

Name: \_\_\_\_\_

## Indicators and the pH of Household Chemicals

SNC2D

### Part 1: Indicators

Place a couple of drops of hydrochloric acid in a spot tray. Place a strip of red litmus paper in the acid, remove it, and record the resulting colour of the red litmus paper.

Place another couple of drops of hydrochloric acid in another well of the spot tray. Place a strip of blue litmus paper in the acid, remove it, and record the resulting colour of the blue litmus paper.

There are also solutions that can be used as indicators: place another couple of drops of hydrochloric acid in another well of the spot tray. Place a drop of phenolphthalein indicator in the same well of the spot tray and record the colour of the resulting solution.

Place another couple of drops of hydrochloric acid in another well of the spot tray. Place a drop of bromothymol blue indicator in the same well of the spot tray and record the colour of the resulting solution.

Repeat the above procedure for a solution of sodium hydroxide (a basic solution) and for distilled water (which is neutral).

	red litmus	blue litmus	phenolphthalein	bromothymol blue
HCl <sub>(aq)</sub>				
NaOH <sub>(aq)</sub>				
H <sub>2</sub> O				

Red litmus paper turns \_\_\_\_\_ in a(n) \_\_\_\_\_ solution and  
stays \_\_\_\_\_ in a(n) \_\_\_\_\_ or \_\_\_\_\_ solution.

Blue litmus paper turns \_\_\_\_\_ in a(n) \_\_\_\_\_ solution and  
stays \_\_\_\_\_ in a(n) \_\_\_\_\_ or \_\_\_\_\_ solution.

Phenolphthalein turns \_\_\_\_\_ in a(n) \_\_\_\_\_ solution and  
stays \_\_\_\_\_ in a(n) \_\_\_\_\_ or \_\_\_\_\_ solution.

Bromothymol blue turns \_\_\_\_\_ in a(n) \_\_\_\_\_ solution and  
stays \_\_\_\_\_ in a(n) \_\_\_\_\_ or \_\_\_\_\_ solution.

## Part 2: Indicators and Household Chemicals

Rinse your spot tray and use it to test ten common household chemicals with red and blue litmus papers. Record the resulting colours of the litmus papers.

Household chemical	red litmus	blue litmus
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Based on the resulting colours of the indicators, which of the household chemicals were acids?

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Based on the resulting colours of the indicators, which of the household chemicals were bases?

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Based on the resulting colours of the indicators, which of the household chemicals were neutral?

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### Part 3: Universal Indicator/pH Paper

Universal indicator or pH paper turns very specific colours for different pH values.

Rinse your spot tray and use it to test the same ten common household chemicals with universal indicator or pH paper. Record the resulting colour of the paper or the solution, use the colour chart provided with the universal indicator or pH paper to estimate the pH of the chemical based on this colour, and check to determine if this pH is consistent with your results from Part 2. (The pH of an acid should be less than 7; the pH of a base should be greater than 7; and the pH of a neutral solution should be 7.)

Household chemical	colour	pH	Is this consistent with earlier results?
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Which chemical was the most acidic? \_\_\_\_\_

Which chemical was the most basic/alkaline? \_\_\_\_\_

