Science 14

Unit A: Properties of matter

Separate a mixture by a property

Muddy water and a coffee filter

- Sandy water poured through a filter leaves sand on the paper and clearer water below.
- Salt dissolved in water passes through that same paper, so a different property has to do the separating.

Filtrate and distillation

- Filtrate is the liquid that passes through filter paper.
- Distillation boils a solution and collects the cooled vapour.

Key terms

filtrate

The liquid that passes through filter paper when a mechanical mixture is poured through it.

distillation

A separation that boils a solution and condenses the vapour so the liquid part is collected away from dissolved solids.

chromatography

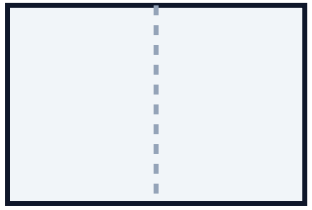
A separation that lets parts of a mixture travel at different speeds through paper or another material.

Choosing a separation method

- Filtration uses particle size when a solid is mixed with a liquid.
- Evaporation and distillation use boiling when the parts of a solution leave at different temperatures.

Choosing a separation method

Filtration: particle size



Evaporation / distillation: boiling

Match the tool to the property that differs

Sand in water

- Sand grains stay on the filter paper.
- The water that drips through is the filtrate.

Clear salt water

- Dissolved salt travels through filter paper with the water.
- Evaporation leaves the salt after the water boils away.

Muddy water and salt water

- One flask is muddy pond water. The other is clear salt water.
- Name a separation for each flask and the property that decided it.

Properties and separation tools

- Agreement on a separation starts when both people name the differing property.
- Water treatment is the large-scale version of the same choice.