

Acid-Base Studies Worksheet

As you work through the steps in the lab procedures, record your experimental values and the results on this worksheet.

Table A: pH Measurements of Some Common Acid and Base Solutions.

Solution #	Solution	pH
1	0.10 M HCl	
2	0.010 M HCl	
3	0.0010 M HCl	
4	0.10 M HC ₂ H ₃ O ₂	
5	0.10 M NaOH	
6	0.010 M NaOH	
7	0.10 M NH ₃	

Question 1: Based on your observations in Data Table A, classify each of the following as a strong acid, strong base, weak acid or weak base.

- a. HCl
- b. HC₂H₃O₂
- c. NaOH
- d. NH₃

Question 2:

- a. What happened to the pH when the 0.10 M HCl was diluted to 0.010 M?
- b. What happened to the pH when the 0.10 M NaOH was diluted to 0.010 M?

c. State a general rule about what happens to the pH of acidic or basic solutions when they are diluted with pure water.

Table B: Acidity and Basicity of Some Household Chemicals

Substance	pH	Acid, Base, or Neutral
Vinegar		
Bleach		
Vitamin C		
Lemon Juice		
Baking Soda		
Dishwasher Detergent		
Carbonated Water		
Baking Powder		
Ammonia		

Question 3:

- List all of the household chemicals that you found to be acidic.
- List all of the household chemicals that you found to be basic.
- List all of the household chemicals that you found to be neutral.

Table C: HCl + NaOH

mL NaOH	pH
0.0	
3.0	
6.0	
12.0	

Question 4: Based on your observations in Data Table C, classify each of the resulting solutions as acidic, basic or neutral.

- a. HCl + 0.0 mL NaOH
- b. HCl + 3.0 mL NaOH
- c. HCl + 6.0 mL NaOH
- d. HCl + 12.0 mL NaOH