MODULE 1 SEPARATING MIXTURES

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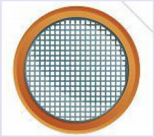
SIEVING

- **Sieving:** a technique in which two or more components of a mixture can be separated based on their size difference.

- **Sieving:** only works if components have different sizes. eg will NOT work to separate a mixture of flour and chalk powder



Sieving a mixture of nuts

Geological Soil Profile

Soil mixture is placed in top, agitator turned on. The soil grains fall through each sieve grate until each sieve holds soil particles for its diameter size.

Syllabus statement:

* explore homogeneous mixtures and heterogeneous mixtures through practical investigations: – using separation techniques based on physical properties

Video in course 2.5

The FLIPPED TEACHER 8 CHEMISTRY

MODULE 1

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SEPARATING MIXTURES

DECANTATION

- **Decantation:** a technique of separation for liquid-liquid immiscible liquids (oil/water) OR an insoluble solid that has settled from a liquid (muddy water).
- **Physical Property:** density

Immiscible-liquids

Sediment in rivers

Decanting a solid-liquid mixture

Syllabus statement:

* explore homogeneous mixtures and heterogeneous mixtures through practical investigations: – using separation techniques based on physical properties

Video in course 2.4

MODULE 1 SEPARATING MIXTURES

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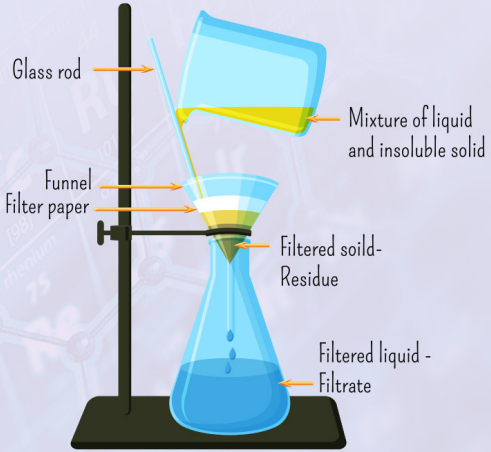
FILTRATION

- **Filtration:** a technique of separation used to separate insoluble materials from soluble materials.
- **Physical Property:**
  - (a) **solubility**
    - soluble component in filtrate
  - (b) **particle size**
    - filter paper separates insoluble material which remains in the residue.



Syllabus statement:

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Video in course 2.5

MODULE 1

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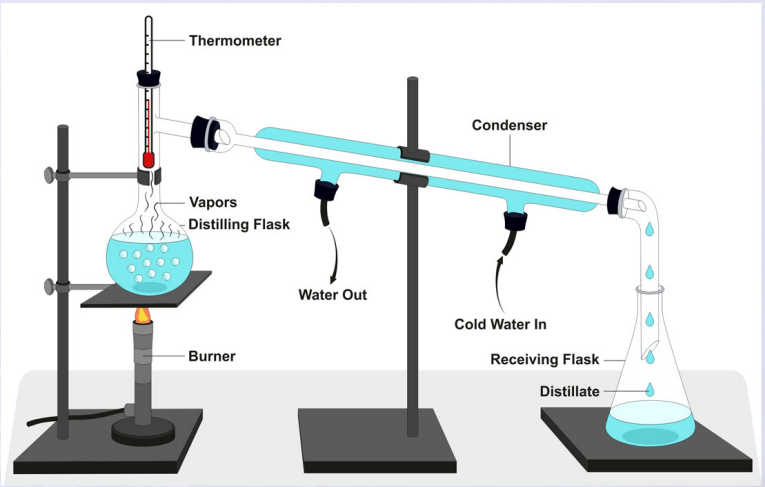
SEPARATING MIXTURES
SIMPLE DISTILLATION

- **Distillation:**
  a technique of separation used to separate mixtures containing miscible liquids who have relatively large gaps between their B.P (> 30°C)

- **Physical Property:**
  B.P



Syllabus statement:
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  – using separation techniques based on physical properties

Video in course 2.9

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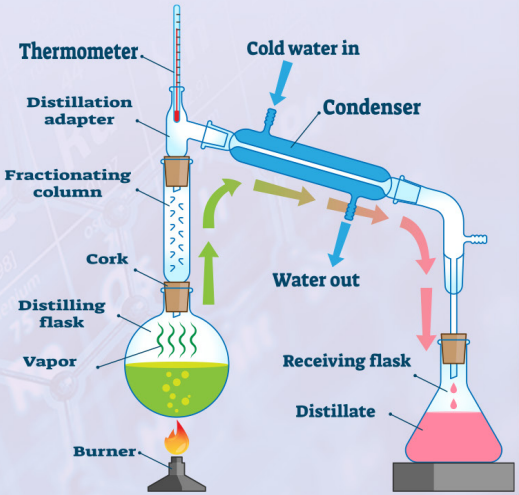
SEPARATING MIXTURES
FRACTIONAL DISTILLATION

- **Fractional Distillation:**
  - is used when the B.P of the components are close together.
  - this allows continual evaporation and condensation cycles to occur producing a more pure distillate.
  - the most volatile components vapourise first.
- **Physical Property:**
  B.P
- Fractionating column is designed to have a large SA with glass beads, glass spirals often in the column.



Syllabus statement:
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  – using separation techniques based on physical properties

Video in course 2.10

MODULE 1 SEPARATING MIXTURES

CENTRIFUGATION

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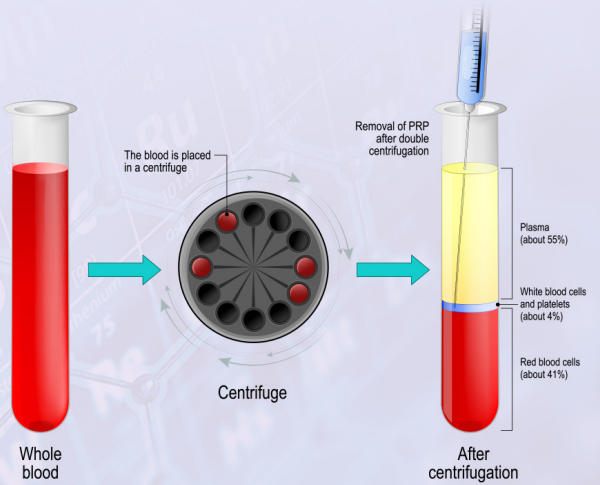
- **Centrifugation:**
  - is used to separate suspended particles in a solution due to differences in size, mass,density or viscosity.
  - high speed is used to provide the force used to separate particles.
- **Physical Property:**
  size, mass, density, viscosity



Syllabus statement:

* explore homogeneous mixtures and heterogeneous mixtures through practical investigations:
  – using separation techniques based on physical properties

Video in course 2.4

MODULE 1

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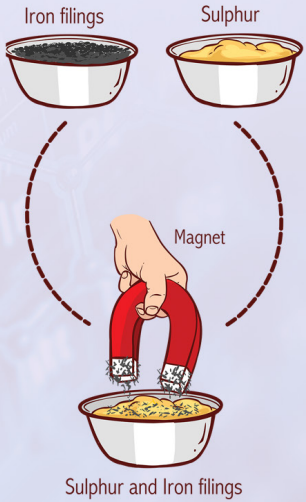
SEPARATING MIXTURES
MAGNETIC SEPARATION

- **Magnetic Separation:**
  - is used to separate magnetic materials from non-magnetic materials.
    often used in Industry to remove iron ore from waste or metal from recycling in factory processing.

  - Magnetic materials have Fe, Ni or Co in them.

- **Physical Property:**
  magnetic attraction (material must be ferromagnetic)



Syllabus statement:
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  – using separation techniques based on physical properties

Video in course 2.6

MODULE 1 SEPARATING MIXTURES

EVAPORATIVE CRYSTALISATION

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- **Evaporative crystallisation:**
  - is used to separate a mixture of soluble solutes.
  - when solubility decreases, pure crystals form as they push out impurities when forming a crystal.
  - differences in solubility are used to separate components.

- **Physical Property:**
  solubility in fixed volume of water

Syllabus statement:

* explore homogeneous mixtures and heterogeneous mixtures through practical investigations:
  – using separation techniques based on physical properties

Video in course 2.7