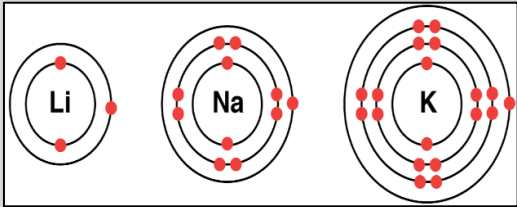
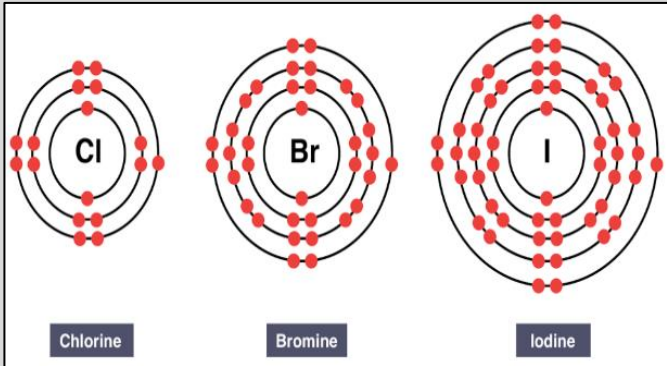




1	The Periodic table is arranged so that elements in the same vertical column (groups) have similar chemical properties and show trends in physical properties.
2	The group 1 elements are called the alkali metals
3	The alkali metals share many physical properties of other metals such as: 1. being good conductors of heat and electricity 2. they are shiny when cut They are different because they: 1. are soft (you can cut them with a knife) 2. have relatively low melting points.
4	The alkali metals are very reactive and react with water producing an alkaline metal hydroxide and hydrogen gas. Eg. Sodium + water $\rightarrow$ Sodium hydroxide + Hydrogen $2\text{Na(s)} + 2\text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(aq)} + \text{H}_2\text{(g)}$
5	The reactivity of the alkali metals increases as you go down the group: $\rightarrow$ Lithium fizzes steadily $\rightarrow$ Sodium melts into a ball and fizzes rapidly $\rightarrow$ Potassium gives off spark and the hydrogen produced burns with a lilac flame. 
6	The elements get more reactive as you go down the group as the atoms get larger because they have an extra electron shell. The force of attraction between the positive nucleus and the negative outer electron decreases as they become further apart. So it is easier to lose the outer electron.
7	Hydrogen gas can be tested for using the hydrogen pop test. A lit splint placed in the gas and it makes a pop sound if hydrogen is present.
8	The Group 7 elements are called the Halogens.
9	All the Group 7 elements exist as diatomic molecules (2 atoms held together by a covalent bond). Eg Cl_2 , Br_2

10	As you go down the group 7 elements the melting points, boiling points and densities increase
11	Halogens react with metals forming ionic compounds called salts which contain halide ions. Eg. Chlorine + Magnesium $\rightarrow$ Magnesium chloride $\text{Cl}_2\text{(g)} + \text{Mg(s)} \rightarrow \text{MgCl}_2\text{(s)}$
12	All Halogens can be used as disinfectants and bleaches as they kill microorganisms. Chlorine is commonly used in swimming pools
13	The test for chlorine uses damp blue litmus paper which turns red then bleaches white
14	The group 7 elements get less reactive as you go down the group because as you go down the group: $\rightarrow$ the outer shell gets further from the nucleus, $\rightarrow$ there is more shielding by inner electrons and $\rightarrow$ the force of attraction between the nucleus and the outer electron gets weaker. $\rightarrow$ This means that electrons are gained less easily. 



15 The order of reactivity of the halogens can be worked out using displacement reactions

16 Displacement reaction is one in which a more reactive element takes the place of a less reactive element in an ionic compound.

17 HT—Oxidation is the loss of electrons

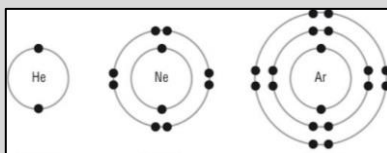
18 HT- Reduction is the gain of electrons

19 In a displacement reaction, oxidation and reduction happen at the same time making them examples of redox reactions

20 The group 0 elements are called the Noble gases.

21 The group 0 elements are all: colourless, poor conductors of heat and electricity and have low melting and boiling points.

22 The group 0 elements are all very unreactive as they have a full outer shell of electrons and so they are said to be inert. As such exist as single atoms because they do not form bonds easily with other atoms.



23 Uses of the Noble gases:

Noble Gas	Use	Reason for use
Helium	Lifting gas in party balloons	Helium is less dense than air.
Argon, Krypton, Xenon	Filling gas in filament lamps	The metal filament becomes hot enough to glow. The inert gas stops it from burning away.
Argon	Shield gas during welding	Argon is denser than air so it keeps air away from the metal. It is inert so the metal does not oxidise.