



Sticky Knowledge

Subject Specific Vocabulary

Reversible Change

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.

Irreversible change

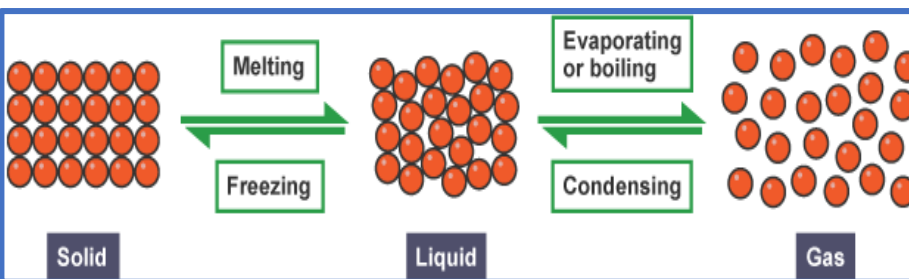
A change is called **irreversible** if it cannot be changed back again.

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

Key Knowledge

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

Sieving	Filtering	Evaporating
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.



Changes of State

solid	The solid melts.	liquid
liquid	The liquid freezes.	gas
liquid	The gas condenses.	gas
liquid	The liquid evaporates.	gas

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

This 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.

melting

The process of heating a **solid** until it changes into a **liquid**.

freezing

When a **liquid** cools and turns into a **solid**.

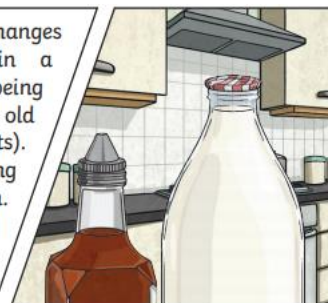
evaporating

When a **liquid** turns into a **gas** or vapour.

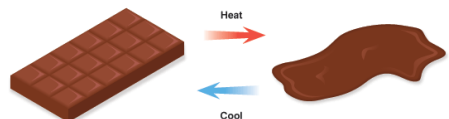
condensing

When a **gas**, such as water vapour, cools and turns into a **liquid**.

Irreversible changes often result in a new product being made from the old **materials** (reactants). For example, burning wood produces ash. Mixing vinegar and milk produces casein plastic.



Baking is an **irreversible change**.



Melting chocolate is a **reversible change**.

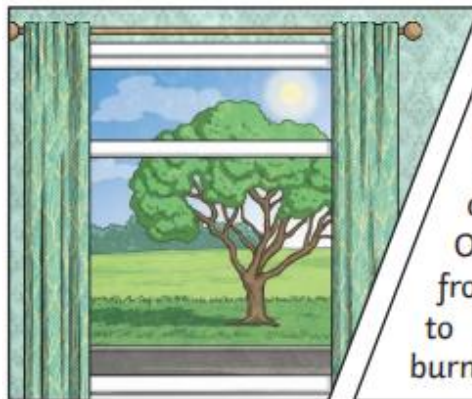


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Different **materials** are used for particular jobs based on their properties: electrical **conductivity**, flexibility, hardness, **insulators**, magnetism, solubility, thermal **conductivity**, **transparency**.




For example, glass is used for windows because it is hard and **transparent**. Oven gloves are made from a thermal **insulator** to keep the heat from burning your hand.



absorbent

able to soak up liquid



The sponge is absorbent.

brittle


hard, but may break easily



The glass is brittle.

opaque


cannot be seen through



She is hidden by the opaque screen.

translucent


allowing some light to pass through



The screen is translucent.

rigid


unable to be bent or forced out of shape



Stone is rigid.

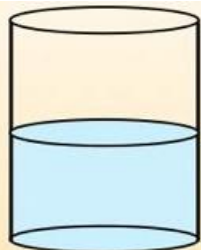
flexible

able to bend

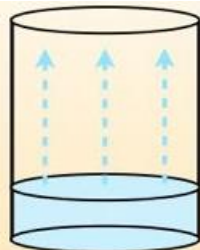


A flexible spring.

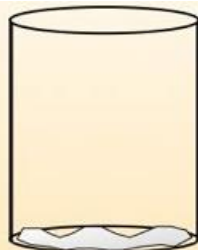
conductor	A conductor is a material that heat or electricity can easily travel through. Most metals are both thermal conductors (they conduct heat) and electrical conductors (they conduct electricity).
insulator	An insulator is a material that does not let heat or electricity travel through them. Wood and plastic are both thermal and electrical insulators .
transparency	A transparent object lets light through so the object can be looked through, for example glass or some plastics.



Sugar dissolves in the water making a sugar solution. You cannot see the sugar but it is still there in tiny particles.



The water evaporates. This means that it becomes water vapour. The process will be quicker if the water is heated.



Once all the water has evaporated, the sugar is left at the bottom of the beaker. This is because sugar cannot evaporate.

Dissolving

A solution is made when **solid** particles are mixed with **liquid** particles. **Materials** that will dissolve are known as soluble. **Materials** that won't dissolve are known as insoluble. A suspension is when the particles don't dissolve.

Sugar is a soluble **material**.



Sand is an insoluble **material**.

