

**Evaporation and Crystallisation**

This process can be used to separate a soluble solid and a liquid such as salt and water.

For evaporation the mixture is placed in an evaporating basin and left for a long time. This allows the liquid to evaporate, leaving the solid behind.

For crystallisation, the mixture is heated for the liquid to evaporate, leaving the solid behind.

**Distillation**

Distillation is the separating technique used to separate mixtures of liquids which have different boiling points. The mixture is heated and the liquid with the lowest boiling point will become a gas. This gas is passed through a condensing tube which has cold water around it. When it passes through the condensing tube it turns back into a liquid and exits the tube into a new beaker. This leaves one liquid (with a higher boiling point) in the original container, and the second liquid (with the lower boiling point) in a new container.

**Chemical and Physical Changes**

Chemical changes occur during chemical reactions and are irreversible. A new substance is created. Physical reactions occur during a change of state and are reversible.

**Chromatography**

Chromatography is a separating technique used to separate mixtures of colours. A small pencil line is placed at the bottom of a piece of filter paper. Different inks or food colourings can be placed onto this pencil line and the filter paper placed into a solvent (such as water). As the water is absorbed by the filter paper it begins to move upwards. When it reaches the inks they dissolve in the water and being travelling up to the top of the paper. Depending on the density of each colour in the ink they will travel different distances up the filter paper.

**Filtration**

Filtration is a separating technique for insoluble solids, and liquids. For example, sand is insoluble and when placed in water, it can be separated using filtration. Filtration requires a filter funnel and filter paper. The filter paper acts as a small sieve which separates the insoluble sand from the liquid, which is able to pass through.

**Dissolving, Compounds, and Mixtures**

Dissolving is the process of mixing a soluble solute into a solvent to make a solution. This is an example of a mixture; the particles are not chemically bonded together. Compounds are different, they are created in chemical reactions and the elements are chemically bonded together.

**Solubility**

If a substance is able to dissolve in a liquid we say it is soluble. Examples of soluble solids are salt and sugar.

If a substance is not able to dissolve in a liquid we say it is insoluble.

An example of an insoluble solid is sand.

**Key Vocabulary**

**Soluble**

Can dissolve

**Solute**

Solid that dissolves

**Solvent**

Liquid that solute dissolves into

**Solution**

Mixture of solvent and solute

**Insoluble**

Does not dissolve

**Compound**

Formed in a chemical reaction, two or more elements chemically bonded together.

**Conserved**

Remains the same

**Mixture**

Two or more elements that are not chemically joined together.

**Compounds and Mixtures**

When different types of atoms are in the same physical place they can either be found as a compound or a mixture.

Compounds contain atoms that are chemically bonded together. They are very difficult to separate and can only be separated by a chemical reaction.

Mixtures contain atoms that are not chemically bonded together. They are easier to separate and there are many different ways to separate them.

**Mixture**

More than one type of atom that is not chemically bonded together.

**Ambitious Vocabulary**

Mixture Filtration

Solubility Distillation

**Y7 Separating Mixtures**

**Science**