

# Introduction to pH Scale and Indicators Worksheet

## Data Tables and Observations

Data Table 1

Universal Indicator Results	
pH	Universal Indicator Color
2	
4	
6	
8	
10	
12	

Data Table 2

Solution	Universal Indicator Color	pH
Hydrochloric acid solution, 0.1 M		
Acetic acid solution, 0.1 M		
Sodium hydroxide solution, 0.1 M		
Ammonium hydroxide solution, 0.1 M		
Lemon juice		
Shampoo		
Baking powder solution		

Data Table 3

Red Cabbage Indicator Results	
pH	Red Cabbage Indicator Color
2	
4	
6	
8	
10	
12	

**Data Table 4**

<b>Solution</b>	<b>Red Cabbage Indicator Color</b>	<b>pH</b>
Hydrochloric acid solution, 0.1 M		
Acetic acid solution, 0.1 M		
Sodium hydroxide solution, 0.1 M		
Ammonium hydroxide solution, 0.1 M		
Lemon juice		
Shampoo		
Baking powder solution		

## Post-Lab Questions

1. Calculate the  $[H^+]$  values for the chemicals used in this experiment. Use the data from Data Table 4 for your calculations.
  
  
  
  
  
  
  
  
  
  
2. Calculate the pOH values for the same items in Data Table 4, assuming 25 °C.
  
  
  
  
  
  
  
  
  
  
3. Sodium hydroxide and ammonium hydroxide solution both have a molarity of 0.1 M. Why do the two solutions have different pH numbers?