

## Science - End Points

### EYFS Working Scientifically:

- Know how to explore the environment with the five senses
- Know how to explore how things work and how things change
- Know how to choose resources needed to explore
- Know how to make observations and create simple drawings
- Know how to make simple recordings e.g. weather symbols

	Animals inc. Humans	Seasonal Change	Plants	Materials	Forces	Light
<b>N</b>	<ul style="list-style-type: none"> <li>• Know the names of some common animals in the local environment.</li> <li>• Know vocabulary associated with animal life cycles e.g. a duckling - egg, duckling (baby), feathers, warmth, food, water, die</li> </ul>	<ul style="list-style-type: none"> <li>• Know names to describe the weather e.g. windy, snowy, sunny</li> </ul>	<ul style="list-style-type: none"> <li>• Know vocabulary associated to plant life cycles e.g. seed, seedling, flower, leaf, soil, grow, water, die.</li> <li>• Know how to care for growing plants.</li> </ul>	<ul style="list-style-type: none"> <li>• Know vocabulary associated with changes of materials when they heat or cool e.g. melt, warm, hot, freeze, cold, cool, hard (solid), runny (liquid)</li> <li>• Know the terms float and sink</li> <li>• Know vocabulary associated with properties of materials: e.g. twist, stretch, bend, snap, move</li> </ul>		<ul style="list-style-type: none"> <li>• Know the terms 'light', 'dark' and shadow.</li> </ul>
<b>R</b>	<ul style="list-style-type: none"> <li>• Know the specific names of animals and the different environments they live in.</li> </ul>	<ul style="list-style-type: none"> <li>• Know the names of the seasons: Spring, Summer, Autumn, Winter</li> <li>• Know the effect of changing seasons on the natural world and associated vocabulary e.g. leaves changing colour</li> <li>• Use a widening vocabulary linked with the weather e.g. stormy, foggy, icy, wet, dry</li> </ul>	<ul style="list-style-type: none"> <li>• Know the names of some common animals and plants in the local environment.</li> <li>• Know the importance of caring for the environment</li> </ul>	<ul style="list-style-type: none"> <li>• Know that some materials are magnetic and some materials are non-magnetic.</li> <li>• Know that the state of a material can change e.g. water can become ice</li> </ul>		

## KS1: Working Scientifically

### Plan:

- Know how to ask simple questions
- Know that questions can be answered in different ways

### Do:

- Know how to use simple equipment to observe closely
- Know how to perform simple tests
- Know how to identify and classify

### Record:

- Know how to gather and record data to help answer questions

### Review:

- Know how observations and ideas can be used to answer questions

	Animals inc. Humans	Seasonal Change	Plants	Materials	Forces	Light
<b>Y 1</b>	<ul style="list-style-type: none"> <li>• Know key characteristics of a range of animals: fish, amphibians, reptiles, birds, mammals (inc. pets)</li> <li>• Know the diets of carnivores, herbivores and omnivores</li> <li>• Know key parts of the human body and the sensory role of specific parts</li> </ul>	<ul style="list-style-type: none"> <li>• Know the names of the seasons in order</li> <li>• Know changes that occur across the seasons</li> <li>• Know how weather patterns &amp; hours of daylight across the seasons change</li> </ul>	<ul style="list-style-type: none"> <li>• Know specific types of plants and trees from the following groups: garden flower, wildflower, deciduous tree and evergreen tree e.g. rose, dandelion, oak, conifer</li> <li>• Know the difference between deciduous and evergreen trees</li> <li>• Know the basic parts of flowering plants and trees: roots, stem, trunk, leaves, flowers, fruits and bark</li> </ul>	<ul style="list-style-type: none"> <li>• Know different types of everyday materials e.g. wood, plastic, glass, metal, water, rock</li> <li>• Know properties of everyday materials</li> <li>• Know the difference between an object and the material it is made from</li> </ul>		
<b>Y 2</b>	<ul style="list-style-type: none"> <li>• Know that animals produce offspring that grow into adults</li> <li>• Know that animals need food, water and air to survive</li> <li>• Know the importance of</li> </ul>	<b>Living Things &amp; their Habitats</b>	<ul style="list-style-type: none"> <li>• Know that plants produce offspring that grow from seeds or bulbs into mature plants</li> <li>• Know that plants need water, light and a suitable temperature to</li> </ul>	<ul style="list-style-type: none"> <li>• Know how everyday materials are suited to different uses</li> <li>• Know how the shape of some solid objects can be changed by squashing, bending,</li> </ul>		

	diet, exercise & hygiene for humans	<ul style="list-style-type: none"> <li>• Know the terms 'living', 'non-living' &amp; 'dead'</li> <li>• Know how habitats vary and how specific animals and plants are suited to specific ones</li> <li>• Know the meaning of the term microhabitat</li> <li>• Know an example of a simple food chain</li> </ul>	grow and stay healthy	twisting & stretching		
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## LKS2: Working Scientifically

### Plan:

- Know how to ask relevant questions and use different types of scientific enquiries to answer them e.g. set up simple practical enquiries, comparative and fair tests

### Do:

- Know how to make careful and systematic observations
- Know how to use standard units to take accurate measurements
- Know how to use a range of equipment, inc. thermometers/data loggers

### Record:

- Know how to gather, record, classify and present data in a variety of ways
- Know how to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

### Review:

- Know how to report findings from enquiries, inc. the use of oral & written explanations, and displays or presentations of results and conclusions
- Know how to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Know how to identify differences, similarities or changes related to simple scientific ideas and processes
- Know how to use straightforward scientific evidence to answer questions or support findings

	Animals inc. Humans	Living Things & their Habitats	Plants	Materials	Forces	Light
<b>Y3</b>	<ul style="list-style-type: none"> <li>• Know that animals &amp; humans get nutrition from the food they eat</li> <li>• Know the importance of a balanced diet for health &amp; survival</li> </ul>		<ul style="list-style-type: none"> <li>• Know the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers, inc water transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Know that rocks differ in their appearance and properties</li> <li>• Know the process of fossilisation for</li> </ul>	<ul style="list-style-type: none"> <li>• Know that things move differently on different surfaces</li> <li>• Know examples of contact and non-contact forces</li> </ul>	<ul style="list-style-type: none"> <li>• Know that light is needed to see things and that dark is the absence of light</li> <li>• Know that some materials reflect more</li> </ul>

	<ul style="list-style-type: none"> <li>Know that skeletons and muscles within different animals aid support, movement and protection</li> </ul>		<ul style="list-style-type: none"> <li>Know additional plant needs (from Y2) for growth and survival e.g. air, nutrients from soil and room temperature to grow</li> <li>Know the role of flowers in the life cycle of flowering plants e.g. pollination, seed formation and seed dispersal</li> </ul>	<ul style="list-style-type: none"> <li>animals and plants</li> <li>Know that soil is made from rocks and organic matter, with these factors producing different types of soil</li> </ul>	<ul style="list-style-type: none"> <li>Know why magnets attract or repel materials and give examples</li> <li>Know why magnets attract and repel each other</li> </ul>	<ul style="list-style-type: none"> <li>light than others</li> <li>Know that the light from the sun can damage eyes</li> <li>Know why shadows form and why they can vary in size and direction</li> </ul>
<b>Y 4</b>	<ul style="list-style-type: none"> <li>Know the functions of body parts linked to the digestive system: mouth, oesophagus, stomach, small and large intestine, and anus</li> <li>Know different types of teeth and describe their functions: incisors, canines, molars</li> <li>Know how to construct food chain diagrams that identify producers, consumers, predators and prey</li> </ul>	<ul style="list-style-type: none"> <li>Know reasons for grouping animals</li> <li>Know how to use a classification key to group, identify and name plants and animals</li> <li>Know dangers posed to animals based on environmental change</li> </ul>		<ul style="list-style-type: none"> <li>Know why substances are classified as solids, liquids or gases</li> <li>Know how temperature can affect a material's state</li> <li>Know how evaporation and condensation form a part of the water cycle</li> </ul>	<b>Electricity</b>	<b>Sound</b>
					<ul style="list-style-type: none"> <li>Know electrical safety hazards</li> <li>Know common conductors and insulators</li> <li>Know how to create a simple circuit: bulb/lamp, cell, wire</li> <li>Know why a bulb may not light e.g. switch, broken circuit</li> </ul>	<ul style="list-style-type: none"> <li>Know the link between vibrations and sound</li> <li>Know the difference between pitch and loudness</li> <li>Know how the pitch of a sound can be altered</li> <li>Know what happens when sound passes through different mediums to the ear</li> </ul>

## UKS2: Working Scientifically

### Plan:

Know how to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

### Do:

Know how to take measurements, using a range of scientific equipment with increasing accuracy and precision, and taking repeat readings when appropriate

### Record:

Know how to record data and results of increasing complexity by using scientific diagrams and labels, classification keys, tables, scatter graphs, bar graphs and line graphs

### Review:

Know how to use test results to make predictions and to set up further tests

Know how to present findings from enquiries, including conclusions, in oral and written forms e.g. displays, written reports and other presentations

Know how to explain causal relationships and degrees of trust

Know how scientific evidence can be used to support or refute ideas and arguments

	<b>Animals inc. Humans</b>	<b>Living Things &amp; their Habitats</b>	<b>Earth and Space</b>	<b>Materials</b>	<b>Forces</b>	<b>Light</b>
<b>Y 5</b>	<ul style="list-style-type: none"> <li>Know stages within development and growth of humans</li> <li>Know changes that occur to humans</li> </ul>	<ul style="list-style-type: none"> <li>Know differences in the life cycle of an amphibian, bird, insect and mammal</li> <li>Know differences</li> </ul>	<ul style="list-style-type: none"> <li>Know the movement of the Earth, and other planets, relative to</li> </ul>	<ul style="list-style-type: none"> <li>Know properties of a range of materials: e.g. hardness, solubility, transparency, conductivity,</li> </ul>	<ul style="list-style-type: none"> <li>Know the effect of gravity on unsupported objects</li> <li>Know how friction, inc. air resistance &amp; water</li> </ul>	

	<ul style="list-style-type: none"> <li>during puberty</li> <li>Know that gestation periods differ between animals, including humans</li> </ul>	<p>between sexual &amp; asexual reproduction in plants and animals</p>	<p>the Sun in the solar system.</p> <ul style="list-style-type: none"> <li>Know the movement of the Moon relative to the Earth.</li> <li>Know the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.</li> </ul>	<p>magnetism</p> <ul style="list-style-type: none"> <li>Know how tests can be used to select materials for everyday use</li> <li>Know how mixtures and solutions can be separated by filtering, sieving and evaporating</li> <li>Know how to explain reversible and non-reversible changes</li> </ul>	<p>resistance, acts between moving surfaces</p> <ul style="list-style-type: none"> <li>Know that pulleys, levers and gears enable a smaller force to have a greater effect</li> </ul>	
<b>Y 6</b>	<ul style="list-style-type: none"> <li>Know the names and functions of the main parts of the human circulatory system (heart, blood vessels and blood)</li> <li>Know the impact of diet, exercise, drugs &amp; lifestyle on the healthy functions of the human body</li> <li>Know ways that nutrients and water are transported within the human body</li> </ul>	<ul style="list-style-type: none"> <li>Know how plants, micro-organisms &amp; animals are categorised into groups based on observable characteristics</li> <li>Know examples of groups and sub-groups e.g. invertebrates as insects, spiders, snails, worms e.g. vertebrates as amphibians, birds, fish, mammals, reptiles</li> </ul>		<p style="text-align: center;"><b>Evolution &amp; Inheritance</b></p> <ul style="list-style-type: none"> <li>Know that fossils provide evidence of changes to living things over time</li> <li>Know that living things produce offspring of the same kind that aren't usually identical to their parents</li> <li>Know examples of adaptation and evolution aiding survival in an environment</li> </ul>	<ul style="list-style-type: none"> <li>Know how voltage affects the loudness of a buzzer and/or brightness of a bulb</li> <li>Know how volume and/or brightness are affected by the use of different components</li> <li>Know how conventional symbols are used on a circuit diagram</li> </ul>	<ul style="list-style-type: none"> <li>Know that light travels in straight lines</li> <li>Know that we see a light source, or an object that light shines upon, because light shines from the source or object into our eyes</li> <li>Know why a shadow forms the same shape as the object that casts it.</li> </ul>