

NAME:

DATE:

THE NATURE OF BONDING

WHY BOND?:

PURPOSE: To study the nature of bonding in various different substances.

SAFETY:

PROCEDURE:

1. Observe a record the phase of each substance at room temperature.
2. Put all small amount of each substance on a watch glass and test with for electrical conductivity. Make sure to clean the probe after each test to avoid contamination and errors in results.
3. Add water to each substance on the watch glass. Observe and record it's solubility in water.
4. Test the electrical conductivity of the water-substance mixture (aqueous solution). Record.
5. Fill in the data table and use the data to determine trends.

QUESTIONS:

1. Which substances are elements?
2. Which Substances are Compounds?
3. Contrast the properties of metals vs. nonmetals- make a Venn Diagram .
4. Contrast properties of ionic vs. covalent substances.
5. Are there any inconsistencies with your data? Explain.

	Physical Appearance	Formula	Phase at Room Temperature	Melting Point (C)	Electrical Conductivity without Water	Solubility with Water	Electrical Conductivity with Water	Type of Bonding Patterns
Water								
Sodium Chloride			801					
Sucrose		$C_{12}H_{22}O_{11}$	185					
Acetone		CH_3OH	-117.3					
Ethanol			686					
Potassium Iodide			1539					
Iron Filings, Wire			119					
Sulfur			772					
Calcium Chloride			1083					
Copper			850					Metallic
Glycerin		$C_3H_5(OH)_3$	18.6					
Hydrochloric Acid			-144.8					Covalent
Graphite			More than 4000					
Potassium Nitrate			1412					