

Materials and their properties

Key Vocabulary

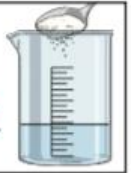
materials	The substance that something is made out of, e.g. wood, plastic, metal.
solids	One of the three states of matter. Solid particles are very close together, meaning solids , such as wood and glass, hold their shape.
liquids	This state of matter can flow and take the shape of the container because 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 .
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.

Key Knowledge

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**.



Changes of State

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

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

<h4>Sieving</h4> <p>Smaller materials are able to fall through the holes in the sieve, separating them from larger particles.</p>	<h4>Filtering</h4> <p>The solid particles will get caught in the filter paper but the liquid will be able to get through.</p>	<h4>Evaporating</h4> <p>The liquid changes into a gas, leaving the solid particles behind.</p>
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Key Skills

- **Compare and group** together everyday materials based on their properties.
- **Decide** how mixtures might be separated, including through filtering, sieving and evaporating
- **Give reasons**, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- **Demonstrate** that dissolving, mixing and changes of state are reversible changes
- **Explain** that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
- **Take measurements**, using a range of scientific equipment, with increasing accuracy and precision
- **Report and present findings** from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms.