

Year 5 – Types of Change teach after separating mixtures (Materials and changes of state)											
Links made with other subjects											
The BIG Question	Can we change materials?										
The BIG Outcome	Explanation answering the question (Answer after types of change)										
Science objectives (link to NC)	- demonstrate that dissolving, mixing and changes of state are reversible changes - 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.										
Prior knowledge What prior knowledge is needed for children to be successful in this unit?	<i>Children already know:</i> EYFS – Understanding the world - Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. Yr 1 - Comparing and Identifying materials Yr 2 - Changing shape and uses of material Yr 4 - Changes of State										
Future learning Consider the conceptual knowledge within a subject that pupils need for future learning not just the recall of facts but the importance of concepts	This unit gives prior knowledge to: KS3 -Chemical reactions as the rearrangement of atoms. • Representing chemical reactions using formulae and using equations. • Combustion, thermal decomposition, oxidation and displacement reactions. • Defining acids and alkalis in terms of neutralisation reactions. • The pH scale for measuring acidity/alkalinity; and indicators.										
Science strands	<u>Related Enquiry Questions</u> <table><tr><td>Classifying</td></tr><tr><td>-after observing what happens when solids are added to liquids, classify materials based on the outcomes</td></tr><tr><td>Observing over time</td></tr><tr><td>- Observe rusting with uncoated nails in different liquids. (This can be achieved by removing coating with sandpaper.)</td></tr><tr><td>Pattern Seeking</td></tr><tr><td>Not relevant</td></tr><tr><td>Comparative testing</td></tr><tr><td>- Burn different materials (not plastic or toxic substances</td></tr><tr><td>Researching</td></tr><tr><td>Not relevant</td></tr></table>	Classifying	-after observing what happens when solids are added to liquids, classify materials based on the outcomes	Observing over time	- Observe rusting with uncoated nails in different liquids. (This can be achieved by removing coating with sandpaper.)	Pattern Seeking	Not relevant	Comparative testing	- Burn different materials (not plastic or toxic substances	Researching	Not relevant
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Vocabulary/ Glossary	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material										
Knowledge (see italics for knowledge to remember)	<i>The knowledge that children will learn and remember:</i> 1. <i>Some changes to materials such as dissolving, mixing and changes of state are reversible</i> 2. Children need experience of working hands on to create both reversible and irreversible changes 3. <i>List some example e.g salt water, melting ice, boiling</i> 4. <i>some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible.</i>										

Science Scheme of Work

SEND expectations	1. Some changes to materials such as dissolving, mixing and changes of state are reversible 2. Some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible.
Common misconceptions	Lots of misconceptions exist around reversible and irreversible changes, including around the permanence or impermanence of the change. There is confusion between physical/chemical changes and reversible and irreversible changes. They do not correlate simply. Chemical changes result in a new material being formed. These are mostly irreversible. Physical changes are often reversible but may be permanent. These do not result in new materials e.g. cutting a loaf of bread. It is still bread, but it is no longer a loaf. The shape, but not the material, has been changed. Some children may think: - thermal insulators keep cold in or out -thermal insulators warm things up - solids dissolved in liquids have vanished and so you cannot get them back - lit candles only melt, which is a reversible change.