




## Scientific Skills Progression

\*Note: It is expected that children and adults should use the vocabulary from previous year groups as they progress and where appropriate.

By the end of ...	<b>MATERIALS</b> 	Year group taught in
Key Stage 1	<p><b>Everyday materials</b></p> <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• Describe the simple physical properties of a variety of everyday materials</li> <li>• Compare and group together a variety of everyday materials based on their simple physical properties.</li> </ul> <p><b>Vocabulary children should use:</b> object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabrics, elastic, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy/floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through</p> <p><b>Vocabulary adults should use:</b> stiff, bendy/floppy, breaks/tears, shiny, dull, see through, not see through</p>	Year 1
Key Stage 1	<p><b>Uses of everyday materials</b></p> <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> <p><b>Vocabulary children should use:</b> suitable/unsuitable, use/useful, object, material, property, wood, plastic, glass, metal, water, rock, brick, paper, fabrics, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, rigid, flexible, waterproof, absorbent, strong/weak, rough, smooth, reflective, non-reflective, transparent, opaque, translucent, shape, changed, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching, pinch/pinching, poke/poking, roll/rolling, squeeze/squeezing</p> <p><b>Vocabulary adults should use:</b> suitability, purpose, characteristics, made, synthetic</p>	Year 2



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<b>Key Stage 2</b>	<p><b>States of matter</b></p> <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> <p><b>Vocabulary children should use:</b> states of matter, solid, liquid, gas, air, oxygen, powder, grain/granular, crystals, change state, ice/water/steam, water vapour, heated/heating, cooled/cooling, temperature, degrees celsius, melt, freeze, solidify, melting point, molten, boil, boiling point, evaporate/evaporation, condense/condensation, water cycle, precipitation, transpiration</p> <p><b>Vocabulary adults should use:</b> given energy</p>	<b>Year 4</b>
	<p><b>Properties and changes of materials</b></p> <ul style="list-style-type: none"> <li>• 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</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, including through filtering, sieving and evaporating</li> <li>• Give reasons, based on evidence from comparative and fair tests, 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, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul> <p><b>Vocabulary children should use:</b> hard, soft, stretchy, rigid, flexible, waterproof, absorbent, strong/weak, rough, smooth, reflective, non-reflective, transparent, opaque, translucent, suitability, purpose, characteristics, synthetic, conductor, insulator, electrical, thermal</p> <p><b>Vocabulary adults should use:</b> scientific definition</p>	<b>Year 5</b>
	<b>States of Matter</b>	



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<b>Key Stage 3</b>	<ul style="list-style-type: none"> <li>• <b>The particulate nature of matter</b></li> <li>• <i>Describe</i> the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure</li> <li>• <i>Describe</i> changes of state in terms of the particle model.</li> </ul> <p><b>Physical changes (from Physics NC KS3)</b></p> <ul style="list-style-type: none"> <li>• Recognise the conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation, dissolving</li> <li>• Describe similarities and differences, including density differences, between solids, liquids and gases</li> <li>• Describe Brownian motion in gases</li> <li>• Recognise that diffusion in liquids and gases is driven by differences in concentration</li> <li>• Describe the difference between chemical and physical changes.</li> </ul>	
	<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• <i>Recognise</i> the order of metals and carbon in the reactivity series</li> <li>• <i>Describe</i> the use of carbon in obtaining metals from metal oxides</li> <li>• <i>Describe</i> properties of ceramics, polymers and composites (qualitative).</li> </ul>	
	<p><b>Pure and impure substances</b></p> <ul style="list-style-type: none"> <li>• <i>Understand</i> the concept of a pure substance</li> <li>• <i>Describe</i> mixtures, including dissolving</li> <li>• <i>Describe</i> diffusion in terms of the particle model</li> <li>• <i>Describe</i> simple techniques for separating mixtures: filtration, evaporation, distillation, and chromatography</li> <li>• <i>Describe</i> the identification of pure substances.</li> </ul>	