

Science Knowledge Organiser

Properties and Change of Materials

This is chemistry.
Chemistry is the study
of matter — what it's
made of, how it behaves,
and how it changes.

Scientist

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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.

Grouping Materials by Properties		
Property	YES	NO
Electrical Conductor	• copper	• glass
	• aluminium	• plastic
	• gold	• diamond
Magnetic	• steel	• paper
	• nickel	• wood
	• iron	• plastic
Transparent	• glass	• wood
	• water	• steel
	• plastic	• copper
Hardness	• ceramic	• wool
	• concrete	• rubber
	• diamond	• fabric



Key Vocabulary

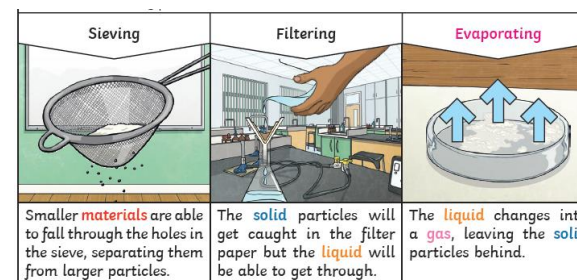
- insulator
- conductor
- mixture
- dissolve
- solution
- soluble
- insoluble
- reversible change
- irreversible

Prior Knowledge

- I can identify and compare the suitability of a variety of everyday materials.
- I know how the shape of solid objects made from some materials can be changed.
- I can compare and group materials together according to their state.
- I know that some materials change state when they are heated or cooled.
- I can identify the part played by evaporation and condensation in the water cycle.

Key Knowledge

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



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 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.

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**.

