

## Vocabulary

Word	Meaning
<b>properties</b>	The features of a material.
<b>solubility</b>	Can be dissolved, like coffee granules.
<b>conduct</b>	The ability for electricity to flow through something.
<b>dissolve</b>	A solid the completely mixed in a liquid and can not be seen.
<b>solution</b>	A mixture of different materials together.
<b>transparency</b>	The amount an object can be seen through.
<b>evaporation</b>	A liquid turning into gas.
<b>filter</b>	To use a material to separate solids from liquids.
<b>sieving</b>	To use a material to separate solids from liquids, normally through using different size holes.
<b>magnetic</b>	The property when metals repel or attract each other.
<b>thermal</b>	Related to heat
<b>insulation</b>	Materials which insulate stop cooling or heating.
<b>condense</b>	A gas turning into a liquid.
<b>permeable</b>	A material which allows a liquid through it.

## Mixtures and Solutions

### A mixture

Where substances are mixed together, but dissolving hasn't taken place. For example, mixing, cucumber slices, egg slices and tomato slices to make a salad.

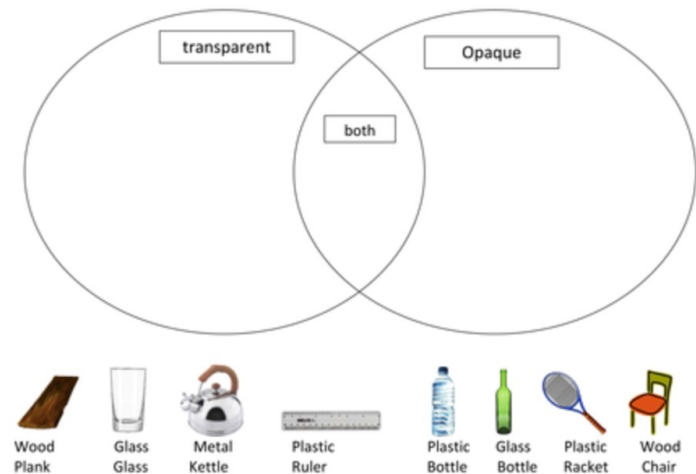
### A solution

Some substances dissolve in a liquid. When this happens the liquid is called a solution. For example, when gravy granules dissolve in water, this is a solution. Separating a mixture We can separate a mixture by sieving and/or filtering

## Comparing and Grouping Materials

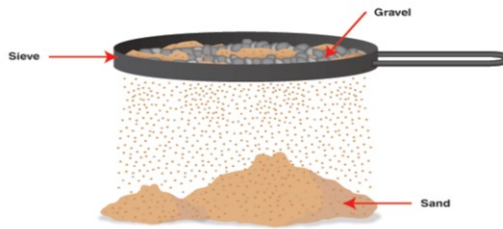
It is important to look at range of everyday materials (hard wood, plastic, metal etc.) and test their hardness, responses to magnets, and conductivity when thinking of their uses.

Sometimes it is better to group everyday materials in a range of ways: - tables - Venn diagrams - Carroll diagrams.



## Separating Materials

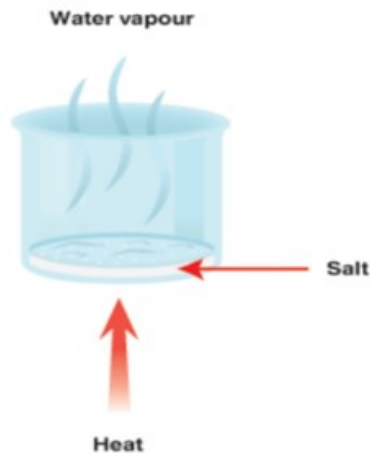
**Sieving** - sorting out the big bits from the small bits, e.g. stones from soil.



**Filtering** - separating solid bits from a liquid, e.g. sand from sand and water.

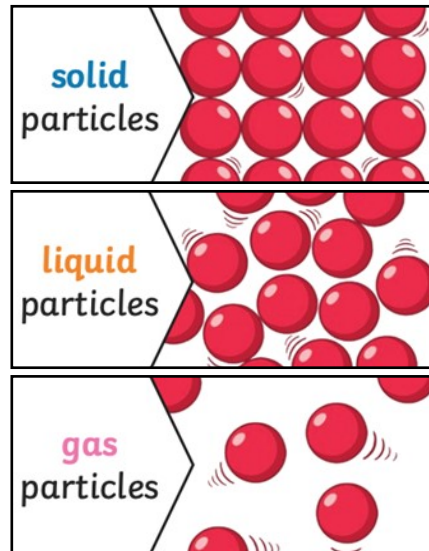
**Separating a solution** - We can separate a solution by evaporation. Because the soluble substance is too mixed into the water, it can't be removed by sieving or filtering.

**Evaporation** - A liquid evaporates into a gas when it is heated. This removes the liquid and leaves the substance behind.



## States of Matter

In different states, the particles in a material are organised very differently.



## Materials

### Changing Materials

#### Reversible Changes

A change that does not last forever. For example, water can turn to ice when frozen, but can be turned back to water by heating it.

#### Irreversible Changes

Lasts forever  
Usually caused by heat.  
E.g. Eggs, flour, butter and sugar heated to make a cake. The original ingredients can't be recovered.

### Extending your learning

- Most of the experiments done in class can be repeated at home with materials around the house. Other relevant experiments can be found at <https://www.jamesdysonfoundation.co.uk/> with a series of challenge cards.
- The science museum is a wonderful place to explore the different aspects of materials, the wonder lab is especially good with trained volunteers and hands on experiments. <https://www.sciencemuseum.org.uk/home>
- Children love building and making things through play so try to ask questions about the properties of the materials used. For example: Why should an object be permeable or impermeable? Which material would be better for an umbrella. How about a mask?