

# Electron Glue Bonding

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

## Purpose

To investigate the different types of bonding found in substances and to relate bonding to the physical properties of substances.

## Procedure

Read the handout Four Models of Bonding. Study the information on the Substance cards. Your job is to match each substance to its appropriate type of bonding on the handout.

Use the information on the cards to sort the 16 substances into the four categories of bonding. Write your results in the table.

Ionic	Network covalent	Metallic	Molecular covalent

1. Are there any substances that don't seem to fit properly in the categories you have placed them in? List them here and explain.

Use the handout to answer these questions.

2. What do the pictures of the four models of bonding attempt to show?
3. Give the type of bonding for each substance described here.
  - a. A substance made up entirely of metal atoms
  - b. A substance made up of both metal and nonmetal atoms
  - c. A substance made up entirely of nonmetal atoms

4. Some substances made up entirely of nonmetal atoms are soluble in water, while others are not. Use the bonding models to explain why.
  
5. How might the model for network covalent bonding explain the incredible hardness of a diamond?
  
6. Both sugar and salt dissolve in water, but they bond differently. Use the models to explain how these two substances might be different after they dissolve.
  
7. Which bonding model would you predict for the following substances? Which are compounds and which are elements?
  - a. KI, potassium iodide
  - b. CO<sub>2</sub>, carbon dioxide gas
  - c. Au, gold
  - d. Cl<sub>2</sub>, chlorine gas
  
8. Which of the bonding models are found in elemental substances? Explain, using examples.
  
  
9. **Making Sense** If you have the chemical formula of a substance, what can you figure out about its properties? Explain. Use the compound silver nitrate, AgNO<sub>3</sub>, as an example.