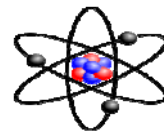
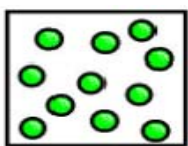


Summary Sheet Year 7 Separating mixtures:



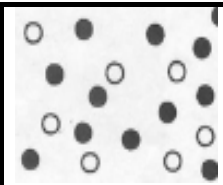
Pure substance

A **pure substance** contains only one type of element or compound.



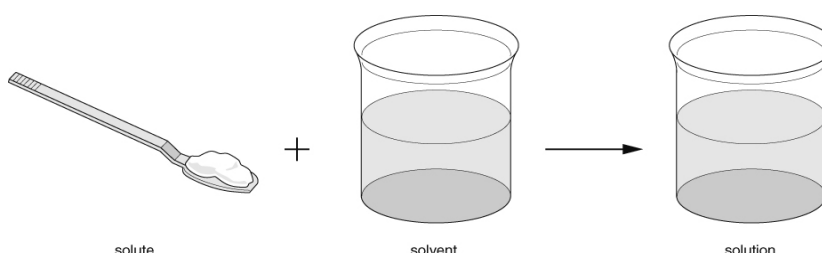
Mixture

A **mixture** contains two or more substances mixed together but not chemically joined

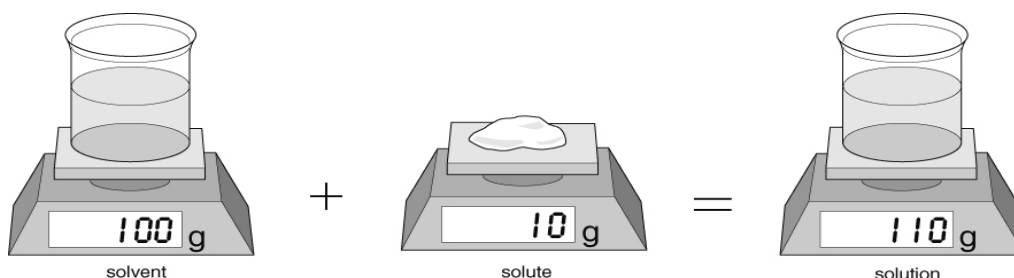


Solutions

Some solids **dissolve** in water to make a solution. These solids are **soluble**. A solution is made from a **solute** (solid that has been dissolved) and a **solvent** (liquid in which something dissolves). Some gases, such as oxygen and carbon dioxide, can also dissolve in water. Substances that do not dissolve in a solvent are **insoluble**.



The total **mass** of a solution equals the mass of solvent added to the mass of solute.



Water dissolves many different solutes. Other liquids (e.g. white spirit, ethanol) can also be used as solvents. Solutes that are insoluble in water may dissolve in other solvents.

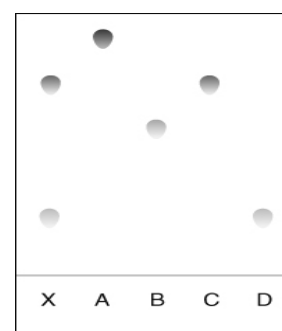
If you keep adding solutes to a solvent, you will get to a point where no more will dissolve. The solution is now **saturated** with solute. More solid may dissolve if you add more solvent (e.g. water) or increase the temperature.

The **solubility** of a solute is the maximum mass of solute that will dissolve in a certain volume of solvent.

Interpreting a chromatogram

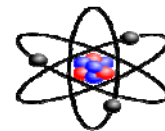
Chromatograms help to identify substances in a mixture.

This paper chromatogram shows that A, B, C and D are all single substances and that X is a mixture of C and D.



Mixtures and solutions can be separated using different methods.

Summary Sheet Year 7 Separating mixtures:



Method	Used to separate	Apparatus used	Examples
Filtering (filtration)	An insoluble solid from a liquid		<ul style="list-style-type: none"> sand from a mixture of sand and water
Evaporation	A soluble solid from a liquid		<ul style="list-style-type: none"> salt from a salt solution
Distillation (evaporation followed by condensation)	A solvent from a solution		<ul style="list-style-type: none"> pure water from a salt solution
Fractional distillation	liquids with different boiling points into fractions, as they condense at different temperatures		<ul style="list-style-type: none"> separation of crude oil into useful substances
Chromatography	Different substances dissolved in a liquid		<ul style="list-style-type: none"> colours found in ink