Name(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_

Ionic vs. Covalent (Molecular) Compounds Lab

**Hypothesis: Write a *PREDICTION* that explains what substance will show which bond type each contains. You will need to have a separate hypothesis for each substance.**

**Substance #1:**

**Substance #2:**

**Substance #3:**

**Substance #4:**

**Substance #5:**

**Observations Table:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | **4** | **5** | **6** | **7** |
| Name | Formula | Appearance (solid, liquid or gas?) | **Soluble in water?** | **Conducts electricity in water??** | **Order of Melting** | **Soluble in Hexane** |
| Wax |  |  |  |  |  | Yes |
| Starch |  |  |  |  |  | No |
| Sugar |  |  |  |  |  | No |
| Salt |  |  |  |  |  | No |
| Copper Chloride |  |  |  |  |  | No |

**AFTER THE LAB: Comprehension Questions:**

1. Which type(s) of elements (metals, nonmetals) are found in ionic compounds?
2. Which type(s) of elements (metals, nonmetals) are found in covalent compounds?

1. Which typically have higher melting points: ionic or covalent compounds?
2. Which would you expect to be able to dissolve easily in water:   
   ionic compounds or covalent compounds?
3. Which would you expect to be able to conduct electricity: ionic or covalent compounds?
4. In order to conduct electricity, a compound must contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Data Analysis:**

1. Which compounds are ionic?
2. Which compounds are covalent?
3. Of the covalent compounds, which are polar covalent and which are non-polar covalent? How do you know? (Hint: Hexane is a non-polar covalent compound.)

**Conclusion:** **Claims Evidence and Reasoning**

Write a detailed paragraph explaining your results. Use as many underlined vocabulary words as you can. Be sure to include the following in your paragraph:

1. What your claim was for each substance.

Which type of bond held the atoms of each substance together?

1. Evidence to support or refute your claim.

Use both qualitative and quantitative observations from your data table.

1. Reasoning

Explanation of what you saw happen. (Explain data and use science to explain what you know about compounds, elements, and bonding)