LESSON 86

LAB

pHooey!

$[H^+]$ and pH

Name _____

Date _____ Period _____

Purpose

To explore the relationships among hydrogen ion, H^+, concentration, hydroxide ion, OH^-, concentration, and pH.

Materials

- Acid-Base Solution cards
- pH paper or pH meter
- 11 solutions to test
- 100 mL beakers (11)
- watch glasses (11)
- glass stirring rods (11)
- waste container for used pH papers

Safety Instructions

Acids and bases are corrosive; do not get any on skin or near eyes. In case of a spill, rinse with a large amount of water. Wear safety goggles.

Part 1: $[H^+]$, $[OH^-]$, and pH

1. Examine the handout H^+ Concentration, OH^- Concentration, and pH. List at least five patterns you notice.

Part 2: Testing pH

1. Arrange the 12 Acid-Base Solution cards in order of decreasing H^+ concentration. Record your arrangement in the first column of the table on the next page.
2. Predict the pH of each solution, and enter your prediction in the second column of the table.

Solution	Predicted pH	Measured or calculated pH
0.010 M HCl		
0.010 M CHOOH	2–3	2.9

3. Test the pH of each solution using the procedure on the pHooey! Lab Procedure handout. Enter the pH of each solution in the third column of the table.
4. **Making Sense** If you know the H^+ concentration of a solution, how do you determine the pH of the solution?

   If you know the OH^- concentration of a solution, how do you determine the pH of the solution?

5. **If You Finish Early** Examine the Acid-Base Solution cards. Does the molarity of an acid in an aqueous solution always equal the H^+ concentration? Provide examples to support your answer.