

S1 Chemistry Unit 1 – Elements, Compounds, Mixtures

- Elements are made up of one specific type of atom.
- Metals are found on the left hand side of the periodic table. In general, they are shiny solids which conduct heat and electricity. Mercury is a liquid at room temperature.
- Non-metals are found on the right hand side of the periodic table. They do not conduct electricity (except carbon in the form of graphite).
- Every element has a symbol which is unique to it and can be used to identify it.
- Elements can be grouped using their properties.
- Where an element is on the periodic table is a good indicator of its reactivity.
- Some metals are very reactive and some are not reactive at all.
- Elements in Group 1 are called the Alkali Metals. They are very reactive metals which react violently with water.
- Elements in Group 7 are called the Halogens. They are reactive and can be solid, liquid or gas.
- Elements in Group 8 are called the Noble Gases. They don't react.
- The big block in the middle is called the Transition Metals.
- Elements can be solid, liquid or gas at room temperature.
- Identify on Periodic Table which elements are solids, liquids and gases.
- In solids, the particles are arranged close together in rows. In liquids, the particles are close together but in no particular pattern. In gases, the particles are far apart.
- Melting, evaporation, freezing and condensing are the state change processes.
- Water can be observed changing from solid → liquid → gas in the lab.
- Different substances have different melting and boiling points.
- We can watch the rate at which things evaporate. The lower a substance's boiling point the quicker it will evaporate.
- If a substance is below its melting point it is a solid, between its melting point and boiling point it's a liquid and above its boiling point it is a gas.
- Compounds are made up of elements joined together.
- Elements, compounds and mixtures can be identified from their diagrams.
- The properties of a compound are different from the properties of the elements it contains.

- Sodium is very reactive and chlorine is harmful, but when joined together they make sodium chloride (table salt) which is edible.
- A solute dissolves in a solvent to make a solution.
- Something insoluble does not dissolve.
- A solution that is 'saturated' is full and cannot dissolve any more solute. This can be demonstrated with salt and water.
- When salt is dissolved in water, it splits into its different parts – sodium ions and chlorine ions. These ions fit in between the molecules of water.
- Solubility can change with temperature. For example, more sugar will dissolve in a glass of hot water than cold water.
- In salt, the temperature does not affect how much will dissolve.
- A mixture is two different things occupying the same space that are not joined together.
- A compound is two or more elements that are chemically joined together.
- A mixture can be separated easily whereas a compound cannot.
- Iron and sulphur mixed together can be easily separated using a magnet.
- The iron in iron sulphide cannot be easily separated.
- Filtration is used to separate an insoluble solid from a liquid.
- Filter paper acts as a sieve to catch the particles of solid that are suspended in the liquid.
- Filter paper must be folded in half and then half again to make a cone.
- Evaporation is used to separate a soluble solid from a solvent.
- The dish must be removed from the heat before the solvent is all evaporated, otherwise the solid may start to melt and spit.
- Distillation is used to separate two liquids with different boiling points.
- Chromatography is used to separate different sized molecules e.g. different inks in a pen.
- The water in the beaker must not touch the dots of ink.
- The results can be compared to find out which pen is a match to the sample given.
- Sand and salt are a mixture that can be separated using the techniques learned.
- The mixture is first added to water. The salt will dissolve, the sand won't.
- The sand is then filtered out.
- The remaining salt water solution can be evaporated and the pure salt collected.