Name: _____ Period: _____

Unit 1: Basic Chemistry For Biology
Activity 4: Solutions Practice Problems

Vocabulary Practice

____1. Solution
____2. Solute
____3. Solvent

a. The substance in which the solute is dissolved
b. The substance dissolved in the solution
c. a mixture in which one (or more) substance is uniformly distributed in another substance.

Concentrations of Solutions Practice Problems

____4. Two solutions have a volume of 100 ml each. Solution A has 5 grams of salt dissolved in 100 ml of water. Solution B has 8 grams of salt dissolved in 100 ml of water. Which solution has the higher concentration?

a. Solution A
b. Solution B

pH Practice Problems

____5. True or False. A solution has more hydrogen (H+) ions than hydroxide (OH-) ions. This means that the solution is basic.

____6. True or False. A solution has more hydroxide (OH-) ions than hydrogen (H+) ions. This means the solution is basic.

7. A solution that has an equal amount of H+ and OH- ions is called a _____ solution. One example of this kind of solution is _____.

pH Lab Activity

Instructions:
1. Add common household items to cabbage water and record your findings.

Common Household Item	**Color of Solution**	**Acid, Base or Neutral?**
Cabbage Water, nothing added		
Sample #1 15 drops of distilled water		
Sample #2 15 Drops of vinegar added		
Sample #3 15 drops of wheel cleaner added		
Sample #4 1/2 teaspoon of baking soda added		
Sample #5 15 drops of ammonia added		
Sample #6 15 drops of soapy water		

2. More acidic solutions will become light red and more basic solutions will be dark blue/green. Look at the color change of your sample and determine whether the color change indicates the solution is an acid, a base, or neutral. Record this in the table above.

3. Once you are done determining your solution. Bring your test beaker to the front of the class. Add your data to the class data table on the Smart Board.

4. Work together to rank the 6 samples identified above according to their pH from most acidic to most basic.

1. _____ (most acidic)
2. _____
3. _____
4. _____
5. _____
6. _____(most basic)

5. After completing the experiment, answer the following questions.

1. What makes the cabbage water change color upon adding vinegar?

2. What makes the cabbage water change color upon adding ammonia?

3. What do you think would happen if you combined the wheel cleaner solution with the ammonia solution?

i. Prediction:

ii. We will try it when everyone is ready!

iii. Describe what happens: