Acid / Base Lab

Acids and Bases are found everywhere in nature. pH is a measurement of the concentration of H+ ions in a solution. In water the number of H+ ions is 10^{-7} which gives it a pH of 7. The amount of OH- ions is also 10^{-7}. Acids give off H+ ions and will have low pH's of 6 or less. Bases will have very few H+ ions, giving them a higher pH, 8-14. (Note that 10^{-8} is a smaller number that 10^{-7}.) You can measure the pH in a variety of ways - a pH meter measures the H+ concentration and gives the pH. Cabbage juice can be used as an indicator. The cabbage juice will react with the acids and bases and change color.

Pre-Lab questions:

1. What does pH measure?
2. If a solution has a pH of 9 is it acidic, basic, or neutral?
3. What do acids release?
4. What pH range is basic?
5. Copy the data table below:

Testing for Acids, Bases, and pH:

Name of Substance	pH Number Probe	Cabbage Juice Color	Hypothesis	Acid, Base, or Neutral?

Procedure:

1. Obtain 6 test tubes in a rack.
2. Label your data table:
   - tube 1 = water
   - tube 2 = vinegar
   - tube 3 = baking soda
   - tube 4 = ammonia
   - tube 5 = lime juice
   - tube 6 = alka seltzer
3. Using the pH probe, check the pH of each solution. (Make sure to rinse the probe with the rinse bottle over the waster cup in between tests)
4. Write the pH number in the pH column
5. Add 10 drops of cabbage juice to each solution - record the color.
6. Check the appropriate number for acid, base, or neutral.

Conclusion:

1. Which solution was most acidic?
2. Which solution was most basic?
3. What color is cabbage juice in acid solutions? basic solutions?
4. A solution turns pink in the presence of cabbage juice, is it an acid or base?