

- Describe the three types of intermolecular bonding
- H_2O is a liquid at room temp while H_2S , H_2Se , and H_2Te are all gases at room temp, despite the fact that they are heavier and have a larger surface area. Why?
- F_2 , Cl_2 are gases, Br_2 is a liquid, I_2 is a solid. What causes this trend?
- What types of intermolecular forces will the following molecules experience :
(it may help to draw them)
 - C_2H_4
 - CH_3Cl
 - CH_3OCH_3
 - $\text{CH}_3\text{CH}_2\text{OH}$
- Why does it take so much energy to boil a sample of water?
- If a sample of water is partially frozen and partially liquid, what is the temperature of the sample?
- The heat of fusion for water is 80 cal/g. How many calories of energy would be required to melt 382.5 g of ice?
- What allows a solute to dissolve in a solvent?
- Which of the following compounds is expected to be water soluble? (drawings may help)
 - LiCl
 - CH_3COCH_3
 - Na_3PO_4
 - C_6H_6 (Benzene)
 - CaCl_2
 - NH_3
- Why does an Oil and Vinegar salad dressing separate into two distinct layers?
- What is the weight/volume percent of the following mixtures?
 - 10.0g LiCl in 750mL solution
 - 25g NaNO_3 in 150mL solution
 - 40.0g of NaOH in 0.500L sol'n
 - 85.5g $\text{C}_6\text{H}_{12}\text{O}_6$ in 2.5L solution
- What are the molarities for 11a-d?
- If 11a is diluted from 750mL to 1.75L, what is the new molarity?
- How many colligative particles would each of the following compounds separate in to?
 - Na_3PO_4
 - CH_3OH
 - NaCl
 - NH_4NO_3
 - Li_2SO_4
 - MgCO_3
- Which of the following solutions will have the highest osmotic pressure:
 - 0.50M Na_3PO_4
 - 5.00M CH_3OH
 - 1.50M NaCl
 - 3.00M NH_4NO_3
 - 0.25M Li_2SO_4
 - 1.25M MgCO_3