

## Section 1- Metals and Non-Metals

Elements can be sorted into metals and non-metals.

Yr 8 Science C2.1

**metals** (left of the line) | **Non-Metals** (right of the line)

Elements near the stepped line are metalloids. Their properties are between those of metals and non-metals.

Properties of Metals	Properties of Non-metals
good conductor of heat & electricity	poor conductor of heat & electricity
shiny	dull
high density	low density
malleable	brittle
ductile	
sonorous	Not sonorous
metal oxides are usually solid and basic (form alkali solutions)	Non-metal oxides are usually gases and form acidic solutions

## Section 2- Groups and Periods

### Groups

- The vertical columns
- Elements in the same group have similar properties

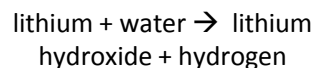
### Periods

- The horizontal rows
- There are patterns in the properties of elements as you move across the period.

## Section 3 - The Elements of Group 1

**Lithium (Li)**  
**Sodium (Na)**  
**Potassium (K)**  
**Rubidium (Rb)**  
**Caesium (Cs)**  
**Francium (Fr)**

They react vigorously with water and produce hydrogen gas and alkali solutions:



Good conductors of heat & electricity

### Group 1 – the alkali metals

Shiny when freshly cut

They are more reactive as you go down the group

Solids - High melting and boiling points which decrease as you go down the group.

## Section 4 - The Elements of Group 7

**Fluorine (F)**  
**Chlorine (Cl)**  
**Bromine (Br)**  
**Iodine (I)**  
**Astatine (At)**

A more reactive halogen will displace a less reactive halogen from a solution:  
chlorine + potassium bromide = bromine + potassium chloride

They are less reactive as you go down the group

### Group 7 – the halogens

Low melting and Boiling points which increase as you go down the group.

F and Cl = gas  
Br = liquid  
I & At = solid

Do not conduct electricity

They are highly reactive:  
iron + chlorine = iron chloride

The colour gets darker down the group:  
F - pale green  
Cl – yellow  
Br – orange/brown  
I - black

## Section 5 - The Elements of Group 0

**Helium (He)**  
**Neon (Ne)**  
**Argon (Ar)**  
**Krypton (Kr)**  
**Xenon (Xe)**  
**Radon (Rn)**

They can be found in the atmosphere

They glow brightly when high voltage electricity passes through them

### Group 0 – the noble gases

Their melting and boiling points increase as you go down the group

Colourless gasses with very low melting and boiling points

They are very unreactive