

Matter



The properties of materials

Physical properties



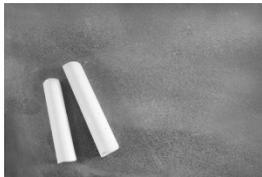
hard



tough



plastic



soft



fragile



elastic

Different materials have different properties. They can be classified by **physical properties, solubility and thermal conductivity.**



The properties of materials

Solubility

soluble



insoluble

Different materials have different properties. They can be classified by **physical properties, solubility and thermal conductivity.**



The properties of materials

Thermal conductivity



Thermal conductors - they can get hot.

Thermal insulators - they don't get hot.

Different materials have different properties. They can be classified by **physical properties, solubility and thermal conductivity.**



The properties of matter

Matter has three properties: **volume**, **mass** and **density**.



Volume is the amount of space that matter occupies.



Mass is the amount of matter in an object.



Density is the amount of mass that there is in the volume of an object.



Changes in matter

Matter can change. There are two types of changes:



Physical changes



Chemical changes



Changes in matter

Physical changes



shape



state



place



temperature

No new matter is made from these changes, so they are physical changes. These type of changes can be reversed.



Changes in matter

Chemical changes



rotting



rusting



burning



fermentation

The composition changes and new matter is formed. These type of changes can't be reversed.



Mixtures and solutions

Heterogeneous mixtures: we can see the separate substances.



Homogeneous mixtures: we can't see the separate substances.



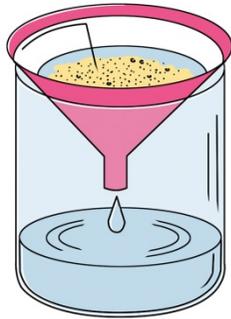
When two substances are mixed together, they form a **mixture**.

There are two basic types of mixtures.



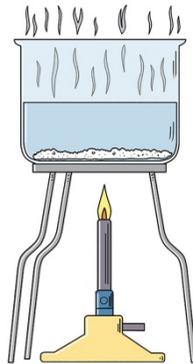
Mixtures and solutions

There are three main ways to separate mixtures:



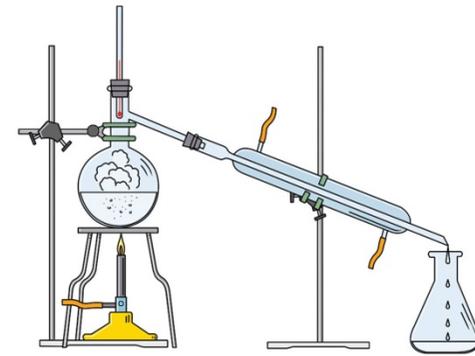
Filtration

It is used to separate an insoluble solid from an heterogeneous mixture.



Evaporation

It is used to separate a soluble solid from an homogeneous mixture.



Distillation

It is used to separate a liquid from a solution or to separate two liquids.

