



Properties and changes of material

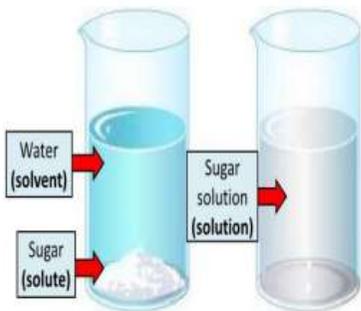
What I need to know

- Materials have different uses depending on their state (solid, liquid, gas)
- Materials have different properties such as, hardness, transparency, electrical and thermal conductivity and attraction to magnets.
- Some materials dissolve in liquids and form a solution, while others are insoluble and form sediment.
- Some changes to materials, such as dissolving, mixing, and changing state, are reversible.
- However, some are irreversible. Burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new material.

Grouping materials by properties

Property	Yes	No
Electrical conductor	Copper, aluminium, gold, silver, steel, sea water	Glass, air, plastic, rubber, wood, oil, diamond
Magnetic	Steel, nickel, cobalt, iron, uranium, platinum	Paper, glass, plastic, rubber, wood, wool
Transparent	Glass, water, clear plastic	Wood, rubber, oil, steel, copper, iron, silver
Waterproof	Plastic, rubber, metal, glass	Tissue, sponge, fabric

Solutions and separation

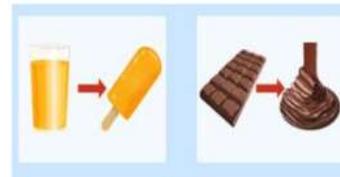


- Water is a solvent because it dissolves a solid, liquid or gaseous solute.
- The sugar is the solute since it is dissolved by the water. When the sugar has dissolved, it looked like it has disappeared, but in fact it has been broken down and has become part of the liquid.
- Sugar water is an example of a solution because the sugar has dissolved in the water
- Some mixtures and solutions can be separated by processes such as sieving, filtering and evaporating.

Key Vocabulary

Insulator	A material that does not easily let electricity or heat pass through it.
Conductor	A material that allows heat or electricity to pass through it.
Properties	Something about a material that we can measure, see or feel and helps us decide whether it is the best material for a job.
sieve	The process of separating a solid from a liquid.
mixture	Two or more substances mix together but are not combined chemically.
Dissolve	When something solid mixes with a liquid and becomes part of the liquid.
Solution	The resulting mixture when a solid has dissolved into a liquid.
Soluble	A material that can dissolve into a liquid.
insoluble	A material that does not dissolve into a liquid.
Reversible	Able to be changed back into its original state.
Irreversible	Cannot be changed back into its original state.

REVERSIBLE CHANGES



IRREVERSIBLE CHANGES



- Materials can be changed in many ways. For example, they can be heated, cooled, or mixed with other substances
- Some changes are reversible. For example, freezing of water into ice can be melted to become water again.
- Other changes are irreversible and cannot be 'undone'. Cooking, baking, burning materials and rusting are irreversible. If you fry a raw egg, you cannot return it back to a raw egg again.
- Changes that create new materials (for example mixing cement) are not normally reversible.



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Year 5

