# Supplemental Homework 1

**Electronegativity is the tendency of an atom to attract shared electrons in a chemical bond. In the periodic table, electronegativity (1) increases from left to right in a period and it (2) decreases from top to bottom.**

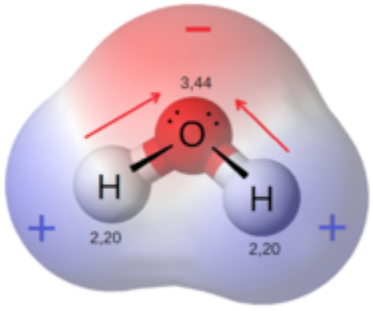
1. **Elements with more valence electrons have a higher electronegativity.**
2. **Smaller elements have higher electronegativity while larger elements have lower electronegativity.**

**Compare the electronegativity of the following elements by ranking them from lowest to highest.**

**a)** **Cl** **O** **Mg** **Na**

**b)** **S** **P** **Ca** **F**

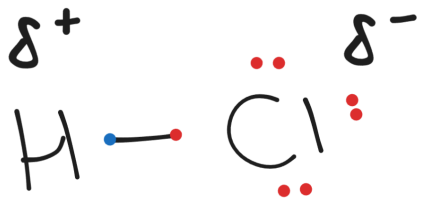
**When elements exist in nature they are in their neutral forms (most of the time), however, they have ionic forms for when they bond with each other. Polarity is defined by the difference in attraction of the electron in a bond.**




**Since the oxygen is more electronegative, it pulls the electron density closer to itself. This means that there is less electron density around the hydrogen.**

**Draw the bonding structures for the following molecules, describe its polarity, and draw the partial charges if it is polar.**

**Ex. HCl**




**Polar**

**Ex. $CO_2$**


**Nonpolar**

**a) $CH_4$**

**b) $H_2O$**

**c) LiF**

**d) $NH_3$**

**When atoms dissociate, they are broken up into their respective ionic forms. Metals form cations because they have less valence electrons so they lose them and become positively charged. Nonmetals tend to form anions because they have more valence electrons so they gain them and become negatively charged. All elements want to either have 0 or 8 valence electrons as ions since they are the most stable. Predict the charges for the following elements as ions.**

**Ex. O Charge: -2**

a) **Na**

b) **N**

c) **S**

d) **F**

e) **Mg**

f) **Te**

g) **K**

h) **Xe**