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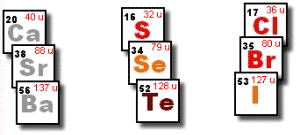
Outline of Chapter 5

Lesson 1: Development of the Periodic Table

I. Forerunners of the Periodic Table

1. J.W.Doberiner (1780-1849) observed that several elements could be classified into sets of three, he called these triads

A. The top and bottom elements average were the middle element(fig.1)

Figure

2. 1885, English chemist J.A.R Newlands(1837-1898) found another way how to organize the elements by arranging them by increasing atomic mass; while doing this, he found out that the properties of the eighth element were like those of the first, the ninth, etc.... this became known as the law of octaves

3. 1869, Russian chemist Dmitri Mendeleev published the first periodic table

A. arranged his table so elements in the same column have the same properties, while doing this let several spot blank because knew that there were certain elements that were supposed to go their but they were yet found

I. The Periodic Law

1. H.C.J Mosley developed concept of atomic number

2. Periodic law states that when elements are arranged in order of increasing atomic number, their physical and chemical properties show a periodic pattern.

Lesson 2: Reading the Periodic Table

I. Organizing the Squares

1. groups, families= vertical columns in a periodic table

2. periods= the horizontal rows

II. Metals, Nonmetals, and Semimetals

1. Metals are good conductors of heat and electricity, have luster, ductile, and usually a solid except mercury which is a liquid at room temperature

2. Nonmetals are poor conductors of heat and electricity, do not have luster, and normally a liquid or gas

3. A semi metal shares characteristics with metals and non metals like silicon.

III. Electron Configurations and the Periodic Table

1. valence electrons are the outer most electrons

2. elements in a group have similar properties because they have valence electrons

Lesson 3: Periodic Trends

I. Atomic Radius

1. Atomic radius is the distance from the center of an atom's nucleus to its outermost electron.

2. Atoms get larger going down a group and get smaller moving left to right across each period.

II. Ionic Size

1. When an atom gains an electron or becomes a negative charged ion, the atom gets bigger and if it loses an electron or becomes an positive charged ion than its smaller.

III. Ionization

1. An atoms ionization energy us the energy needed to remove one of its electrons.

2. Ionization energy decreases as you down a group and increases as you move from left to right across a period.

IV. Electron Affinity

1. An electron affinity is the energy change that occurs when it GAINS and electron.

V. Electro negativity

1. An atoms electro negativity reflects its ability to attract electrons in a chemical bond.

2. Increase left to right on a row and decrease up to down on a column.

Things to Remember:

1. Atomic radius decreases down to up and decrease left to right.

2. Ionization energy and electro negativity increases down to up and increases left to right.