



# Year 5 – Properties and changes of materials

Some insulating materials found in our houses include fibre glass loft insulation, cavity wall filler and double-glazed windows.

Magnets are used in many everyday appliances: televisions, printers, stereos, earphones and computers

Vital Vocabulary	
Key Word	Definition
<b>dissolve</b>	When a solid is mixed with a liquid and the solid particles can't be seen.
<b>soluble</b>	Able to dissolve
<b>insoluble</b>	Unable to dissolve in a given liquid
<b>solution</b>	A mixture of a liquid and a dissolved solid
<b>conductor</b>	A materials that heat or electricity can pass through easily
<b>insulator</b>	A material that does not let heat or electricity pass through them
<b>reversible</b>	Able to turn or change back
<b>irreversible</b>	Impossible to change back
<b>filter</b>	Passing a solution through a mesh (e.g. filter paper) to remove an insoluble solid from a liquid

## Properties of materials and their uses

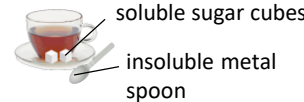
**Hardness** - how resistant a material is to scratching and pressure



**Transparency** - how well light passes through a material



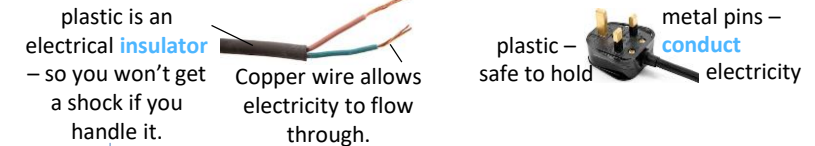
**Solubility** - how well a material dissolves



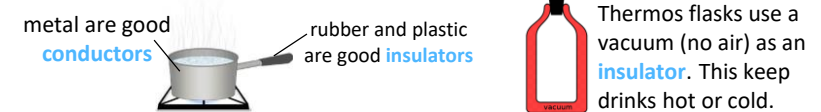
**Magnetism** - whether a material is attracted to a magnet  
**Iron, nickel** and cobalt are magnetic. **Steel** is magnetic because it contains iron.



**Electrical conductivity** - whether electricity can flow through them

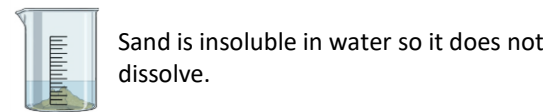
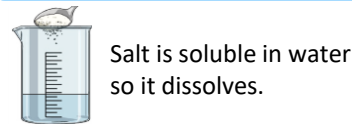


**Thermal conductivity** - how well heat passes through an material



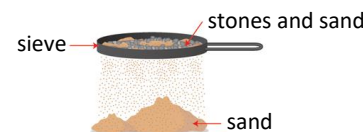
## Solutions and separating mixtures

Dissolving a solid in a liquid makes an solution.

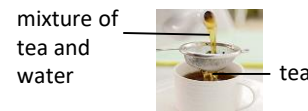


A mixture can be separated based on the properties of the materials its made up of.

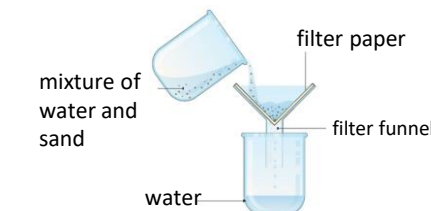
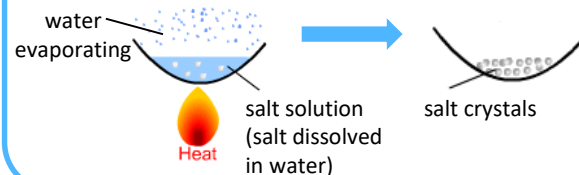
**Sieving** - separating solids of different sizes



**Filtering** - separating insoluble solids from a liquid



**Evaporation** - separating soluble solids from a liquid



## Reversible changes



## Irreversible changes

In an irreversible change, new materials are formed.



## Materials scientists



New materials continue to be developed by scientists. **Stephanie Kwoleck** (1923-2014) was a materials scientist who invented Kevlar – a strong but light and flexible material used in bulletproof vests and body armour.

"Not in a million years did I think the discovery of this liquid solution would save thousands of lives."