



St Peter's Science Long Term Plan with Objectives 2020-2021



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p style="text-align: center;"><i>In EYFS, Science is covered as 'Understanding of the World: People and Communities/ The World.</i></p> <p>As well as all the topics below, the children are encouraged to learn through play by providing a variety of continuous provision activities both indoors and outdoors. A wide variety of equipment is available to develop the children's curiosity and understanding of the World. These include, large and small construction activities, use of bikes, dramatic play, clay and dough play, sand and water play. There are many opportunities to explore water in relation to weather - rain - ice - snow e.g. develop vocabulary associated with weather, describe the weather, recognise the need for appropriate clothing and equipment; begin to discover that water can exist in different states. The children are encouraged to use the outdoor area on a daily basis e.g. A rain day - feel rain on face, hands. Talk about clothes we wear - materials they are made from, listen to the rain as it falls on different surfaces - ground, umbrella, window, roof, look at water in spouting and drains, pour water into funnels, look at some puddles outdoors, splash in the puddles, watch rain run down the window. Investigate absorbency; develop relevant language e.g. drip on/through, fall to bits, go through, roll off/run off, soak in/up, stay dry, -pour some water on a bench/floor, allow children to investigate various materials to mop it up - what happened to the water? Where has it gone? How can you tell? How can you get the water back?</p> <p>Sand-explore the properties of dry/wet sand - compare • look at similarities, differences, patterns in dry/wet sand • use their senses to observe changes in sand e.g. adding water to dry sand • select appropriate equipment for different types of sand play • use building skills. Use information to learn how the different sands behave eg. • know that dry sand runs freely and sticks to the hand if it is wet • develop descriptive language - pour, trickle, lumpy, smooth, bumpy, colour, soft, hard • discover that patterns made in dry sand will not be as well defined • damp sand holds impressions and impressions in very wet sand will disappear quickly.</p> <p>Water- experience and explore the nature and properties of water, develop descriptive vocabulary e.g. wet, warm, cold, hot, splash, gurgle, trickle, swish, drip. Experience the therapeutic nature of playing with water- scooping it up, pouring it out, then to scooping it up and pouring it with increasing accuracy into another container, filling the container without letting it overflow, explore the properties of water e.g. pour, run, drips.</p> <p>-ask questions about how things work and why they happen e.g. stones in water, water wheels, flow of water, floating, sinking</p> <p>-use their senses to investigate water e.g. colour - sight, baby bath - smell, hot/cold - touch, bottled water - taste</p> <p>Activities and investigation will be recorded using floor books.</p>						
N	<p>Science covered as 'Understanding of the World: People and Communities/ The World.</p>		<p>Hot and Cold (Inc Chinese New Year) Links: Weather and seasons</p>	<p>Everything Changes Links: Living things, growing up, all about me, taking care of ourselves</p>	<p>Awesome Animals Links: living things, animals and sea life, habitats, pets</p>	<p>Jolly Jobs Links: Growing up</p>
N			<p>How does ice melt? Ice in the environment. Winter walk How do we dress for the cold weather/hot weather? How does our weather change in winter? Weather watching- wellie walking. Exploring materials-Ice balloons. Ice - melting experiment. Making predictions about what we think will happen. Observations of change - Spring. Observing Summer changes - season hunt</p>	<p>Keeping ourselves healthy Our favourite food. Is it healthy? Wake-up shake-up! - Exercise Healthy food and snacks - tasting fruit and vegetables Body parts - songs e.g. heads, shoulders, knees and toes How does our garden grow?</p>	<p>Sorting animals. Farm Animals- where do these animals live? What noises do they make? Matching farm animals with their young Sorting farm animals according to different characteristics. Sorting pets according to different characteristics. Animals - vet role-play, talking about our pets at home - how do we look after them? Sea creatures- what are they called? Where do they live?</p>	<p>Changes as we grow-what can we do now that babies can't do? What can adults do that we can't?</p>

			Weather watching		Sorting sea creatures. Making models of sea creatures and animals with playdough etc.	
R	Science covered as 'Understanding of the World: People and Communities/ The World.		Claws and Paws (Inc Chinese New Year) Links: Animals, living things, habitats and materials	Ahoy Me Hearties Links: materials (floating and sinking)	Reach for the Sky Links: Living things, growing up, all about me, taking care of ourselves	Creepy Crawlies Links: living things, animals and sea life, habitats, pets
R			Animals and their bodies. Similarities and differences in animal bodies. Investigate materials- build a waterproof shelter for a dog etc. Sorting-Which materials are waterproof? Woodland animals/ Birds-how many can we see in our playground? Are they the same or different? Where do squirrels live? What do they eat? Animals that hibernate.	Floating and sinking- linked to junk model boats Sorting- which materials float? Which materials sink? Investigate-Which is the best material to make a boat that floats. Properties of water.	Wake-up shake-up! - Exercise- how can we stay healthy Healthy food and snacks - tasting fruit and vegetables Sorting foods. Observing changes as we grow. What can we do now that we couldn't do as babies or as toddlers? Growing plants	Sorting mini beasts. Mini beast hunt-where do they live? What do they look like? Make a wormery or a house for a snail. The life cycle of a butterfly. Watching caterpillars turn into butterflies - in our classroom. Observations of change - life cycles.
<p style="text-align: center;">Working Scientifically- Years 1 and 2</p> <ul style="list-style-type: none"> • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions. 						
1	All about Me Identify, name, draw and label the basic parts of the human body and say which	Seasons and Weather Observe changes across the four seasons.	Materials Distinguish between an object and the material from which it is made.	Pets Identify and name a variety of common animals including	Plants and Trees Identify and name a variety of common wild and garden plants, including	Animals and Sea life Identify and name a variety of common animals that are

	part of the body is associated with each sense.	Observe and describe weather associated with the seasons and how day length varies.	<p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>fish, amphibians, reptiles, mammals and birds.</p> <p>Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, and mammals, including pets)</p>	<p>deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Observe changes across the four seasons.</p>	carnivores, herbivores and omnivores.
2	<p>Everyday Materials</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p>	<p>Investigating Materials</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Growing Up</p> <p>Notice that animals, including humans, have offspring which grow into adults</p>	<p>Taking Care of Ourselves</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Growing Plants</p> <p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Living Things and Habitats</p> <p><i>(food chains)</i></p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p>

						Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
--	--	--	--	--	--	---

Working Scientifically Years 3 and 4

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings

3	Stone Age and Fossils <i>(how we survive)</i> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Describe in simple terms how fossils are formed when things that have lived are trapped within rock.	Rock Detectives Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Recognise that soils are made from rocks and organic matter.	Muscles, Bones and Mummification Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Forces and Magnets Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials based on whether they are attracted to a magnet, and identify some magnetic materials.	Light and Dark Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object.	Plants Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth- (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including
---	--	--	---	--	---	---

				Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which way poles are facing.	Find patterns in the way that the size of shadows change.	pollination, seed formation and seed dispersal.
4	Electricity Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.	Changing States Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	The Digestive System Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions.	Sound Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.	Living Things (food chains) Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Construct and interpret a variety of food chains, identifying producers, predators and prey.	Habitats Recognise that living things can be grouped in a variety of ways. Recognise that environments can change and that this can sometimes pose dangers to living things.

Working Scientifically Years 5 and 6

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

- recording data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

5	<p>Feel the Force</p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>Changes in Materials</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	<p>Properties of Materials</p> <p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p>	<p>The Circle of Life (life cycles and plants)</p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the changes as humans develop to old age.</p>	<p>Humans and Animals (reproduction)</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>The Earth and Beyond</p> <p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>
6	<p>Electricity</p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p>	<p>Living Things and Their Habitats</p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and</p>	<p>Evolution</p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p>	<p>Light</p> <p>Recognise that light appears to travel in straight lines.</p> <p>Use the idea that light travels in straight lines to explain that objects are seen</p>	<p>Light</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>Animals and Humans</p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p>

	<p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>	<p>differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p>	<p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p>because they give out or reflect light into the eye.</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p>		<p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>
--	---	--	---	---	--	--

Where possible our science topics link in with our topic overviews for history and geography