

1

Name _____

Water HW #1

READ The BASICS (no kidding)

1. Water is a polar molecule or nonpolar molecule? _____
2. Why is it (polar or nonpolar) ?
3. What bond exists between one hydrogen atom and one oxygen atom INSIDE of one molecule of water?
4. What bonds hold water molecules to each other? _____
5. What is different about the surface of water compared to under the surface, inside of the water?
6. Name one surfactant. How does a surfactant change the surface of water?
7. What is the specific heat capacity constant of water? Does it vary depending upon the quantity of water?

Look at table I on the reference table. Look hard at how sodium chloride solid becomes a solution when put into water. This IS NOT a chemical reaction, it's a physical change from solid to aqueous.

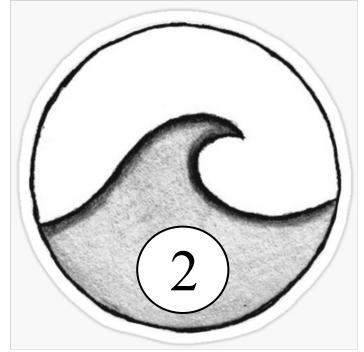
8	Write out the ionization of potassium nitrate in water	
9	Write out the ionization of ammonium bromide in water	
10	Write out the dissociation of magnesium chlorate in water	

Name _____

Water HW #2

Read the **BASICS**, I'm not kidding.

Write a formula, or else it's wrong. Units, SF are all important.



1. How many joules does it take to melt an ice cube of 39.6 grams?
2. How many JOULES does it take to vaporize 901 mL of water at 100°C into a gas without temperature change?
3. Convert the joules in question #2 into Kilo-Joules.
4. If an ice cube is at 273 Kelvin and is 25.6 grams, how much energy does it absorb from your back, if someone puts that ice cube on your back, and it melts, then warms up to your body temperature of 37.0 centigrade?
5. Ice floats on liquid water. What are the densities of both phases? Why does ice have a different density than water?

Name _____

Water HW#3

Read the BASICS, for real. Write a formula, or else it's wrong. Units, SF are all important.
Get Table G out now. You cannot do this without the table in hand.



1. What is the volume in mL of every solution on table G? _____

2. Why does this table only run from 0 to 100 centigrade but not below 0 or above 100?

3. You make a solution of aqueous ammonium chloride by putting 60.0 g into a 100 mL solution at 70°C.

Is this solution is saturated or unsaturated? _____

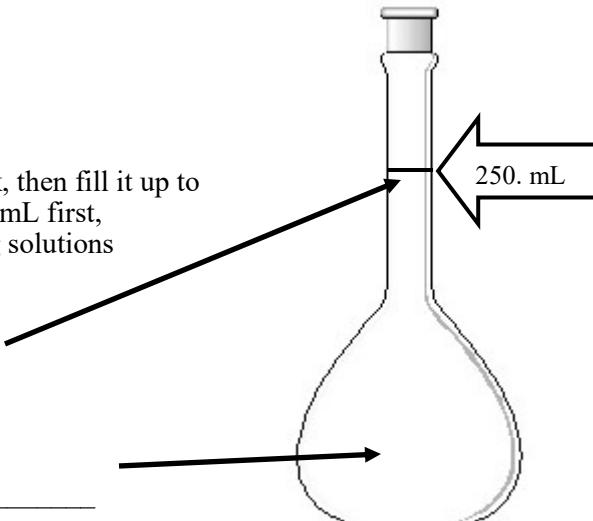
4. What is the MASS of sodium nitrate that saturates 100 mL at 10°C? _____

5. How many grams of KCl is needed to make a saturated 2000 mL solution at 60°C? _____
show your math

6. To make this solution, you would put the solid salt into a volumetric flask, then fill it up to the 2000 mL mark with pure water. You would NOT start with the 2000 mL first, then ADD salt, if you did the volume would be slightly too high. Making solutions requires that you ALWAYS FINISH with pure water, up to the mark.

Fill in the two blanks to make this solution now. ?

2nd. Then, put in the _____ up to the line



7. Explain the density difference between $\text{H}_2\text{O}_{(\text{S})} + \text{H}_2\text{O}_{(\text{L})}$. Use the words hydrogen bonds to do it.