

| Keyword               | Definition                                                                                              |
|-----------------------|---------------------------------------------------------------------------------------------------------|
| <b>Periodic Table</b> | A tabular representation of all known elements in order based on atomic number.                         |
| <b>Atomic Number</b>  | The number of protons in the nucleus of an atom. Also called the proton number.                         |
| <b>Periods</b>        | A horizontal row in the periodic table.                                                                 |
| <b>Groups</b>         | A vertical column in the periodic table containing elements with similar chemical properties.           |
| <b>Element</b>        | A substance made of only one type of atom.                                                              |
| <b>Compound</b>       | A Substance where two or more elements have chemically joined together.                                 |
| <b>Mixture</b>        | Two or more substances that are not joined together. The substances can be elements, compounds or both. |
| <b>Reactive</b>       | The tendency of a substance to undergo a chemical reaction.                                             |

The periodic table is arranged in rows called periods and columns called groups. Groups contain elements with similar chemical properties.

## Group 1 – Alkali Metals

Group 1 metals are very soft metals which can be cut with a knife. They have very low melting and boiling points and are very reactive compared to other metals. The elements become more reactive as you go down group 1.

When the group 1 metals react in water they produce a metal hydroxide and hydrogen gas.

E.g.  
Lithium + Water → Lithium Hydroxide + Hydrogen

## Group 2 – Alkali Earth Metals

Group 2 metals are reactive, but less reactive than group 1 elements.

Group 2 metals react with acids to produce a salt and hydrogen. The name of the salt depends on the acid used.

Hydrochloric Acid – Chloride

Sulfuric Acid – Sulfate

Nitric Acid - Nitrate

E.g.

Magnesium + Hydrochloric Acid → Magnesium Chloride + Hydrogen

Magnesium + Sulfuric Acid → Magnesium Sulfate + Hydrogen

Magnesium + Nitric Acid → Magnesium Nitrate + Hydrogen

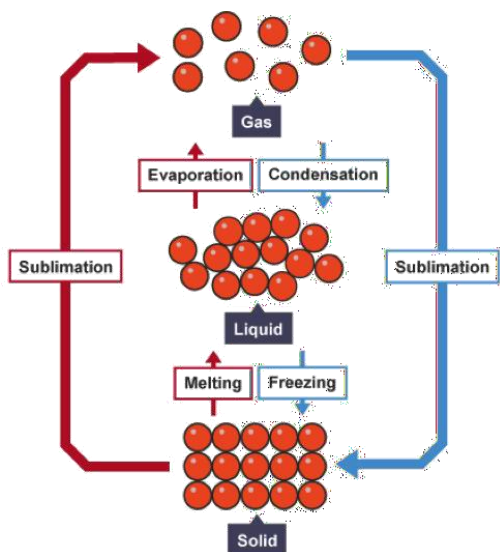
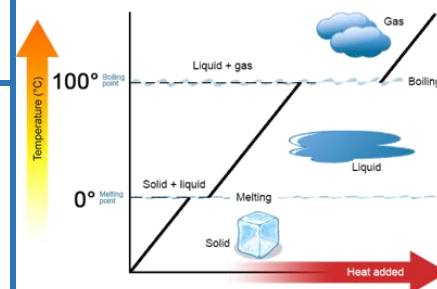
Group 2 metals become more reactive when you go down group 2.

## Group 7 – The Halogens

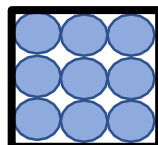
Group 7 elements become less reactive when you move down the group. This can be shown as a displacement reaction.

## Group 0 – The Noble Gases

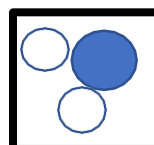
Group 0 elements are not reactive. This is because the atoms have full outer shells.



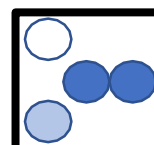
## Atoms, Elements, Compounds & Mixtures



This models an element.  
There is only one type of atom.



This models a compound.  
There are two different elements chemically combined together.



This models a mixture.  
There are two or more different elements which are not chemically combined.

| Solid                                          | Liquid                                                                  | Gas                                                             |
|------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------|
|                                                |                                                                         |                                                                 |
| The particles vibrate in a fixed position.     | The particles are close together and move around each other.            | The particles are far apart and move quickly in all directions. |
| The particles cannot move from place to place. | The particles are arranged in a random position.                        | The particles are arranged in a random way.                     |
| Particles have a fixed shape and cannot flow.  | The particles flow and take the shape of the bottom of their container. | The particles flow and completely fill their container.         |
| The particles cannot be compressed (squashed)  | The particles cannot be compressed.                                     | The particles can easily be compressed.                         |