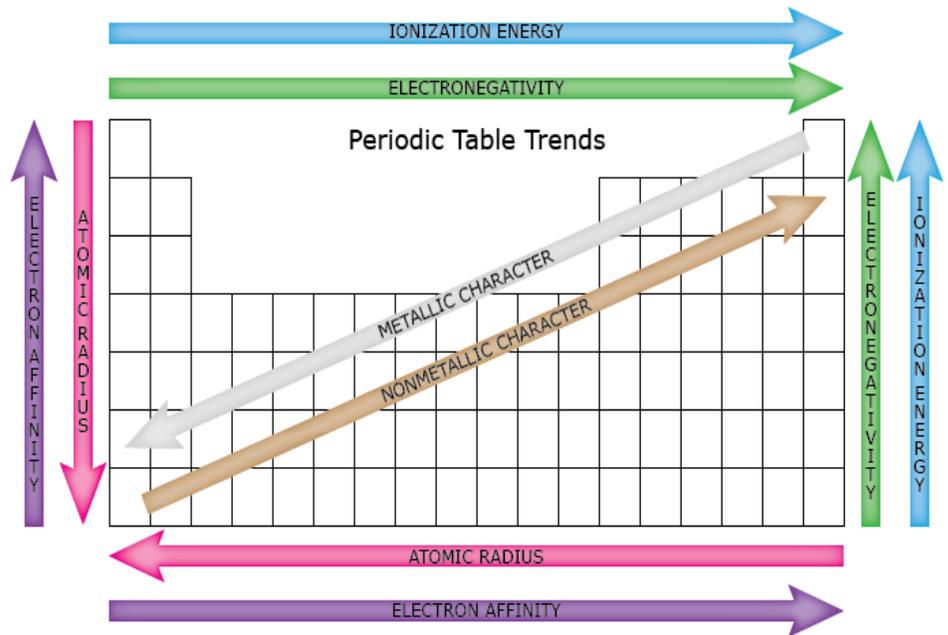






## 2. Atomic Radius

- down a group, the size of the atom increases
  - valence e's are found in new NRG level = further from nucleus
  - inner e's "shield" valence e's from nucleus
- across a period, the size of an atom decreases
  - from left to right, the number of protons increases
  - as the +ve nuclear charge increases, the e's in the valence level are more strongly attracted to the nucleus



## 3. Ionization Energy

- NRG needed to remove an e- from an atom to form a +ve cation
- across a period, ionization NRG increases
  - stronger attraction to nucleus = harder to remove e-
- down a group, ionization NRG decreases
  - valence e- further from nucleus = held more loosely

## 4. Electron Affinity

- the NRG change that occurs when an e- is acquired by an atom to form an anion
  - Generally, energy is released when an e- is acquired.
  - the amount of NRG released depends upon how much the atom would like to acquire additional e- ('s).
- Why gain electrons? Achieve an octet (8) of valence e's = very stable (like Noble Gases)
- Generally -- Metals have a very low electron affinity (would rather lose e-'s)
  - Nonmetals have a very high electron affinity (would rather gain e-'s)

## 5. Electronegativity

- the tendency of an atom to attract a bonding pair of electrons
- increases across a period and decreases down a group