

## Chem 9.1

### Goals:

- Define and categorize ionic compounds
- Predict formulas of compounds based on their starting elements
- Utilize methods to predict the products of a reaction

### Bellwork:

- 1) What happens when opposite poles of a magnet are brought close together?
- 2) What gives an ion its charge?

### Plan:

Discussion: electrons and the charges they lose.

>Students should connect the total electrons with how they differ from a full octet of electrons

Vocabulary: Ionic, Criss-Cross method, Polyatomic, Anion, Cation

Guided practice: Combine the following elements together in a binary compound

- Sodium and chlorine
- Sodium and oxygen
- Barium and oxygen
- Aluminum and bromine
- Magnesium and nitrogen

Polyatomics: Ones to know listed below

- Carbonate
- Phosphate
- Nitrate
- Sulfate
- Hydroxide
- Ammonium

Guided practice combining elements with polyatomic ions

HW: Solubility

- Are the following compounds soluble in solution (see rules for solubility)  
[https://chem.libretexts.org/Bookshelves/Physical\\_and\\_Theoretical\\_Chemistry\\_Textbook\\_Maps/Supplemental\\_Modules\\_\(Physical\\_and\\_Theoretical\\_Chemistry\)/Equilibria/Solubility/Solubility\\_Rules](https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Supplemental_Modules_(Physical_and_Theoretical_Chemistry)/Equilibria/Solubility/Solubility_Rules)
- 1) Calcium carbonate

- 2) Copper sulfate
- 3) Lithium chloride
- 4) Silver chloride
- 5) Copper carbonate

Chem 9.2

Goal: Investigate solubility and reactions of various ionic compounds

Lab:

### **Ionic bonding and solubility lab**

Purpose: To investigate the reactions of different ionic compounds with each other and predict the products made.

#### **Important notes:**

- All reactions should be done on the reaction surface and ***not in the bottles***
- Use care to not have the tips of the chemical droppers touch another compound
- Safety glasses should be worn at all times

Methods:

The two main stock solutions are potassium carbonate ( $K_2CO_3$ ) and copper sulfate ( $CuSO_4$ ). Take two pipets and mark them in a way so you can tell them apart. Collect some of each stock solution in two separate containers and label them (you can always get more).

You will react one drop of each stock solution with the various dropper bottles in the room. Be sure to record which compounds you are using. You can also combine the two stock solutions with each other.

Write down your observations for each compound tested. If nothing apparent happened, write NR for “no reaction”. Predict what some of the possible compounds could have been made (hint: how can you rearrange the elements and polyatomic ions to make something new?)

**Potassium Carbonate reactions**

Reacted with: \_\_\_\_\_ Observations \_\_\_\_\_ Possible Compounds? \_\_\_\_\_

**Copper Sulfate reactions**

Reacted with: \_\_\_\_\_ Observations \_\_\_\_\_ Possible Compounds? \_\_\_\_\_

In a paragraph, write an abstract (summary) of your experiments today. It should include:

- Brief description of your methods
- Results (which experiments had substances made and what their similarities were)
- Discussion (the formulas and identities of these compounds)
- Reflection (what additional studies could be done or how it could be improved)

Remember to use the conventions of informational writing.

- No first person pronouns
- Do not insert opinions...stick with observations and data
- Be descriptive and clear

Due: October 8<sup>th</sup>