

Year 5 Progression map – Properties and Changes of Materials		
National curriculum objectives:	HEP science lesson titles	Coherence:
<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>	<ol style="list-style-type: none"> <li>What do we use materials for?</li> <li>What are thermal conductors and insulators?</li> <li>What happens when we mix materials?</li> <li>What are reversible changes?</li> <li>How do we separate some mixtures?</li> <li>What is an irreversible change?</li> </ol> <p><b>Working scientifically skills used:</b></p> <ul style="list-style-type: none"> <li>Comparative testing, fair tests, variables, co-planning experiments, conclusions and evaluations</li> </ul> <p><b>Key scientists and inventors:</b></p> <ul style="list-style-type: none"> <li>Stephanie Kwolek – Inventor of Kevlar</li> </ul>	<p><b>English:</b> Frayer model (etymology and morphology)</p> <p><b>Key vocabulary:</b> Ceramics, durability, silica, silicon, synthetic, thermal conductors, thermal insulators, microplastics, sieve, acetone, alloy, dissolved, soluble, solution, solvent, alkali, bicarbonate, irreversible, neutralisation, phlogiston</p> <p><b>Maths:</b> Taking accurate measurements using standard units, gathering data, taking averages from repeats</p> <p><b>Art:</b> Scientific drawings/ diagrams, labelling</p>

<p><b>Misconceptions:</b></p> <ul style="list-style-type: none"> <li>• Materials refers to fabrics only</li> <li>• Materials refers to construction only</li> <li>• Children may talk about the properties of an object, rather than the properties of a material</li> </ul>		
<p><b>Builds on:</b></p>	<p><b>Future learning:</b></p>	<p><b>Further reading:</b></p>
<p><b>Year 2:</b> Identifying and comparing suitability of everyday materials for specific uses  <b>Year 3:</b> Comparing and grouping rocks based on properties, comparing and grouping magnetic materials, the effects of forces on objects  <b>Year 4:</b> Compare and group materials based on states of matter, changes of state, compare and group materials based on electrical conduction or insulation</p>	<p>KS3: Acids and alkalis, combustion, thermal decomposition, chemical reactions and word equations, diffusion</p>	<p><a href="#">The crayon man by Natascha Biebow</a>  <a href="#">The most magnificent thing by Ashley Spires</a>  <a href="#">What is it made from? by Bobby Kalman</a></p>