

# Materials and their Properties Knowledge Organiser: Reversible and Irreversible Changes

## KEY VOCABULARY AND SPELLINGS

**Soluble** – able to be dissolved, especially in water

**Insoluble** – cannot be dissolved, especially in water

**Dissolve** – when something solid mixes with a liquid and becomes part of the liquid

**Solution** – is made when one substance dissolves into another

**Reversible change** – can be reversed back to its original state

**Irreversible change** – cannot be reversed back to its original state

**Transparent** – allows light to pass through

**Thermal conductor** – a material or device which allows heat to carry through


**Electrical conductor** – a material or device with allows electricity to carry through


**Magnetic** – capable of being magnetised or attracted by a magnet


**COMPARING AND GROUPING** - Materials can be compared and grouped together on the basis of their properties including:

- **Hardness** – how hard or soft a material is
- **Solubility** – whether a material can dissolve
- **Transparency** – whether it allows light to pass through
- **Conductivity** (electrical or thermal) – whether it allows heat or electricity to carry through
- **Response to magnets** – whether it is magnetic

## PARTICLE ARRANGEMENT

**Solid** – particles packed closely together 

**Liquid** – particles have some space to move 

**Gas** – particles are free to move 

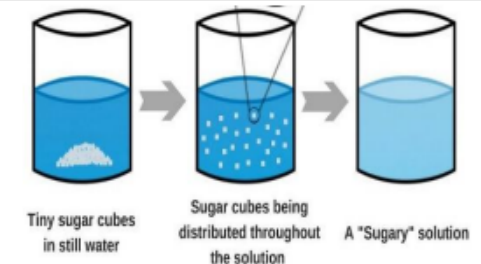
## REVERSIBLE AND IRREVERSIBLE CHANGES

REVERSIBLE	IRREVERSIBLE
Dissolving sugar in water	Toasting bread
Freezing water	Cooking a cake
Melting chocolate	A candle melting

**DISSOLVING** - Sometimes when a solid (solute) is mixed with a liquid (solvent) it will dissolve to form a solution e.g. dissolving sugar in hot tea.

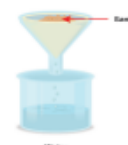
The solid seems to disappear in the solution but it is still there it has just become part of the liquid.

A soluble material can dissolve however an insoluble material cannot dissolve.

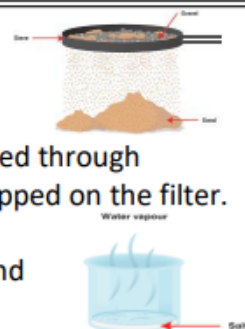


## SEPARATING MIXTURES

**SIEVING** – a mixture of different sized solid particles can be separated with a sieve.



**FILTERING** – an insoluble solid can be separated from a liquid when passed through a filter. The liquid passes through the solid particles are trapped on the filter.



**EVAPORATING** – if a solution is boiled (heated) the water will evaporate into gas and the solid will be left behind.