**Procedure:**

1. How do you tell the difference between ionic and covalent compounds just by looking at the chemical formula of compounds?

2. Identify 6 cards that have 2 elements (ONLY 2, NO MORE OR LESS) that have formed a covalent compound. Then fill in the following table for each of the cards in your group.

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| --- | --- | --- |
| **Chemical Formula** | **Compound Name** | **Pattern in the names** |
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3. For the compounds above, fill in the following table

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| --- | --- | --- | --- | --- |
| **Chemical Formula** | **List the first element in the compound** | **How many atoms of this element are there?** | **List the second element in the compound** | **How many atoms of this element are there?** |
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4. How do you determine how many of each element you have in the compound just by looking at the names of the compounds?

5. **Electronegativity** is a fancy word for how much an atom likes electrons. Nonmetals tend to be more electronegative than metals. In covalent compounds, the \_\_\_\_\_\_\_\_ electronegative element comes first and the \_\_\_\_\_\_\_\_\_ electronegative element comes second.

6. The rest of your compounds are ionic. How are they different from covalent compounds?

7. What are the transition metals? Where are they located in the periodic table?

8. There are 6 compounds that contain transition metals. Identify them and fill in the table below.

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| **IONIC GROUP #1**  **Transition Metals** | **Chemical Formula** | **Compound Name** | **Pattern in the names** |
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9. For the compounds above determine the oxidation states for each element (use the backwards criss cross method) in the compound and fill in the table.

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| **Chemical Formula** | **Cation Oxidation State** | **Anion Oxidation State** |
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10. How are the names of compounds containing transition metals related to oxidation states?

11. Identify 6 compounds that have more than 2 elements. These are still ionic compounds in the sense that they contain one cation and one anion. However, sometimes the cation or anion contain more than 2 elements that are covalently bonded together. These are called **polyatomic ions**. The prefix poly- means many and atomic refers to atoms. Ions are atoms that have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Thus, these are \_\_\_\_\_\_\_\_\_compounds that are covalently bonded. What color are the cations for the ionic compounds? What color are the anions?

Based on your answers from #9, fill in the following table

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| --- | --- | --- | --- | --- |
| **IONIC GROUP**  **#2**  **POLYATOMIC**  **IONS** | **Chemical Formula** | **Compound Name** | **Cation** | **Anion** |
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12. The remaining cards have compounds that we are familiar with. Each compound contains one \_\_\_\_\_\_\_\_\_\_\_\_ that has a \_\_\_\_\_\_\_\_\_\_\_\_\_ charge and one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_charge.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **IONIC GROUP**  **#3**  **Metals and Nonmetals** | **Chemical Formula** | **Compound Name** | **Cation** | **Anion** | **Patterns in the Naming** |
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13. How are the metals named for the above compounds?

14. How are the nonmetals named for the above compounds?