



<b>Subject</b>	Science	<b>Theme</b>	Properties of materials	<b>Term</b>	Autumn 1 & 2
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What should I already know?
<ul style="list-style-type: none"> <li>- Different types of everyday materials have different properties, which make them suitable for particular uses.</li> <li>- Rocks can be compared and grouped together on the basis of their appearance and physical properties (Y3).</li> <li>- Liquid, solid or a gas are different states of matter (Y4).</li> <li>- Some materials change state when they are heated or cooled.</li> <li>- Evaporation and condensation (as part of the water cycle – Y3 Geography &amp; Y4 Science).</li> </ul>

Working Scientifically
<ul style="list-style-type: none"> <li>- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables</li> <li>- Taking measurements, using a range of scientific equipment (<i>measuring cylinders, hand-held microscopes</i>) with increasing accuracy and precision</li> <li>- Recording data and results using tables and bar chart (<i>e.g. group materials, quantities of solution</i>)</li> <li>- Reporting and presenting findings and making conclusions (<i>which material is best suited to...</i>)</li> <li>- Make predictions using test results (<i>can different materials be separated?</i>)</li> </ul>

Enquiries & Investigations
<ul style="list-style-type: none"> <li>- Which material would be best suited to...? Compare and group different materials based on their properties (<i>link to Y3: magnetism, and Y4: solid, liquid &amp; gas</i>).</li> <li>- Which solids can be dissolved in a liquid to form a solution? Investigate soluble and insoluble materials.</li> <li>- Can this mixture be separated? Using knowledge of solids, liquids and gases, investigate how different materials can be separated</li> <li>- Are all changes permanent? Investigate how dissolving is a reversible change - how a solid dissolved in water can be recovered through evaporation</li> <li>- Investigate everyday examples of reversible and irreversible changes</li> </ul>

What should I know by the end of the unit?
<ul style="list-style-type: none"> <li>- Everyday materials can be grouped and compared based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</li> <li>- 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>- Reasons for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>- That dissolving, mixing and changes of state are reversible changes</li> <li>- 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>Silver Threads:</b>  <b>Process</b> – By what processes do changes of state occur (heating, cooling, mixing, etc)?  <b>Changes</b> – How do states change? Can the changes be reversed? Can the changes be speeded up or slowed down? How do the structures of solids, liquids and gases change?  <b>Structure</b> – What is the structure of a solid, liquid or gas?  <b>Energy</b> – Energy is needed for states to change</p>

Significant Scientists
<p>Spencer Silver – invented the glue for sticky notes</p> 
<p>Ruth Benerito – invented wrinkle-free cotton</p> 

Key Vocabulary	
<b>Evaporation</b>	When a liquid turns into a gas.
<b>Dissolve</b>	Become part of a liquid to form a solution.
<b>Soluble</b>	Able to be dissolved, especially in water.
<b>Insoluble</b>	Unable to dissolve.
<b>Solution</b>	A mixture of two or more substances
<b>Reversible</b>	Able to be reversed so that the previous state is restored.
<b>Irreversible</b>	No able to be returned to its original state.
<b>Man made</b>	Made or caused by human beings.
<b>Natural</b>	Existing in or coming from nature.