

Reversible changes

When you mix solids and liquids together, it can be reversed by:

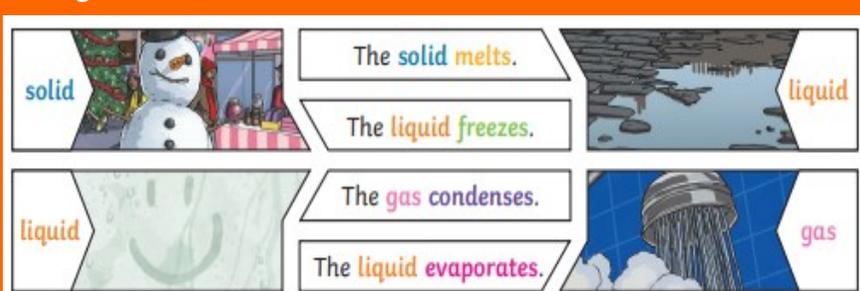
 <p>Sieving</p>	 <p>Filtering</p>	 <p>Evaporating</p>
<p>Smaller materials are able to fall through the holes in the sieve, separating them from larger particles</p>	<p>The solid particles will get caught in the filter paper but the liquid will be able to get through.</p>	<p>The liquid changes into a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

Irreversible changes

Irreversible changes often mean that a new product is made from the original material. It changes and can't be changed back.



Changes of state



Subject Specific Vocabulary

materials	The substance that something is made out of.	evaporating	This is when a liquid turns into a gas or vapour.
solids	One of three states of matter. Solid particles are very close together so that solids hold their shape (wood or glass).	condensing	This is when a gas such as water vapour cools and turns into a liquid .
liquids	This state of matter can flow and take the shape of a container (water and milk). The liquid particles are loosely packed together.	conductor	This is a material that allows energy to travel through it such as metal allows electricity to travel through it. Metal is also a thermal conductor.
gases	This state of matter has particles that are further apart and the gas particles are free to move around. Examples are oxygen and helium.	insulator	This is a material that doesn't let heat or electricity travel through. Wood and plastic are good insulators .
melting	This is the process of heating a solid until it changes into a liquid .	transparency	A transparent object lets light through and you can see through it.
freezing	This is the process of when a liquid cools down and turns into a solid .	translucent	A translucent object lets light through but you can't see the detailed shape.

Can you find out about how chemists have created new materials?

Find out about Spencer Silver? He invented the glue for sticky notes.

Or find out about Ruth Benerito? She invented wrinkle-free cotton.



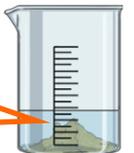
Dissolving

A **solution** is made when solid particles are mixed with a liquid.

Materials that won't dissolve are known as **insoluble**.

Materials that will dissolve are known as **soluble**.

Sand is an **insoluble** material.



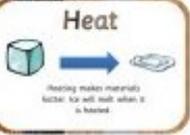
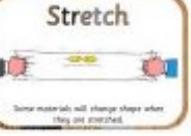
Sugar is a **soluble** material.



What will I know by the end of this unit?

- A thermal conductor allows energy in the form of heat to travel through a material.
- An electrical conductor allows energy in the form of electricity to travel through the material.
- Insulators don't allow any energy to travel through the material.
- Some materials can be soluble in water. This means it can disappear when put in water.
- Some materials can be insoluble in water. This means it will not disappear when put into water. It stays solid.
- Materials can be separated through the processes of filtering, evaporation and sieving.
- Some materials have reversible changes which means it can change back to how it was before.
- Some materials have irreversible changes which means it can not change back to how it was

How materials can be changed

Changing Materials		
Freeze  When we freeze water, we make it cold enough to change from a liquid into a solid.		Boil  When we boil water, we heat it until it bubbles and creates steam.
Toast  When we toast bread, we heat it until it becomes brown and crispy.	Cool  Some materials change when they are cooled.	Heat  Heating makes materials hotter. Ice will melt when it is heated.
Bend  Some materials will change shape when they are bent.	Melt  Some materials will melt when they are heated.	Twist  Some materials will change shape when they are twisted.
Squash  Some materials will change shape when they are squashed.	Stretch  Some materials will change shape when they are stretched.	Squeeze  Some materials will change shape when they are squeezed.

Properties and Changes of Materials

Science

Year 5

Topic: Properties and changes of materials

Strand: Chemistry

What should I already know?

- name different types of materials.
- describe what materials feel and look like.
- explain why objects are made from certain materials and not other materials.
- know what magnetism is.
- know which materials are conductors of electricity and which are not.

Scientific Skills

- Ask questions about materials, and how materials behave.
- Sort and classify materials.
- Plan a comparative or fair test.
- Make predictions.
- Observe carefully.
- Measuring accurately using standard units.
- explain my conclusions and understanding using written explanations, diagrams and labels as well as using charts and graphs.

Solids, Liquids and Gases

