

## St Peter's CE (VA) Primary School

## Science Rolling Programme Objectives

	KS1 Year A		KS1 Year B
Explorers (Geography) 8 wks	<ul> <li>Identify and name a variety of plants and animals in their habitats, including micro-habitats.</li> <li>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.</li> <li>Explore and compare the differences between things that are living, dead, and things that have never been alive.</li> <li>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.</li> </ul>	Enchanted Wood (Science)	<ul> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> <li>Observe changes across the four seasons.</li> <li>Observe and describe weather associated with the seasons and how day length varies.</li> </ul>
Core Investigation	<ul> <li>What happens when part of the food chain is missing?</li> <li>completing the chain</li> <li>How can we group animals? (Australian/British)</li> <li>Use a key with questions and yes and no answers to group them</li> </ul>	Core Investigation	<ul> <li>How can we sort these trees? Evergreen and deciduous</li> <li>Use a key and questions with yes/no answers</li> <li>What materials are waterproof?</li> <li>Test a variety of materials over a bowl and pour water.</li> <li>(More able measure how much water passes through to find out the most waterproof material)</li> </ul>
Sports Camp 4wks (Science)	<ul> <li>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> <li>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>		

Core Investigation	<ul> <li>Do taller people have bigger feet?</li> <li>What happens to our bodies when we exercise?</li> </ul>	Animals 3wks (Science)	<ul> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals and their habitats including micro habitats.</li> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>Notice that animals, including humans, have offspring which grow into adults.</li> <li>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.</li> <li>Find out about and describe the basic needs of animals, including humans, for survival and how they rely on each other (water, food and air).</li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</li> </ul>
Sunflowers 7wks (Science)	<ul> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> <li>Observe and describe how seeds and bulbs grow into mature plants.</li> <li>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul>	Core Investigation	<ul> <li>How can we classify and organise animals? (fish, amphibians, reptiles, birds and mammals)</li> <li>Create classification key through questions. Sorting pictures investigation (large scale- children stepping onto the correct pictures)</li> <li>Does it live on land? (yes/no) Does it have 4 legs? Etc</li> <li>Experiment offspring observation over time (tadpoles/caterpillars to butterflies/eggs hatching to chicks)</li> </ul>
Core Investigation Wacky Races (DT)	<ul> <li>Does a plant need soil and water to grow?</li> <li>Germination investigation- Soil and water Soil no water No soil and water</li> <li>No soil and no water</li> <li>Does a plant need a suitable temperature to grow?</li> <li>Distinguish between an object and the material from which it is made.</li> </ul>	Great Fire (History)	<ul> <li>Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>

	<ul> <li>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>Describe the simple physical properties of a variety of everyday materials.</li> <li>Compare and group together a variety of everyday materials on the basis of their simple physical properties and suitability for a purpose.</li> <li>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> </ul>	<ul> <li>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>
Core Investigations	<ul> <li>Which material is the strongest? Tissue paper, printing paper, card, wood, plastic</li> <li>Which surface is the best surface for a car to travel on?</li> </ul>	Core• Which material is the best to build a house with?Investigations• Which materials can be found around the school? Investigate • Which objects are made from the same material? Sorting investigation

Year A/C	Lower KS2	Upper KS2
Electricity 3wks	<ul> <li>Identify common appliances that run on electricity</li> <li>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>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</li> <li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	<ul> <li>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>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</li> <li>Use recognised symbols when representing a simple circuit in a diagram.</li> <li>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</li> </ul>
Core Investigation	<ul> <li>Which materials conduct electricity? Conductor or insulator experiment (text a variety of items to see which ones are conductors and which are insulators.</li> </ul>	<ul> <li>Conductor experiment- Does the voltage affect the brightness of the bulb? Explain why</li> <li>How can we change the brightness of the bulb in a circuit?</li> </ul>

	• Identify metals as good conductors. What are the best conductors? What are the best insulators?	• Does the length and thickness of wire affect the brightness of bulb. Use wire of different lengths and diameter to see if it affects the brightness of the bulb.
Humans 3wks	<ul> <li>Describe the simple functions of the basic parts of the digestive system in humans</li> <li>Recognise the impact of diet, exercise, drugs and lifestyle on the ways our bodies function.</li> <li>Identify the different types of teeth in humans and their simple functions</li> <li>Identify that humans have skeletons and muscles for support, protection and movement.</li> <li>Identify that, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</li> </ul>	<ul> <li>Recognise that living things have changed over time</li> <li>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>Describe the changes as humans develop to old age.</li> <li>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>Describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>
Core Investigation	<ul> <li>Nutrition- Which foods contain the most sugar? Use packaging on food to measure how much sugar is in different foods. 4grams of sugar= 1 tsp. Make a prediction which food is highest in sugar.</li> </ul>	<ul> <li>Do younger children have a slower heart rate that older people? Experiment- Measure the heart rate of different ages to find out if younger children have a slower heart rate.</li> <li>How does movement affect our heart rate?</li> <li>How is fitness measured? (investigate)</li> </ul>
Plants 2wks	<ul> <li>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>Investigate the way in which water is transported within plants</li> <li>recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul>	<ul> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> <li>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</li> <li>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>
Core Investigation	<ul> <li>How do plants transport water? Water transport experiment using celery and food colouring in water</li> <li>What affect does the environment have on a plant? Change of environment on a plant experiment- Put water cress in sunlight at room temperature observe it. Then place it in a fridge and then observe it weekly. What happens?</li> </ul>	<ul> <li>What does a plant need to grow? Germination experiment- Cress seeds:- Soil no water no light Soil with water no light Soil water and light No soil, just water no light No soil water and light No soil water or light</li> <li>Investigate temperature as well.</li> </ul>

Space 2wks	<ul> <li>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>Describe the movement of the Moon relative to the Earth</li> <li>Describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<ul> <li>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>Recognise that they need light in order to see things and that dark is the absence of light</li> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</li> </ul>
Core	<ul> <li>How does the angle of the torch affect the shape of the</li></ul>	<ul> <li>Do heavy objects fall faster? Do larger objects fall faster?</li></ul>
Investigation	shadow? Light and shadow experiment.	Gravity experiment

Year B/D	Lower KS2	Upper KS2
Animals 3wks	<ul> <li>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</li> <li>Identify that some animals have skeletons and muscles for support, protection and movement.</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> <li>Recognise that living things can be grouped in a variety of ways</li> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>Recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul>	<ul> <li>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> <li>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>Describe the life process of reproduction in some plants and animals.</li> <li>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>Give reasons for classifying plants and animals based on specific characteristics.</li> <li>Describe the ways in which nutrients and water are transported within animals</li> </ul>
Core Investigation	<ul> <li>Does the size of an animal determine where it is on the food chain?</li> <li>Do the jaws of animals link to the kind of food it eats?</li> <li>Do carnivores and herbivores have the same kind of teeth?</li> </ul>	<ul> <li>How do human skeletons differ to animal's skeletons?</li> <li>How can vertebrates be classified? Mammals, reptiles, amphibians, fish and birds - develop their own key from their own questions.</li> <li>Are all invertebrates small? (investigate)</li> </ul>

	<ul> <li>Animals either live in water or on land-true or false (investigate)</li> </ul>	
Materials 3wks	<ul> <li>Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>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)</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>	<ul> <li>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>Demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>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.</li> <li>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> </ul>
Core Investigation	<ul> <li>What affect does heat have on water?</li> <li>Can steam turn back to water?</li> <li>Does temperature affect the speed of evaporation?</li> </ul>	<ul> <li>Which materials are soluble?</li> <li>Does salt dissolve faster in warmer water?</li> <li>How many teaspoons of sugar dissolve in (?) amount of water?</li> <li>Will sugar/salt eventually stop dissolving? Explain</li> <li>Can filtration be used to purify water?</li> </ul>
Forces 2wks	<ul> <li>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>Observe how magnets attract or repel each other and attract some materials and not others</li> <li>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</li> <li>Describe magnets as having two poles</li> <li>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> <li>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>Compare how things move on different surfaces</li> </ul>	<ul> <li>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</li> <li>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>
Core Investigation	<ul> <li>How can we measure magnetism?- Investigate</li> <li>Does the size of the magnet effect its magnetism?</li> </ul>	<ul> <li>Does surface area affect air resistance as a force that acts against gravity? (parachute experiment)</li> <li>Water resistance experiment using plasticine and varying surface area of objects.</li> </ul>

		• What is made from metal and how do you know?
Light/Sound 2wks	<ul> <li>Notice that light is reflected from surfaces</li> <li>Recognise that light appears to travel in straight lines</li> <li>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.</li> <li>Identify how sounds are made, associating some of them with something vibrating</li> <li>Recognise that vibrations from sounds travel through a medium to the ear</li> <li>Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>	<ul> <li>Recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>Find patterns in the way that the size of shadows change</li> <li>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li> <li>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> <li>Find patterns between the pitch of a sound and features of the object that produced it</li> <li>Find patterns between the volume of a sound and the strength of the vibrations that produced it</li> </ul>
Core Investigation	<ul> <li>How does water volume affect pitch in glasses?</li> <li>How does distance affect sound? Musical instrument distance experiment.</li> </ul>	<ul> <li>How does the size of an instrument affect its pitch?</li> <li>Can a bigger instrument be heard from further away?</li> </ul>

## Geography (Earth) KS2

- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago.
- Compare and group together different kinds of rocks on the basis of their appearance and simple physical features.
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock
- Recognise that soils are made from rocks and organic matter