WODSS SCIENCE
SCH 3UI

Name: _____
Date: _____

Intermolecular Forces Worksheet

Draw a diagram showing how 5 water molecules would interact in the liquid state:

Draw a diagram showing how water molecules would interact in the gas state:

Explain, using intermolecular forces, what has happened when the sample of water has changed from a liquid to a gas.

Explain why ice has a lower density than liquid water and illustrate

Explain why oil and water do not mix. Use a diagram to illustrate:

Written Response:

Methane (CH_4) and water have the similar molecular masses. Why is methane a gas at room temperature while water is a liquid at room temperature? Explain, using bonding and intermolecular forces, the difference between these two molecules.

The boiling points of H_2O is 100^oC and H_2S is -60^oC. Explain the difference in boiling points using intermolecular forces. Be sure to draw out the shapes of the molecules and look at the polarity of the bonds.

Fill in the Blank:

Terms: bonds, charges, dipole, forces, dipole-dipole forces, hydrogen bonding, ions, ionic, London dispersion forces, unchanged, unequal

1. When a molecular substance changes state (ex: from liquid to gas), the atoms within the molecules are _____
2. No _____ are broken when a molecular substance changes state.
3. The forces holding _____ together in _____ solids are ionic electrostatic forces. Opposite charges attract each other. These are the strongest intra-particle
4. The strongest intermolecular forces in a sample of oxygen gas are the _____
5. _____ sharing of electrons in a molecule results in the formation of partial _____ on the molecule.
6. A _____ occurs because one part of a molecule has a partial positive charge while another part of a molecule has a partial negative charge.

There are 3 intermolecular forces present in a sample of water. List the 3 intermolecular forces in order of strength from strongest to weakest:

Answer the following questions:

1. Complete the following chart

(Hint: 1. Draw the Lewis structures with shape
2. Determine polarity
3. Determine the intermolecular force)

Molecule	LDF, DDF, HB or a combination
H_2	
CCl_4	
H_2S	
NH_3	
Kr	

2. How do intermolecular forces help explain why the boiling point of CH_4 is much lower than HBr.