the water cycle.		groups; flowering and non-flowering. Significant People: Carl Linnaeus	To understand the essential vitamins and minerals needed in our body.	Significant People: Humphrey Davy, Thomas Edison and Lewis Latimer.	
Year 5	<p>Materials</p> <p>To understand that materials can be grouped according to their properties and to know the definitions of some properties.</p> <p>To know that thermal conductivity means that heat can be transferred through a material.</p> <p>To understand a solution is a mixture of a solid in a liquid where the solid has broken into parts too small to see.</p> <p>To know there are methods for separating mixtures including solutions.</p> <p>To understand that all changes are either reversible or irreversible.</p> <p>Significant People: Jabir ibn Hayyan</p>	<p>Astronomy</p> <p>To know that astronomers believe the world started with the big bang and that it is still expanding today.</p> <p>To understand that gravity is a force that holds objects together.</p> <p>To know the planets of our solar system.</p> <p>To understand the moon's phases.</p> <p>To understand that the solar system is just a small part of our universe.</p> <p>Significant People: Neil Armstrong, Buzz Aldrin and Michael Collins Edwin Hubble</p>	<p>Forces</p> <p>To know that a force is either a push or a pull.</p> <p>To understand that friction occurs when two materials move against each other.</p> <p>To investigate how objects with a large surface area will have greater air resistance that objects with a small surface area.</p> <p>To investigate how objects with a large surface area will have greater water resistance that objects with a small surface area.</p> <p>To understand the simple machines help us to increase the force we apply to an object to help us move it.</p> <p>Significant People: Isaac Newton</p>	<p>Living Things and their Habitats</p> <p>To recognise how plants and animals in our local area change throughout the year.</p> <p>To know that mammals and amphibians have different life cycles.</p> <p>To know that insects and birds have different life cycles.</p> <p>To know that flowering plants need pollen to reproduce.</p> <p>To know that Jane Goodall and David Attenborough have dedicated their lives to studying the natural world and communicating their findings.</p> <p>Significant People: David Attenborough and Jane Goodall</p>	<p>Meteorology</p> <p>To know the atmosphere protects Earth and enables life.</p> <p>To know that human actions can impact the Earth's atmosphere.</p> <p>To know that the UK experiences six air masses affecting the weather.</p> <p>To know a weather front is a boundary where warm and cold air meet.</p> <p>To know that thunder and lightning is caused by electrical charge moving through the air.</p>	<p>The Human Body</p> <p>To recognise the first stages of human growth: gestation, birth and infancy.</p> <p>To know that the human body changes as it goes through puberty.</p> <p>To identify physical and mental changes to the human body that happen from adulthood to old age.</p> <p>To research how humans and animals have growth stages of different lengths.</p>
Year 6	<p>The Human Body</p> <p>To understand that the heart pumps blood around the body.</p> <p>To understand that blood vessels transport blood around the body.</p> <p>To understand how heart rate can speed up or slow down depending on what is happening to the body.</p>	<p>Electricity</p> <p>To know that electricity flows in a circuit.</p> <p>To understand that the brightness of a lamp or the volume of a buzzer depends on the number or voltage of cells used in a circuit.</p> <p>To know that switches control the flow of electricity in a circuit.</p>	<p>Light</p> <p>To know that light is a source of illumination which allows us to see.</p> <p>To know that light enters our eyes enabling us to see.</p> <p>To test the hypothesis that shadows are always the same shape as the object that made them.</p>	<p>Evolution</p> <p>To know that fossils are physical evidence of life from long ago.</p> <p>To know that offspring are usually similar, but not identical, to their parents.</p> <p>To know that living things can adapt to suit their environment.</p>	<p>Classification of Living Things</p> <p>To know there are five kingdoms of organisms.</p> <p>To know that plant and animal cells are different.</p> <p>To know that taxonomy is used to show how organisms are related to each other.</p>	<p>Reproduction</p> <p>To know that asexual reproduction does not require male and female cells.</p> <p>To understand sexual reproduction in flowering plants.</p> <p>To know many plants, clothe their seeds with fruit.</p> <p>To understand sexual reproduction in animals.</p>



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	<p>To understand there are things that can be varied and changed in an experiment. To understand that blood is made up of different components.</p>	<p>To know that circuits can be used to make electrical toys. Significant People: Alessandro Volta</p>	<p>To understand what light is made of and how a prism works. To understand a periscope uses mirrors to reflect an image of something out of sight.</p>	<p>To know who Charles Darwin was and what natural selection is. To know Alfred Wallace was and understand his contribution to the theory of evolution. Significant People: Alfred Wallace and Charles Darwin</p>	<p>To know that vertebrates are classified into five groups: fish, amphibians, reptiles, birds and mammals. To understand that scientists divide invertebrates into groups including insects, arachnids and molluscs. Significant People: Carl Linnaeus</p>	<p>To know that different animals have different growth stages.</p>
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