

Science	Properties and Changes of Materials	Year 5	Autumn Term
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Key Knowledge

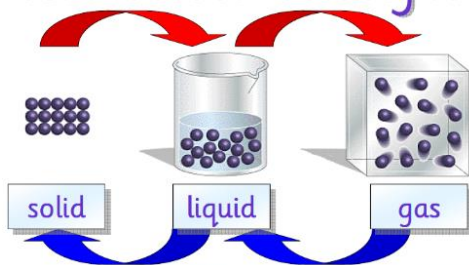
Melting	The process of heating a solid until it changes into a liquid.
Freezing	When a liquid cools and turns into a solid.
Evaporating	When a liquid turns into a gas or vapour
Condensing	When a gas, such as water vapour, cools and turns into a liquid.
Conductor	Material that heat or electricity can easily travel through.
Insulator	Material that does not let heat or electricity travel through them. E.g. wood and plastic.
Transparency	A transparent object lets light through so the object can be looked through, for example glass and some plastics.

Statutory requirements

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
- Use knowledge of solids, liquids and gases to 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 results 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.

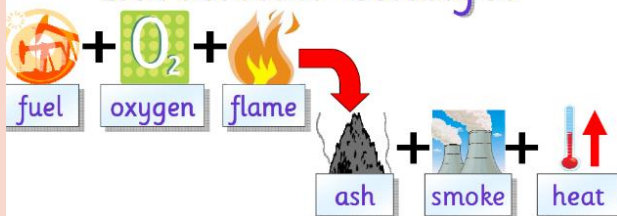
Pictures and Diagrams

Reversible Changes



Physical change, from solid to liquid to gas and back again, is a reversible change.

Irreversible Changes



Any reaction, such as burning, that causes new substances to be formed is called a Chemical Change. These changes are irreversible.

Key Vocabulary

Materials	The substance that something is made out of. E.g. wood, plastic, metal
Solids	Solid particles are very close together, meaning solids hold their shape.
Liquids	Liquid particles are more loosely packed and can move around each other. They can flow and take the shape of the container.
Gases	Gas particles are further apart and can move around freely. A gas fills its container.

Possible Experiences

- Find the best material to stop an ice cube from melting. Remember to keep it a fair test by using the same number of ice cubes, or same size and thickness material.
- Place the same amount of a hot liquid in a thermal insulator and conductor. Measure the temperature over time and plot these on the same line graph.
- Investigate which materials are soluble and insoluble.
- Explain the difference between dissolving and melting.