

Acid & Base

pH Lab

Q: Which household solutions are acids and which are bases?

Measuring pH indicates whether a solution is an acid or a base. A pH less than 7 indicates an acid and the lower the pH, the stronger the concentration of the acid. A pH more than 7 indicates a base and the higher the pH, the stronger the concentration of the base.. Acids and bases are chemical opposites but if a solution's pH is 7, it is neutral which means it is neither an acid nor a base.



Try the experiment below and discover the pH of solutions of many common household items.

1. Collect these materials:

1. Chem Plate
2. Two drops of each unknown solution in chem. plate
3. 4 pieces of pH paper and a pH color scale
4. Lab sheet with data table (on back or next sheet)

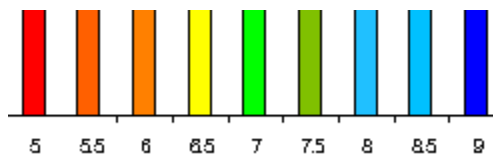
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2. Decide which of you will test each material and get your cups of solution and a pH strip for each cup of solution in front of you.



- Be sure to wear your goggles at all times!
- **DO NOT TASTE ANY OF THE SOLUTIONS!**
- Smell only by "waving" some of the fumes toward your nose.

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3. **Experiment: Determine whether a solution is an acid or a base and rank the relative strength of the solutions according to pH?**

- A. Take turns testing the solutions in the numbered plastic cups by dipping a pH strip into the liquid for about 2 secs. Take the strip out and "read" the pH within 10 sec. by comparing the color of the strip to the pH color chart.



- *Record the pH on your data chart for each of the numbered solutions.*

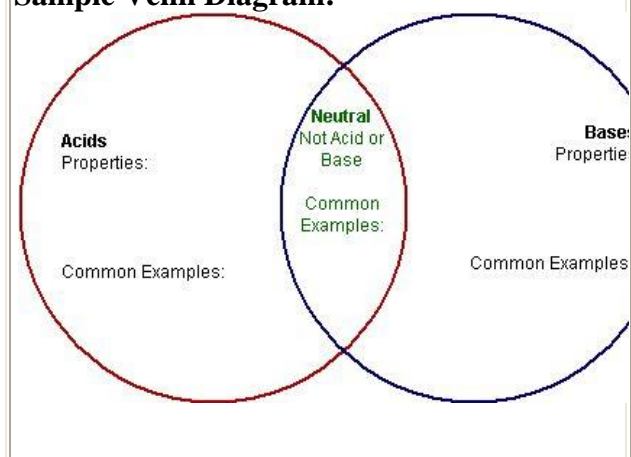
- B. Now determine if the solutions were **acids** (pH from 0 - 6), **neutral** (pH 7) or **bases** (pH from 8 - 14)
- *Record this information on your data chart beside each solution.*
- C. Clean up your lab area completely. Get the names of the solutions from your teacher and go to your seats to complete the rest of the lab.
- *Fill in the names on your data table in the correct rows and plan your summary report.*
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Data Table:

Solution #	pH # from test	Acid or Base?	Solution Name (from teacher after lab)
#1			
#2			
#3			
#4			
#5			
#6			
#7			
#8			

4. **Summary Report:** Choose and complete **one** of the following methods with your partner for displaying the properties of acids and bases and showing which solutions are acid, neutral, or base.
- Make a Venn diagram and fill in the names or draw pictures of the items that were in each of the solutions in the correct section in the diagram and write the properties in the correct section. (See example below.)
 - Write a brief report about acids, bases, and neutrals in paragraph form and include examples from the testing lab.
 - Draw a concept map or word web comparing and contrasting acids and bases and add descriptive words and examples. (See example at the bottom.)
 - Make a poster showing pictures of the items that were acids, bases, and illustrating the properties of each.
 - Create a continuum (similar to a time line) with the solution substances listed along it in order of their pH. Show the pH and label the continuum to show where acids, bases, and neutral occur along with descriptive phrases.
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Sample Venn Diagram:



Sample Concept Map:

