

# Partney Church of England Primary School

## KS2 Science Long Term Plan – Year 3 and 4

### Science Intent: Year 3 and 4

In KS2 we move away from the immediate world around us, and try to observe the miniscule and the massive through the eyes of scientists! We bring the world to Partney through topics such as 'Urban Pioneers' which focusses on Light, within a Geographical context of towns and cities. The natural world around us is represented in Predator! and Blue Abyss. Throughout Cycle A and Cycle B, topics build up investigational skills as well as knowledge about plants, animals including humans, materials and their properties, changes of state and care and compassion for the environment. Our enhanced science curriculum is structured in a way that allows both Year 3 and 4 to study the same topic, by differentiating where appropriate year 3 and 4 expectations within the sequence of lessons.



## Science Year 3 and 4: Cycle A

	Autumn Term 1 and 2	Term 3 and 4	Term 5	Term 6
<b>Cycle A</b>	<b>Mighty Metals Magnets and Forces*</b>	<b>Bottoms, Burps and Bile (Human Nutrition ) Including: How do smells get up your nose?*</b>	<b>Rocks, Relics and rumbles (Rocks and Soils)</b>	<b>Play List including: What conducts electricity? How do Plugs work? Can you make an electrical circuit out of playdough?*</b>
<b>Information</b>	<b>A mighty start to the year with a Science led topic building on what the children have learned about the properties of materials in KS1.</b>	<b>All the things that children love to learn about! A fun way to find out more about teeth, digestion and – yes – what happens to all that healthy food!</b>	<b>The terrific and terrifying topic of Volcanoes and Earthquakes!</b>	<b>Music and the Science of sound is closely linked in this topic!</b>
<b>Working Scientifically</b>	<p>The following will be applied throughout Science topics. Where a Science topic is starred there is a heavy concentration of planning and carrying out investigations – skills based.</p> <ul style="list-style-type: none"> <li>• asking relevant questions and using different types of scientific enquiries to answer them</li> <li>• setting up simple practical enquiries, comparative and fair tests</li> <li>• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment including thermometers and data loggers</li> <li>• gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>• recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>• using straightforward scientific evidence to answer questions or to support their findings</li> </ul>			
<p><b>National curriculum content</b></p> <p>Y3/4 curriculum will be taught on a two year cycle linked closely to Cornerstones topics wherever possible to ensure meaningful experiences for the children.</p> <p><b>Occasionally we may change a topic/order of topic in order to engage</b></p>	<p>Compare how things move on different surfaces</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>Describe magnets as having two poles</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p> <p>Year 4 Objectives</p> <p>(How do smells get up your nose?)</p> <p>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter.</p> <p>(Year 3 objectives)</p>	<p>Identify how sounds are made, associating some of them with something vibrating</p> <p>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</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p> <p>Identify common appliances that run on electricity</p>

<p><b>the children with a national or local event or in order to work collaboratively with other schools or partners.</b></p>	<p>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</p> <p>(Year 3 objectives)</p>	<p>this happens in degrees Celsius (°C)</p> <p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>(Year 4 objectives)</p>		<p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>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</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>(Year 4 objectives)</p>
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## Science Year 3 and 4: Cycle B

Cycle B	Term 1	Term 2	Term 3	Term 4	Term 5 and 6
<b>Topic and Science focus</b>	<b>Urban Pioneer</b> Why do shadows change?* Why do cat's eyes glow at night?*(Light)	<b>1066 – How far can an arrow fly?*</b>	<b>Misty Mountain Winding River (Incorporating States of Matter)</b>	<b>Blue Abyss including: How does pollution affect habitats?*</b>	<b>Predator! Including: What are flowers for?*</b>
<b>Working Scientifically</b>	<p>The following will be applied throughout Science topics. Where a Science topic is starred there is a heavy concentration of planning and carrying out investigations.</p> <ul style="list-style-type: none"> <li>• asking relevant questions and using different types of scientific enquiries to answer them</li> <li>• setting up simple practical enquiries, comparative and fair tests</li> <li>• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment including thermometers and data loggers</li> <li>• gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>• recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>• using straightforward scientific evidence to answer questions or to support their findings</li> </ul>				
<b>Information</b>	<b>An engaging topic to start the year. In the autumn term the change in light is part of our shared experience.</b>	A standalone and fun science investigation to build skills and knowledge in 'working scientifically' conducting fair tests and using scientific language. This experience should give good knowledge to support further work in forces in Year 5 + 6.	This geography topic is the perfect context for introducing and exploring changing states of matter and gain knowledge of the water cycle. It is a perfect cross-curricular way to gain scientific knowledge of states of matter.	Continuing with a water theme: this science based topic explores how and why the sea is habitat to so many creatures. A local based investigation helps us to understand how unfamiliar habitats can change over time and what influences that.	Connected with the Bottoms Burps and Bile, this is the animal and plant version! The knowledge learned in one topic can be built upon in the other and referred back to depending on whether Cycle A or B. It is the perfect time of year to get outside and
<b>NC curriculum objectives covered</b>	Recognise that they need light in order to see things and that dark is the absence of light	See 'working scientifically' above.	identify the part played by evaporation and condensation in the water cycle and associate the rate of	Recognise that living things can be grouped in a variety of ways  Explore and use classification keys to help	Predator: 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

	<p>Notice that light is reflected from surfaces</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Find patterns in the way that the size of shadows changes.</p>		<p>evaporation with temperature</p> <p>(Year 4 objectives)</p>	<p>group, identify and name a variety of living things in their local and wider environment</p> <p>(Working scientifically as above.)</p>	<p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p><b>(Year 3 objectives)</b></p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p><b>(Year 4 objective)</b></p> <p><b>What are flowers for?</b>  identify and describe the functions of different parts of flowering plants: roots, stem-trunk, leaves and flowers</p> <p>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</p> <p>investigate the way in which water is transported within plants</p> <p>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p> <p>(Year 3 objectives)</p>