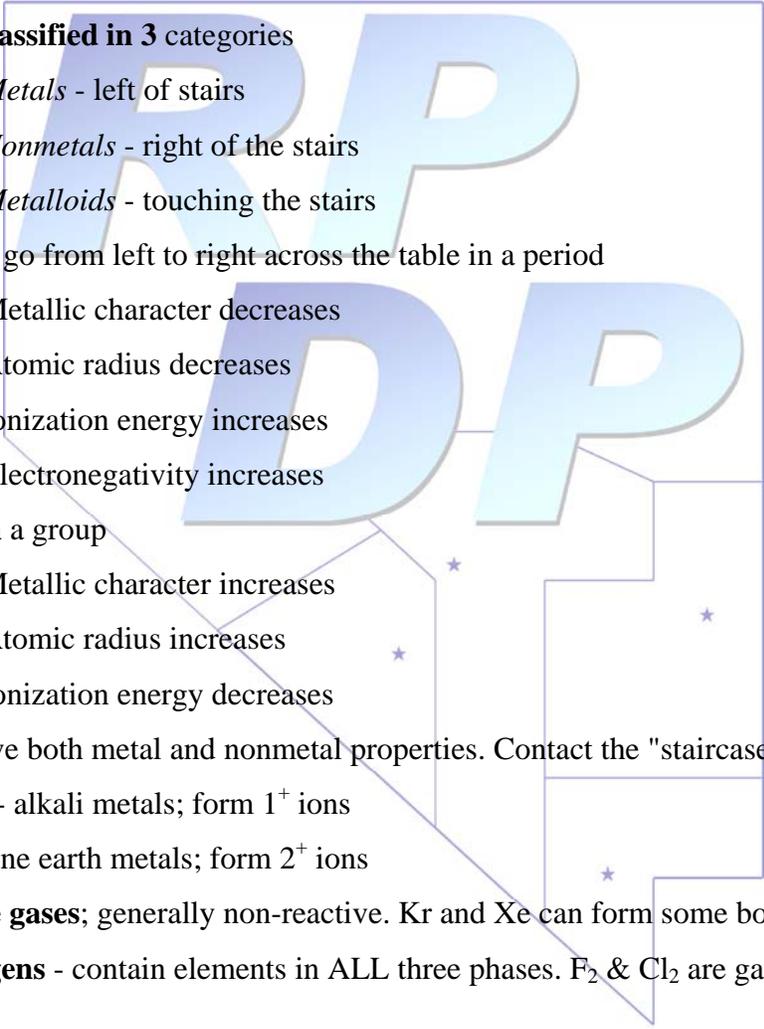


CHEMISTRY CONTENT FACTS

The following is a list of facts related to the course of Chemistry. A deep foundation of factual knowledge is important; however, students need to understand facts and ideas in the context of the conceptual framework. This list is not intended to provide a comprehensive review for State and National Assessments. Its purpose is to provide a highlight of the factual material covered in Chemistry. This list is not all inclusive, be sure to check Nevada State Standards and your district syllabi.

Periodic Table

- **Periodic law** - states that the physical and chemical properties of the elements are a periodic function of their atomic numbers and results in the element arrangement on the periodic table
 - **Elements are classified in 3 categories**
 - *Metals* - left of stairs
 - *Nonmetals* - right of the stairs
 - *Metalloids* - touching the stairs
 - **Trends** - as you go from left to right across the table in a period
 - Metallic character decreases
 - Atomic radius decreases
 - Ionization energy increases
 - Electronegativity increases
 - As you go **down** a group
 - Metallic character increases
 - Atomic radius increases
 - Ionization energy decreases
 - **Metalloids** - have both metal and nonmetal properties. Contact the "staircase".
 - **Group 1 metal** - alkali metals; form 1^+ ions
 - **Group 2** - alkaline earth metals; form 2^+ ions
 - **Group 18 noble gases**; generally non-reactive. Kr and Xe can form some bonds
 - **Group 17 halogens** - contain elements in ALL three phases. F_2 & Cl_2 are gases, Br_2 is a liquid and I_2 is a solid
 - Elements in the same period fill up the **SAME** principle energy levels
 - Elements in the same groups have the same # of valence electrons
 - The most active metals are in the lower left corner.
 - The most active nonmetals are in the upper right corner (excluding noble gases)
 - The **MOST** active elements for the **MOST** stable compounds! i.e. RbF
 - Monatomic molecules (one atom) He, Ne, Ar, Kr, Rn
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- Diatomic elements (two atoms) H_2 , N_2 , O_2 , F_2 , Cl_2 , Br_2 , I_2
- Transition elements -
 - Generally produce **COLORED SOLUTIONS**
 - found in the middle of periodic table
 - emit color in flame test as electrons fall back **DOWN** from the excited state
 - lose both s & d electrons & therefore have multiple oxidation states
- Van der Waals forces increase as you go down a group since the size of the atom increase. This causes the boiling and melting points to increase as well. Remember this when you get to **ORGANIC chemistry**
- Atomic radius decreases as you go across a period since there is an increase of effective nuclear charge (*# of protons*) which pulls the electrons in same energy level closer thereby decreasing the size of the atom

