



Years 4 – 6 Science Long Term Plan

Autumn 1	Spring 1	Summer 1
States of Matter Properties & Changes of Materials	Animals Including Humans	Living Things and Habitats
<p>Year 4 pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Compare and group materials together, according to whether they are solids, liquids or gases. 2. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celcius. 3. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <p>Year 5 Pupils should be taught to:</p> <ol style="list-style-type: none"> 1. 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. 2. Know that some materials will dissolve in liquid to form a solution, 	<p>Year 4 Pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Describe the simple function of the basic parts of the digestive system in humans 2. Identify the different types of teeth in humans and their simple functions 3. Construct and interpret a variety of food chains, identifying producers, predators and prey. <p>Year 5 Pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Describe the changes as humans develop to old age. <p>Year 6 pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. 2. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. 	<p>Year 4 pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Recognise that living things can be grouped in a variety of ways. 2. Explore and use classification keys to help group, identify and name a variety of living things in their local environment 3. Recognise that environments can change and that his can sometimes pose dangers to living things. <p>Year 5 pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Describe the differences in the life cycles of a mammal an amphibian, an insect and a bird. 2. Describe the process of reproduction in some plants and animals. <p>Year 6 pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and



<p>and describe how to recover a substance from a solution.</p> <ol style="list-style-type: none"> 3. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. 4. Give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals wood and plastic 5. Demonstrate that dissolving, mixing, and changes of state are reversible changes. 6. Explain that some changes result in the formation of new materials, and that kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. 	<ol style="list-style-type: none"> 3. Describe the ways in which nutrients and water are transported within animals, including humans. 	<p>differences, including micro-organisms, plants and animals.</p> <ol style="list-style-type: none"> 2. Give reasons for classifying plants and animals based on specific characteristics.
Autumn 2	Spring 2	Summer 2
Electricity	Big Science Event – working Scientifically focus	Forces
<p>Year 4 pupils should be taught:</p> <ol style="list-style-type: none"> 1. Identify the common appliances that run on electricity. 	<p>Child led weekly sessions around a Big Question</p>	<p>Year 5 Pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Explain that unsupported objects fall towards the Earth because of the



<ol style="list-style-type: none"> 2. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 3. 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. 4. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 5. Recognise some common conductors and insulators, and associate metals with being good conductors. <p>Year 6 pupils should be taught to:</p> <ol style="list-style-type: none"> 1. Associate the brightness of a lamp or the volume of a buzzer with the number of voltage of cells used in the circuit. 2. 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. 3. Use recognised symbols when representing a simple circuit in a diagram. 		<p>force of gravity acting between the Earth and the falling object.</p> <ol style="list-style-type: none"> 2. Identify the effects of air resistance, water resistance and friction that act between moving surfaces. 3. Recognise that some mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect.
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Science whole school Focus days – 1 per term

Year 4/5/6 Focus: Oxford Science Enrichment day.

Workshop: Think the Link

Year 4 Focus: Sound

Pupils should be taught to:

1. Identify how sounds are made, associating some of them with something vibrating.
2. Recognise that vibrations from sound travel through a medium to the ear.
3. Find patterns between the pitch of a sound and features of the object that produced it
4. Find patterns between the volume of a sound and the strength of the vibrations that produced it
5. Recognise that sound gets fainter as the distance from the sound source increases.

Year 4/5 focus: Working Scientifically – Animals including humans (Y5 foci)

Pupils could explore the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.

- **Living things and their habitats**

Pupils could observe and compare the life cycles of plants and animals in their local environment with other plants and animals around the world (deserts, oceans, rainforest, prehistoric times)

- **Animals incl humans (Y4 foci)**

Pupils could compare teeth of carnivores and herbivores, suggesting reasons for the differences; finding out what damages the teeth and how to look after them.

Year 5 Focus: Earth & Space

Pupils should be taught to:

1. Describe the movement of the earth, and other planets, relative to the Sun in the solar system
2. Describe the movement of the moon relative to the Earth

Year 6 focus: Evolution & Inheritance

Pupils should be taught to:

1. 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>3. Describe the sun, Earth and Moon as approximately spherical bodies</p> <p>4. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p>2. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>3. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
	<p>Year 6 focus: Light</p> <p>Pupils should be taught:</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 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>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	