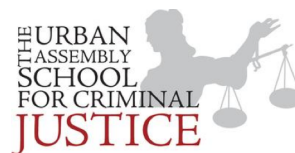


Name: \_\_\_\_\_ Date: \_\_\_\_\_



**Chemistry** ~ Ms. Hart      **Class:**      Anions   or   Cations

### 11.1 Oxidation Number Reading

*Directions: find the answers to the following questions and complete them in FULL SENTENCES.*

1. Where are nonmetals located on the periodic table? \_\_\_\_\_  
\_\_\_\_\_
2. Where are metals located on the periodic table? \_\_\_\_\_  
\_\_\_\_\_
3. What does an electron configuration represent? \_\_\_\_\_  
\_\_\_\_\_
4. What are valence electrons? \_\_\_\_\_
5. How many valence electrons does potassium have? \_\_\_\_\_
6. What charge does a potassium ion have? \_\_\_\_\_
7. How many valence electrons does potassium have? \_\_\_\_\_
8. What charge does a potassium ion have? \_\_\_\_\_
9. Metals typically have what type of charge? \_\_\_\_\_
10. Nonmetals typically have what type of charge? \_\_\_\_\_

#### **OXIDATION NUMBER**

The oxidation number of an atom in a substance is equal to the charge that the atom would have if the electrons in each bond belonged to the more electronegative atom. It is important for you to understand that oxidation numbers are not actual charges, but they are a convenient way to keep track of electrons. Oxidation numbers can be determined by examining the bonding in a substance or can be found using the following rules:

1. The oxidation number of an atom in an uncombined element is zero.
2. The oxidation number of any ion equals its ionic charge.
3. In compounds, the oxidation number of many elements corresponds to the elements position in the periodic table
  - a. Elements in Group 1 are always +1
  - b. Elements in Group 2 are always +2
  - c. Aluminum is always +3
  - d. Fluorine is always -1
  - e. Hydrogen has an oxidation number of +1 when combined with nonmetals. For example in HCl, Hydrogen is +1 and Cl is -1. But in LiH, Li is +1 and H is -1
  - f. Oxygen has an oxidation number of -2 in most compounds and ions.
4. The oxidation number of elements in compounds are written per atom
5. The sum of the individual oxidation numbers of all atoms in the formula for a compound is zero.
6. The sum of the oxidation numbers of the atoms in the formula for a polyatomic ion is equal to the charge of that ion.

*Notation* (how to write it!): oxidation numbers are typically written with the charge followed by the number. Actual ionic charges in ionic compounds are written with the number followed by the charge. For example, the ionic charges of magnesium and chloride ions in the compounds  $\text{MgCl}_2$  are 2+ and 1- respectively. Their oxidation numbers are +2 and -1.

*Follow the example on the back and try this on your own!*