

## Chemistry I Unit 6 Review Guide

To prepare for the Unit 6 exam, you should be able to do the following:

1. Draw 3 dimensional structures and use them along with the electronegativity to determine whether they are polar, non polar, ionic or metallic. **Examples:**

H<sub>2</sub>S   NaCl   CCl<sub>4</sub>   CH<sub>2</sub>O   N<sub>2</sub>   CaCl<sub>2</sub>   CO<sub>2</sub>   NH<sub>3</sub>   Mg   HCl   HCN   Kr   Cl<sub>2</sub>O  
C<sub>2</sub>H<sub>6</sub>

2. Identify the intermolecular forces that would be the most important among molecules of each of the above compounds.

3. Define and explain the mechanisms of the following phenomena using kinetic theory:

boiling   freezing   evaporation   condensation   temperature   melting   sublimation

deposition   kinetic energy   gas pressure   vapor pressure   absolute zero

4. Use kinetic theory to compare the following phases of matter and explain their identifying properties.

solid                      liquid                      gas

5. Describe and compare the different types of solids:

molecular solid                      ionic solid                      network solid                      metallic solid

6. Correctly and clearly explain all of the phenomena that we observed in the Kinetic Motion and Phase Changes of Water labs. You should review the lab write ups that you did.

7. Understand and be able to explain all principals of the **Kinetic Theory of Matter**.

8. Suppose that you have a block of frozen H<sub>2</sub>O at a temperature of -10<sup>0</sup> C. Sketch a detailed time (x) vs. temperature (y) graph and identify the phases of matter that are present in each region as well as the phase changes that occur. Be sure that you can identify the correct temperatures at which these phases and phase changes occur.

9. Use the phase diagram at the right to identify the phase that you would find water in for the following conditions:

- 0 °C and 0.13 kPa
- 100 °C and 200 kPa
- 0 °C and 110 kPa
- 0.01 °C and .611 kPa

