












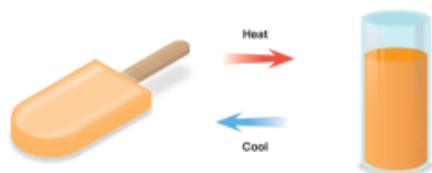


What should I already know?		Diagrams	What will I know by the end of the unit?									
Freezing, melting and boiling changes can be reversed		<p>What is dissolving?</p> <ul style="list-style-type: none"> • When the particles of a solid mix with the particles of a liquid, this is called dissolving. • The result is a solution. • Materials that dissolve are soluble. • Materials that do not dissolve are insoluble. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  dissolving </div> <div style="text-align: center;">  solution </div> <div style="text-align: center;">  soluble </div> <div style="text-align: center;">  insoluble </div> </div> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="background-color: #00a0e3; color: white;">Filtering</th> <th style="background-color: #00a0e3; color: white;">Sieving</th> <th style="background-color: #00a0e3; color: white;">Evaporating</th> </tr> </thead> <tbody> <tr> <td>To remove dirt or other solids from liquids</td> <td>A utensil with meshes or holes to separate finer particles from coarser ones or solids from liquids</td> <td>To turn from liquid into gas (vapour)</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Filtering	Sieving	Evaporating	To remove dirt or other solids from liquids	A utensil with meshes or holes to separate finer particles from coarser ones or solids from liquids	To turn from liquid into gas (vapour)				<p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Changes can occur when different materials are mixed.</p> <p>Some material changes can be reversed and some cannot.</p> <p>Recognise that dissolving is a reversible change.</p> <p>Distinguish between melting and dissolving.</p> <p>Mixtures of solids (of different particle size) can be separated by sieving.</p> <p>Mixtures of solids and liquids can be separated by filtering if the solid is insoluble (undissolved).</p> <p>Evaporation helps us separate soluble materials from water.</p> <p>Changes to materials can happen at different rates (factors affecting dissolving, factors affecting evaporation – amount of liquid, temperature, wind speed).</p> <p>Freezing, melting and boiling changes can be reversed (revision from Year Four).</p>
Filtering	Sieving		Evaporating									
To remove dirt or other solids from liquids	A utensil with meshes or holes to separate finer particles from coarser ones or solids from liquids		To turn from liquid into gas (vapour)									
												
Key Vocabulary												
dissolved	when a substance is mixed with a liquid and the substance has disappeared.											
solution	a mixture that contains two or more substances combined evenly											
insoluble	a substance that will not dissolve											
filter	to remove dirt or other solids from liquids or gases. A filter can be made of paper, charcoal, or other material with tiny holes in it.											
sieve	a utensil with meshes or holes to separate finer particles from coarser ones or solids from liquids											
evaporate	to turn from liquid into gas (vapour)											
condense	Turning water vapour or steam back into a liquid (water)											
melting	to change from a solid to a liquid state through heat or pressure											
reversible	able to turn or change back											
Irreversible	not able to turn or change back											

materials	The substance that something is made out of, e.g. wood, plastic, metal.
solids	One of the three states of matter. Solid particles are very close together, meaning solids, such as wood and glass, hold their shape.
liquids	The state of matter can flow and take the shape of the container because the particles are more loosely packed than solids and can move around each other. Examples of liquids include water and milk.
gases	One of the three states of matter. Gas particles are further apart than solid or liquid particles and they are free to move around. Examples of gases are oxygen and helium.



Reversible changes
 Reversible changes such as mixing and dissolving can be reversed.



Irreversible changes
 Irreversible changes often result in a new product being made from the old materials (reactants). For example, burning wood produces ash and this cannot be turned back into wood.

Reversible changes, such as mixing and dissolving solids and liquids together, can be reversed by:

<p>Sieving</p>	<p>Filtering</p>	<p>Evaporating</p>
Smaller materials are able to fall through the holes in the sieve, separating them from larger particles.	The solid particles will get caught in the filter paper but the liquid will be able to get through.	The liquid changes into a gas , leaving the solid particles behind.

Irreversible changes

A change is called irreversible if it cannot be changed back again.

In an irreversible change, new materials are always formed. Sometimes these new materials are useful to us.

Heating can cause an irreversible change. For example you heat a raw egg to cook it. The cooked egg cannot be changed back to a raw egg again.

Mixing substances can cause an irreversible change. For example, when vinegar and bicarbonate of soda are mixed, the mixture changes and lots of bubbles of carbon dioxide are made. These bubbles and the liquid mixture left behind, cannot be turned back into vinegar and bicarbonate of soda again.

Burning is an example of an irreversible change. When you burn wood you get ash and smoke. You cannot change the ash and smoke back to wood again.

Irreversible changes are permanent. They cannot be undone. For example you cannot change a cake back into its ingredients again.

Reversible changes

Reversible and irreversible reactions are different. A reversible change is a change that can be undone or reversed. If you can get back the substances you started the reaction with, that's a reversible reaction.

A reversible change might change how a material looks or feels, but it doesn't create new materials. Examples of reversible reactions include dissolving, evaporation, melting and freezing.