



Properties of Materials — Oak Class-Year 5 and 6

What should I already know?

- The names of the three states of matter
- Some materials change state if they are heated or cooled
- To understand how evaporation and condensation work

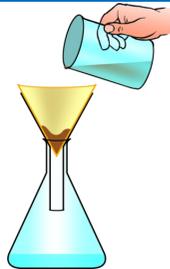
Separating Mixtures

Sieving



Smaller materials are able to fall through the holes in the sieve, separating them from larger particles.

Filtering



The solid particles will get caught in the filter paper but the liquid will be able to get through.

Evaporating



The liquid changes into a gas, leaving the solid particles behind.

Different **materials** are used for different jobs depending on their **properties**.



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 hands.



Key Vocabulary

condensing	When a gas such as water vapour cools and turns into a liquid
conductor	A material or device which allows heat or electricity to carry through
dissolve	When something solid mixes with a liquid and becomes part of the liquid
evaporating	When a liquid turns into a gas or vapour
filtering	A method of separating liquids and solids using filter paper
flexible	Capable of bending easily without breaking
freezing	When a liquid cools and turns into a solid
gases	An air-like fluid substance which expands freely to fill any space available
insulator	A substance which does not readily allow the passage of heat or sound
liquids	A substance that flows freely but can be measured by volume e.g. water or oil
magnetic	Capable of being magnetised or attracted by a magnet
materials	The matter from which a thing is or can be made from
melting	Heating a solid until it changes into a liquid
opaque	Not able to be seen through, not transparent
properties	A characteristic of a material eg magnetic, transparent, insulator
reversible/ irreversible	A process that can/cannot be reversed into a previous state
sieving	A method of separating liquids and solids using a sieve
solids	Firm and stable in shape, not a liquid or fluid
soluble	Able to be dissolved, especially in water
thermal	Relating to heat
transparency	see-through like glass

Key knowledge



Melts
Freezes



Evaporates
Condenses



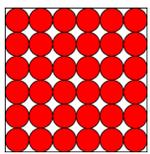
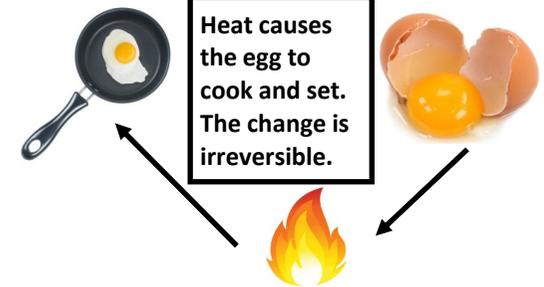
Reversible change

Dissolving, mixing and changes of state are **reversible** changes.

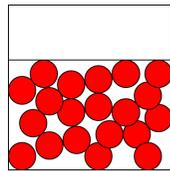
Mixtures can be separated through sieving, filtering and evaporating.

Irreversible change

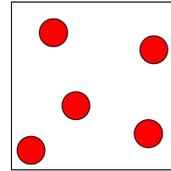
Some changes result in new materials and this change is **not reversible**



Melting
Freezing



Evaporating or boiling
Condensing



Solid

Liquid

Gas

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.

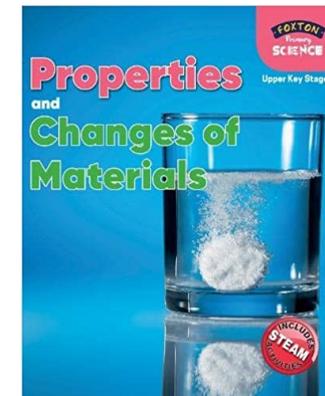
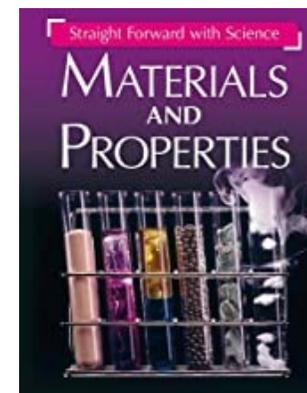


Sugar is a **soluble** material.



Sand is an **insoluble** material.

Key Texts



Key websites

<https://www.bbc.co.uk/bitesize/topics/zcvv4wx>

<http://www.crickweb.co.uk/ks2science.html> (Play 'Changing state' and 'Materials' games)

<http://www.primaryhomeworkhelp.co.uk/revision/Science/changingmaterials.htm#2>

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.