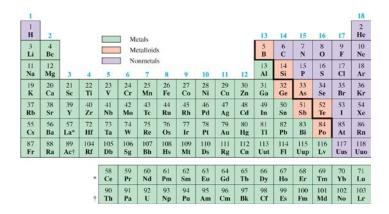
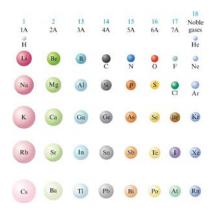
Prep for Periodic Trends Lab

- When a property gradually changes across a period, and there is a tendency for this change to repeat at regular intervals, we say that the property exhibits a Periodic Trend.
 - Elements get less metallic from left to right in a period.
 - Atomic radius decreases from left to right in a period.





The magnitude or strength of a property also shows a gradual change (or trend) within a family as we move down or up a group.

In this week's lab, we shall look at two trends:

- The ability of a halogen to take electrons away from a halide.
- The reactivity of several metals with water.
- Halogens are neutral, diatomic molecules: F₂, Cl₂, Br₂, I₂, X₂, Y₂.
 - Halogens can be dissolved in water to yield aqueous solutions of the molecules; each solution has a distinctive color: $F_2(aq)$, $Cl_2(aq)$, $Br_2(aq)$, $I_2(aq)$, $X_2(aq)$ blue, $Y_2(aq)$ yellow.
- Halides are the negatively-charged, monatomic ions of the halogens. We can get them into aqueous solution by dissolving a soluble salt of the halide (e.g. NaCl) in water. All aqueous halide ions are colorless: $F^{-}(aq)$, $CI^{-}(aq)$, $Br^{-}(aq)$, $I^{-}(aq)$, $X^{-}(aq)$, $Y^{-}(aq)$.
- We will mix solution of a halogen and a halide and look for a color change to decide if the halogen took electrons away from the halide:

 $X_2(aq)$ [blue sol'n] + $Y^-(aq)$ [colorless sol'n] $X_{2}(aq) + Y^{-}(aq)$ \rightarrow $X_{2}(aq) + Y^{-}(aq)$

→ blue solution [Y⁻ kept its electron; no reaction]

OR

 $X_2(aq)$ [blue sol'n] + $Y^-(aq)$ [colorless sol'n] $X_2(aq) + Y^{-}(aq)$ \rightarrow $X^{-}(aq) + Y_{2}(aq)$

 \rightarrow yellow solution [Y⁻ lost its electron, became Y₂]

- Look for a halogen that always takes electrons from halides, and one never that takes electrons.
- When metals are mixed with water, we will observe how their reactivity changes within a group, and within a period. This will allow us to make predictions as to the reactivity of other metals.

The more vigorous the reaction, the more reactive the metal.

11 Na 22.99								1 C 35.	l	
19 K 39.10	20 Ca 40.08							3. B 79.	r	
								5 1 120		