

## Science Long Term Plan

*Science is taught both discreetly, and as a part of broader cross-curricular topics, depending on the year group and topic.*

Year Group	Children should be taught about:	The topic this will be based on:	Essential Learning Objectives: (Taken from NC/C Quigley)
Year 1	<ul style="list-style-type: none"> <li>➤ Identify and name a variety of common plants</li> <li>➤ Identify the basic structure of common flowering plants</li> </ul>	Percy the Park Keeper	<p><b>Working Scientifically (Year 1/2)</b></p> <ul style="list-style-type: none"> <li>❖ asking simple questions and recognising that they can be answered in different ways</li> <li>❖ observing closely, using simple equipment</li> <li>❖ performing simple tests</li> <li>❖ identifying and classifying</li> <li>❖ using their observations and ideas to suggest answers to questions</li> <li>❖ gathering and recording data to help in answering questions.</li> </ul>
Year 1	<ul style="list-style-type: none"> <li>➤ Identify and name a variety of common animals</li> <li>➤ Identify and name common animals that are carnivores, herbivores and omnivores</li> <li>➤ Describe and compare the structure of common animals</li> <li>➤ Identify and name the basic parts of the human body and the sense associated with it</li> </ul>	Safari	
Year 1	<ul style="list-style-type: none"> <li>➤ The difference between an object and the material from which it is made</li> <li>➤ Identify and name a variety of everyday materials</li> <li>➤ Describe simple physical properties of everyday materials</li> <li>➤ Compare and group together a variety of everyday materials based on their physical properties</li> </ul>	Chocolate	
Year 1	<ul style="list-style-type: none"> <li>➤ Observe changes across the four seasons</li> <li>➤ Observe and describe difference in weather and day length associated with the seasons</li> </ul>	Ice and Fire	

Year 2	<ul style="list-style-type: none"> <li>➤ 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> <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>➤ Notice that animals, including humans, have offspring which grow into adults</li> <li>➤ Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>➤ Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	Animals	<p><b>Working Scientifically (Year 1/2)</b></p> <ul style="list-style-type: none"> <li>❖ asking simple questions and recognising that they can be answered in different ways</li> <li>❖ observing closely, using simple equipment</li> <li>❖ performing simple tests</li> <li>❖ identifying and classifying</li> <li>❖ using their observations and ideas to suggest answers to questions</li> <li>❖ gathering and recording data to help in answering questions.</li> </ul>
Year 2	<ul style="list-style-type: none"> <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>	Plants	
Year 2	<ul style="list-style-type: none"> <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>	Materials	

Year 3	<ul style="list-style-type: none"> <li>➤ Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</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>➤ Investigate the way in which water is transported within plants</li> <li>➤ Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>	Plants	<p><b>Working Scientifically (Year 3/4)</b></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</li> <li>❖ working with data in a variety of ways to help in answering questions</li> <li>❖ recording findings using simple scientific language, drawings and diagrams</li> <li>❖ reporting on findings from enquiries, sharing conclusions</li> <li>❖ using results to draw simple conclusions and evaluate</li> <li>❖ identifying changes related to simple scientific ideas</li> <li>❖ using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>
Year 3	<ul style="list-style-type: none"> <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 humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>	Animals	
Year 3	<ul style="list-style-type: none"> <li>➤ Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>➤ Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>➤ Recognise that soils are made from rocks and organic matter.</li> </ul>	Rocks	
Year 3	<ul style="list-style-type: none"> <li>➤ Recognise that they need light in order to see things and that dark is the absence of light</li> <li>➤ Notice that light is reflected from surfaces</li> <li>➤ Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>➤ Recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>➤ Find patterns in the way that the size of shadows change</li> </ul>	Light	
Year 3	<ul style="list-style-type: none"> <li>➤ Compare how things move on different surfaces</li> <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> </ul>	Forces and Magnets	

Year 4	<ul style="list-style-type: none"> <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>	Living things and their habitats	<b>Working Scientifically (Year 3/4)</b> <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</li> <li>❖ working with data in a variety of ways to help in answering questions</li> <li>❖ recording findings using simple scientific language, drawings and diagrams</li> <li>❖ reporting on findings from enquiries, sharing conclusions</li> <li>❖ using results to draw simple conclusions and evaluate</li> <li>❖ identifying changes related to simple scientific ideas</li> <li>❖ using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>➤ Describe the simple functions of the basic parts of the digestive system in humans</li> <li>➤ Identify the different types of teeth in humans and their simple functions</li> <li>➤ Construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	Animals	
Year 4	<ul style="list-style-type: none"> <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>	States of Matter	
Year 4	<ul style="list-style-type: none"> <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>➤ 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</li> <li>➤ Recognise that sounds get fainter as the distance from the sound source increases</li> </ul>	Music	
Year 4	<ul style="list-style-type: none"> <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>	Electricity	

Year 5	<ul style="list-style-type: none"> <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>➤ 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>	Forces	<b>Working Scientifically (Year 5)</b> <ul style="list-style-type: none"> <li>❖ planning different types of scientific enquiries to answer questions</li> <li>❖ taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>❖ recording data and results of increasing complexity using scientific diagrams and graphs</li> <li>❖ using test results to make predictions to set up further comparative and fair tests</li> <li>❖ reporting and presenting findings from enquiries, including conclusions, causal relationships</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>➤ Compare and group together everyday materials on the basis of their properties</li> <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>➤ Use knowledge of solids, liquids and gases to decide how mixtures might be separated</li> <li>➤ Give reasons, based on evidence, for the particular uses of everyday materials, including metals, wood and plastic</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</li> </ul>	Materials	
Year 5	<ul style="list-style-type: none"> <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>	Earth and Space	
Year 5	<ul style="list-style-type: none"> <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> </ul>	Animals and their habitats	
Year 5	<ul style="list-style-type: none"> <li>➤ Describe the changes as humans develop to old age</li> </ul>	Sex and Relationship Education (SRE)	