



MATERIALS

KNOWLEDGE ORGANISER



Key Knowledge

Different **materials** are used for particular jobs based on their properties: **electrical conductivity**, flexibility, hardness, insulators, magnetism, solubility, **thermal conductivity** & transparency



For example, glass is used for windows because it is hard and **transparent**. Oven gloves are made from a **thermal insulator** to keep the heat from burning your hand.



Materials can be grouped based on their properties using more complex vocabulary.

Magnetic



Soluble



Insoluble



Transparent



Impermeable



Permeable



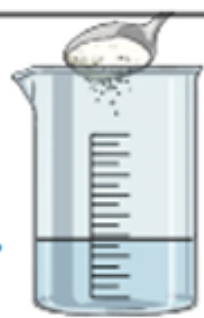
Flexible



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**.

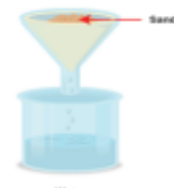


Sand is an insoluble **material**.

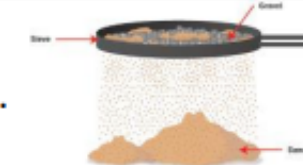


SEPARATING MIXTURES

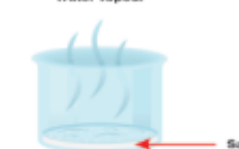
SIEVING – a mixture of different sized solid particles can be separated with a sieve.



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.



Water vapour



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

Conductors and Insulators

Materials that transfer heat easily are called **conductors**. One example of a good thermal conductor is metal. This is why metal is used to make saucepans for cooking food.



Materials that slow the transfer of heat are called **insulators**. One example of a good thermal insulator is wool. This is why wool is used to make winter coats, scarves, hats and gloves.



Irreversible Changes

Often result in a new product being made from the old material.

For example **burning wood produces ash**



Key vocabulary

solid	having a firm shape or form that can be measured in length, width, and height; not like a liquid or a gas
transparent	If an object is transparent, you can see through it
soluble	able to be dissolved.
dissolves	when a substance is mixed with a liquid
conductor	a substance that heat or electricity can pass through or along
thermal	relating to or caused by heat or by changes in temperature
filtering	a device used to remove dirt or other solids from liquids or gases. A filter can be made of paper, charcoal, or other material with tiny holes in it.
evaporation	to turn from liquid into gas; pass away in the form of vapour.
condensation	small drops of water which form when water vapour or steam touches a cold surface, such as a window
irreversible	impossible to reverse, turn back, or change.