**Mixtures:** a **mixture** forms when two or more substances are mixed and remain present. The different parts of a mixture can be separated. Some examples are air, sand, gunpowder, fizzy drinks, soil and seawater.

Sieving: used to separate mixtures of solids which are different sizes, such as soil. A series of **sieves** with increasingly small holes separate out the particles from largest to smallest.

larger holes

smaller holes

magnet

iron filings

sand
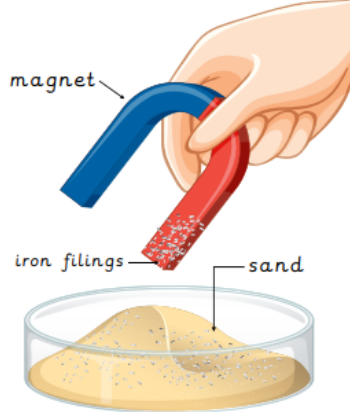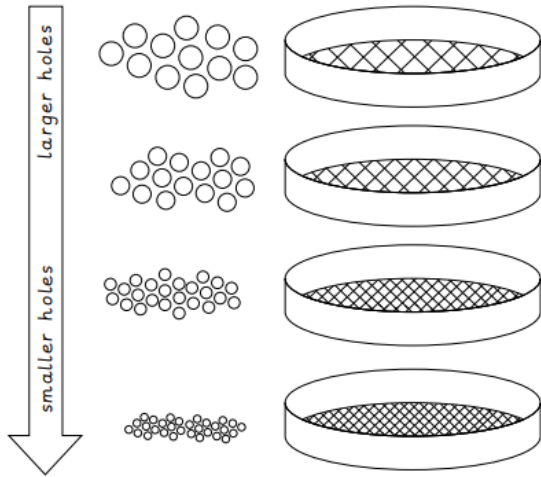
Magnets: used to separate mixtures of solids where the particles are similar sizes (so sieving is not practical) and one of the substances is **magnetic**, such as iron.

sand under a microscope

Filtering: used to separate mixtures containing a liquid and undissolved solids, such as sand and water. The mixture passes through a **filter** or **filter paper.** The gaps in the filter are small enough to let the liquid through but not the solid.

Solutions: some substances can **dissolve** in a liquid to make a **solution**. Dissolving is when a substance spreads evenly throughout a liquid. Some examples of substances that are **soluble** (will dissolve) in water are: salt, sugar and tea. Some examples of substances that are **insoluble** (will not dissolve) in water are: sand and flour.
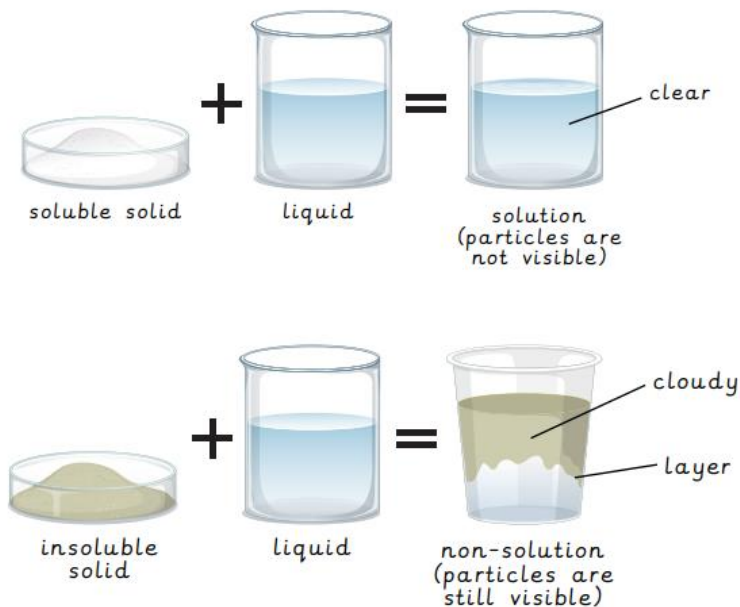
Factors affecting dissolving:

- Stirring decreases the time taken to dissolve.

- Smaller pieces of the soluble solid (e.g. loose sugar granules) will dissolve faster than larger pieces (e.g. a sugar cube).

- If the liquid is warmer, the solid will dissolve faster.

- Some solids are more soluble than others. For example, sugar is more soluble in water than salt and will dissolve faster.

- If a solid will not dissolve in water, it may dissolve in another liquid, such as alcohol.

soluble solid + liquid = solution (particles are not visible) — clear

insoluble solid + liquid = non-solution (particles are still visible) — cloudy — layer

Evaporation: separates solutions. The solution is heated until the liquid evaporates. The dissolved substance will **crystallise** as the liquid **evaporates**. Salt flats form because of evaporation.