Name _____
Period _____ Date _____

Comparing **Ionic** and **Covalent** Compounds

Background Info:

1. Explain **ionic** bonding. _____

   _____

   _____

2. Explain **covalent** bonding. _____

   _____

   _____

Problems and Hypotheses:

1. Which type of bond do you think would be **stronger**? **Ionic** or **covalent**?

   _____ Why? _____

   _____

2. Would you expect the **properties** of ionic and covalent compounds to be **similar** or **different**? _____ Why?_____

   _____

Experiment:

Materials:

sodium chloride	alcohol burner	ringstand
naphthalene	wire screen	iron ring
graduated cylinder	rubber stoppers	test tube rack
evaporating dishes - 2	magnifier	test tubes - 2

Procedure:

_____1. Place a very small sample of each substance in separate evaporating dishes. Observe carefully. Notice if one has more distinct crystals than the other. Record your observations in the table.

_____2. Use the wafting method to smell each compound. If you can detect an odor, assume that the compound has a high **volatility**. Record your observations.

_____3. Use an alcohol burner to carefully heat each of the substances. **Be very careful to keep the flame away from the contents of the dishes! Do not heat either substance for longer than 3 minutes.** Stop heating as soon as the substance melts. Record your results.

_____4. Place a few small crystals of each substance in separate test tubes. Add five milliliters of water to each. Stopper and shake. Record your observations.

_____5. Observe as your teacher performs an electrical conductivity test for the two substances. Record the results.

Observations:

Substance	Crystals, distinct or not	Volatile, yes or no	Melting Time, seconds	Soluble in H_2O, yes or no	Conductivity, yes or no
sodium chloride					
naphthalene					

Which compound forms more distinct crystals? _____

Which compound is more volatile? _____

Which compound melted more quickly? _____

Which compound is more soluble in H_2O? _____

Which compound is a better conductor of electricity? _____

Concusion:

1. Which type of bond do you seems to be **stronger?** **Ionic** or **covalent?**

   _____ Why? _____

   _____

2. Are the **properties** of ionic and covalent compounds **similar** or **different?**

   _____ Give proof. _____

   _____

   _____

   _____

3. Why do you think the type of bond could make a substance more or less volatile?

   _____

   _____

   _____

   Does the strength of the bond have anything to do with melting times? Why or why not?

   _____

   _____

   _____

4. Water molecules have parts that are negatively charged and parts that are positively charged. Which type of compound do you think would dissolve more easily in water, ionic or covalent? Why?

   _____

   _____

   _____