

## Science Year 4

Key Threshold Concepts	<u>Scientific attitudes</u>
<ul style="list-style-type: none"> <li>• Science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review.</li> <li>• Living things can be classified into broad groups based on similarities and differences.</li> <li>• Everyday materials can be grouped together on the basis of their properties</li> <li>• Some changes result in the formation of new materials and this is not usually reversible</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Understand the world scientifically by exploring, talking about, testing and developing ideas about everyday phenomena and the relationships functions and interactions between living things and familiar environments</b></li> </ul>

Working Scientifically Key Skills						
Experimental skills and investigations	Analysis and Evaluation			Measurement		
<ul style="list-style-type: none"> <li>• I can ask relevant questions and using different types of scientific enquiries to answer them</li> <li>• I can setting up simple practical enquiries, comparative and fair tests</li> <li>• I can gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>• I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> </ul>	<ul style="list-style-type: none"> <li>• I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>• I can identify differences, similarities or changes related to simple scientific ideas and processes</li> <li>• I can use straightforward scientific evidence to answer questions or to support findings</li> <li>• I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> </ul>			<ul style="list-style-type: none"> <li>• I can make systematic and careful observations and where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> </ul>		
Scientific Enquiry Skills						
Observation over time	Pattern Seeking	Identifying, classifying and grouping	Comparative and Fair Testing	Research		
<ul style="list-style-type: none"> <li>• I can talk about things changing and decide when questions can be answered by observing over time</li> <li>• I can decide what observations to make, how often and what equipment to use</li> <li>• I can use a range of equipment to collect data using standard measures</li> <li>• I can make records using tables and bar charts</li> <li>• I can interpret graphs produced by data loggers</li> </ul>	<ul style="list-style-type: none"> <li>• I can talk about where patterns may be found and decide when questions can be answered by pattern seeking</li> <li>• I can decide on which sets of data to collect, what observations to make and what equipment to use</li> <li>• I can use a range of equipment to collect data using standard measures</li> <li>• I can make records using tables, bar charts and simple scatter graphs</li> </ul>	<ul style="list-style-type: none"> <li>• I can talk about criteria to use to sort and classify things</li> <li>• I can decide what equipment to use to identify and classify things</li> <li>• I can talk about things that can be grouped and decide when questions can be answered by sorting and classifying</li> <li>• I can carry out simple tests to sort and classify according to properties or behaviour</li> <li>• I can use Carroll diagrams and Venn diagrams to sort things</li> <li>• I can use simple keys and branching databases to identify things</li> <li>• I can make simple branching data bases(keys) for things that have clear differences</li> </ul>	<ul style="list-style-type: none"> <li>• I can talk about links between cause and effect and with help pose a fair test question</li> <li>• I can plan a fair test</li> <li>• I can suggest ways to improve fair tests</li> <li>• I can decide what data to collect</li> <li>• I can use a range of equipment to collect data using standard measures</li> <li>• I can draw simple conclusions from fair tests</li> <li>• I can talk about and explain, simple causal relationships using some scientific language</li> </ul>	<ul style="list-style-type: none"> <li>• I can talk about how things are and the way they work and decide when questions can be answered by research using secondary sources</li> <li>• I can use information sources to find the information needed</li> <li>• I can use data from other pupils</li> <li>• I can record what I have found out in my own words</li> <li>• I can present information in different ways</li> <li>• I can draw conclusions from what I have found out from different sources</li> <li>• I can talk about what the information and data means using scientific language</li> </ul>		
Vocabulary						
<ul style="list-style-type: none"> <li>• Identify</li> <li>• investigate</li> <li>• observation</li> </ul>	<ul style="list-style-type: none"> <li>• graph</li> <li>• measure</li> <li>• diagram</li> <li>• patterns</li> <li>• predict</li> </ul>	<ul style="list-style-type: none"> <li>• data</li> <li>• improve</li> <li>• thermometer, data logger</li> <li>• compare</li> </ul>	<ul style="list-style-type: none"> <li>• similarity</li> <li>• classify</li> <li>• construct</li> <li>• interpret</li> <li>• key</li> </ul>	<ul style="list-style-type: none"> <li>• Conclusion</li> <li>• fair</li> <li>• comparative and fair test</li> </ul>	<ul style="list-style-type: none"> <li>• Evidence</li> <li>• systematic</li> <li>• accurate measurements</li> </ul>	<ul style="list-style-type: none"> <li>• relevant</li> <li>• questions</li> <li>• scientific enquiry</li> <li>• secondary sources</li> </ul>

**Key Knowledge**

Y4

Biology		Chemistry	Physics	
Animals including Humans	Living Things - Habitats	States of Matter	Sound	Electricity
<ul style="list-style-type: none"> <li>I know the simple functions of the basic parts of the digestive system in humans</li> <li>I know the different types of teeth in humans and their simple functions.</li> <li>I know how to interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	<ul style="list-style-type: none"> <li>I know that living things can be grouped in a variety of ways</li> <li>I know that classification keys help group, identify and name a variety of living things in their local and wider environment</li> <li>I know that environments can change and that this can sometimes pose dangers to living things.</li> </ul>	<ul style="list-style-type: none"> <li>I know which materials are solids, liquids or gases</li> <li>I know that some materials change state when they are heated or cooled and I know the temperature at which this happens in degrees Celsius (°C)</li> <li>I know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul>	<ul style="list-style-type: none"> <li>I know that sounds are produced when objects vibrate but that vibrations are not always directly visible.</li> <li>I know that vibrations from sounds travel through a medium to the ear</li> <li>I know that the pitch of a sound varies depending on features of the object that produced it</li> <li>I know that the volume of a sound varies and this can depend on the strength of the vibrations that produced it</li> <li>I know that sounds get fainter as the distance from the sound source increases.</li> </ul>	<ul style="list-style-type: none"> <li>I know the names of common appliances that run on electricity</li> <li>I know how to make a simple series electrical circuit.</li> <li>I know the basic parts of an electrical circuit, including cells, wires, bulbs, switches and buzzers</li> <li>I know 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>I know that a switch opens and closes a circuit and how this relates to whether or not a lamp lights in a simple series circuit</li> <li>I know some common conductors and insulators, and that metals are good conductors</li> </ul>

**Vocabulary**

human digestive system digestion Saliva, Oesophagus, Stomach, Small intestine, Large intestine, Swallowing, Chewing, Rectum, Anus, Faeces, acid, enzymes  Teeth, Canines - ripping, Incisors – cutting/slicing Pre-molars, Molars – chewing/grinding, Cavities, Dentine, Plaque, Pulp-cavity, Fluoride, Tooth decay, Gums, Nerves, Enamel, brush, floss, decay  carnivore herbivore omnivore food chain Sun producers prey predators	environment, flowering, non-flowering plants, animals, vertebrate, invertebrates, organism classification keys  invertebrates- snails, slugs, worms, spiders, insects vertebrates- fish, amphibians, reptiles, birds, mammals plants – flowering plants, nonflowering plants  population, development, litter, deforestation, danger, Pollution Positive human impact Negative human impact	solid, liquid, gas, air, oxygen, powder, grain/ granular, crystals, ice/ water/ steam, water vapour, heated/ heating, cooled/ cooling, temperature, degrees, Celsius, melt, freeze, solidify, melting point, molten, boil, gaseous, particles, water cycle, evaporation, condensation, energy, transfer, boiling point, precipitation, transpiration	sound, sound source, noise, vibrate, travel, solid, liquid, gas, pitch, tune, high, low, volume, loud, quiet, fainter, muffle, vibrations, insulation, instrument, percussion, strings, brass, woodwind, tuned instrument, Echo, Tuning fork	appliances, electricity, electrical circuit, cell, wire, bulb, buzzer, danger, electrical safety, sign, insulators, wood, rubber, plastic, glass, conductors, metal, water, switch, open, closed, components, plug, motor mains, complete, closed circuit, open circuit, positive, negative, Crocodile clip
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