

Topic	Changing Materials
Pre-school	<ul style="list-style-type: none"> <li>• Talk about some of the things they have observed such as plants, animals, natural and found objects. Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world. Develop an understanding of growth, decay and changes over time.</li> <li>• Begin to understand 'how?' and 'why?' questions.</li> </ul>
Reception	<ul style="list-style-type: none"> <li>• They make observations of animals and plants and explain why some things occur, and talk about changes.</li> </ul> <p><b>Understanding: ELG</b></p> <ul style="list-style-type: none"> <li>• Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.</li> </ul> <p>Children use what they have learnt about media and materials in original ways, thinking about uses and purposes</p>
Year 1	
Year 2	<ul style="list-style-type: none"> <li>• Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching)</li> <li>• Can they find out about people who developed useful new materials? (John Dunlop, Charles Macintosh, John McAdam)</li> <li>• Can they identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses?</li> <li>• Can they explain how things move on different surfaces?</li> </ul> <p><b>Challenge</b></p> <ul style="list-style-type: none"> <li>• <b>Can they explain how materials are changed by heating and cooling?</b></li> <li>• <b>Can they explain how materials are changed by bending, twisting and stretching?</b></li> <li>• <b>Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted?</b></li> </ul>
Year 3	
Year 4	
Year 5	<ul style="list-style-type: none"> <li>• Can they compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets?</li> <li>• Can they explain how some materials dissolve in liquid to form a solution?</li> <li>• Can they describe how to recover a substance from a solution?</li> <li>• Can they use their knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving, evaporating?</li> <li>• Can they give reasons, based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals wood and plastic?</li> <li>• Can they describe changes using scientific words? (evaporation, condensation)</li> <li>• Can they demonstrate that dissolving, mixing and changes of state are reversible changes?</li> <li>• Can they explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including</li> </ul>

	<p>changes associated with burning and the action of acid on bicarbonate of soda?</p> <ul style="list-style-type: none"> <li>• Can they use the terms 'reversible' and 'irreversible'?</li> </ul> <p><b>Challenge</b></p> <ul style="list-style-type: none"> <li>• Can they describe methods for separating mixtures? (filtration, distillation)</li> <li>• Can they work out which materials are most effective for keeping us warm or for keeping something cold?</li> <li>• Can they use their knowledge of materials to suggest ways to classify? (solids, liquids, gases)</li> <li>• Can they explore changes that are difficult to reverse, e.g. burning, rusting and reactions such as vinegar with bicarbonate of soda?</li> <li>• Can they explore the work of chemists who created new materials, e.g. Spencer Silver (glue on sticky notes) or Ruth Benerito (wrinkle free cotton)?</li> </ul>
Year 6	