**The Periodic Table Concepts**

What is the use of the periodic table?

Symbol

Atomic Number

Atomic mass

Period (How many are there?)

Groups (How many are there?)

Atomic Symbols

**Tip**- *Names and symbols must be memorized.*

**Tip**- *The four corners of an atomic symbol have specific uses.*

Atomic Number - Z

Mass Number - A

Charge

Subscript

Ca

Protons

Electrons

Neutrons

Isotopes

Mass Spectroscopy

Atomic Masses

Periodic Properties of the Elements

Lanthanides

Actinide

Alkali Metals

Alkaline Earth Metals

Transition Elements

Halogens

Noble Gases

**Tip** - *A differentiating electron is the electron in a neutral element that makes it different from the previous element.*

**Tip** - *Isoelectronic refers to atoms and ions that have identical electron configurations.*

Physical Properties of the Elements

Metals

Metalloids

Allotropes

Variation of physical properties

Atomic Radii

Effective nuclear charge

Effective Nuclear Charge

Core Electrons

Ionization Energy

Photoelectron Spectroscopy

Electron Affinity

Electronegativity

Ionic Radii

**Tip** – *Size of Ions: Anions > Element Cations < Element*

**Important Concepts:**

* Relationships of the periodic table to electron configuration
* Chemical and Physical Similarities within Groups
* Variation of properties within groups
* Diagonal Relationships
* Electronegativity Relationships
* Weighted Average
* Diagonal Trends