

# Chapter 6 Periodic Table (STD – 1A, 1B, 1C)

Rows are called **PERIODS**

Columns are called **GROUPS** (also known as families)

<u>Column #</u>	<u>Name</u>
1	alkali metals
2	alkali earth
7	halogens
8	noble gases

**TRANSITION ELEMENTS** (in the valley) columns 3B-8B, 1B & 2B. Lanthanides & Actinides (2 rows at the very bottom of the chart) are also included. All transition elements are metals.

**METALLOIDS** - act like both metals and non-metals. Green on chart in book.

B, Si, As, Te, At (above stairs)

Ge, Sb, Po (below stairs)

**METALS** – Groups 1A, 2A, transition elements (3B – 8B, 1B & 2B) below stairsteps in columns 3A, 4A, & 5A (except the metalloids) and all of the transition elements - columns IIIA (4) – IIB (12).

Blue on chart in book

You will need to know chart of Physical Properties of Metals on p. 155 and Nonmetals on p. 158

Atomic Number = # of electrons = # protons

Atomic Mass = # neutrons + atomic number (# protons)

## Ions (STD – 1D, 1G)

When metals react chemically with non-metals, electrons move from the metal to the non-metal !!!

When any atom has gained or lost electrons (the number of electrons is greater or less than the atomic number for its element) it is called an ion.

Metals always LOSE electrons when forming ions

Non-metals always GAIN electrons when forming ions

Examples:

**Ionization:** (metal) Na ----> Na<sup>+</sup> + e<sup>-</sup> (non-metal) Cl + e<sup>-</sup> ----> Cl<sup>1-</sup>

**Reaction:** 2 Na + Cl<sub>2</sub> ----> 2 NaCl

Predicting charges on ions (these all follow the simple rules for their groups):

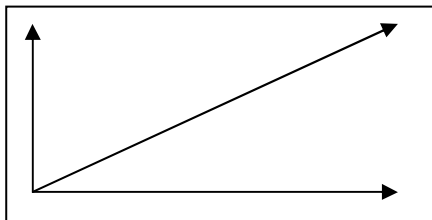
<b>GROUP NUMBER</b>	<b>NET CHARGE</b>
I (1)	1+
II (2)	2+
III (13)	3+
VI (16)	2-
VII (17)	1-

**Chart Summary:** All elements within group I act very much alike because they form 1+ ions. For the same reason, elements in each representative group (Groups 1A – 1B) react similarly to all other elements with its group. Elements within each representative group have the same charge when they form ions.

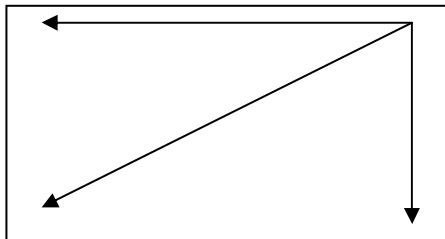
## **Ch 6.3 - Trends in the Periodic Chart    Std 1 & 2**

NOTE: Arrow heads **always** point in direction of **increase**.

**IONIZATION ENERGY / ELECTRONEGATIVITY** - **increases** (energy needed to remove electron from an atom / attraction for electrons in a chemical bond)

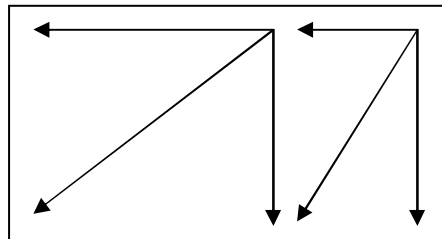


**SIZE OF ATOM** – **increases**

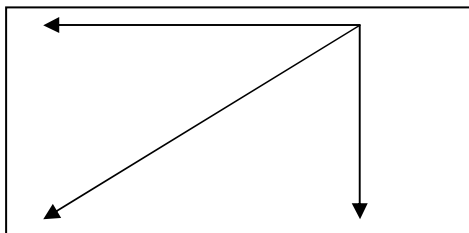


**SIZE OF ION** - **increases**

Metals                      Non-metals



**METALS** - **increasing chemical activity**



**NON-METALS** – **increasing chemical activity**

