

Name _____

Date _____

Basics of Chemical Bonds

- When atoms lose, gain, or share valence electrons, a _____ is formed between the atoms and a _____ is created.

Ionic Bonds

- When atoms _____ or _____ electrons they develop a _____ and are called _____.
 - In other words, an ion is an atom with a positive or negative charge.
- Only _____ will _____ electrons to form _____ ions, or cations.
 - Alkali Metals (+1), Alkaline Earth Metals (+2), and Boron Group (+3)
- Only _____ will _____ electrons to form _____ ions, or anions.
 - Halogens (-1), Oxygen Group (-2), and Nitrogen Group (-3)
- In order for an atom to lose an electron, it must first be near an atom that will accept that electron
 - After the electron exchange takes place, the atoms become two _____.
- Ions with opposite charges attract each other and join together by forming _____.
- Ions of opposite charges attract each other, just like objects with opposite charges attract each other during static electricity, so it's called an _____.
- Ionic compounds always consist of a _____ ions that are attracted to each other due to their opposite charges.

Covalent Bonds

- _____ are able to _____.
- Since they don't gain or lose electrons, they do not develop a charge and _____.
- When atoms join together by sharing valence electrons they form _____.
- When atoms share valence electrons, those _____ will _____ around _____ of the atom's _____.
- Compounds formed with covalent bonds are called _____.
- _____ can form covalent bonds.

Metallic Bonds

- When _____, they have a completely different way of forming bonds that makes their _____.

bonds _____ and gives metals the properties for which they are known.

○ Ductile, malleable, conductive, luster

- When metals atoms are grouped together, the valence electrons feel just as much attraction to the nuclei of other metals as they do their own nucleus.
- As a result, _____ their individual atoms.
- When the valence electrons leave their individual atoms, it results in a group of positive _____ by a sea of " _____".
- Delocalized electrons no longer belong to any one metal cation, instead they float freely between all of the metal cations forming what is called a " _____".
- The attraction between the sea of electrons and the positively charged nuclei is called a _____.
- _____ can form metallic bonds with other metal atoms to create metallic compounds.