



1. Before testing, complete the table below to label each beverage as being an *acid*, a *neutral*, or a *base* using what you already know about pH. Predict the rank of each in order of pH (1 = highest acidity).

Beverage	Predicted pH Description (acid, neutral, or base)	Rank (highest pH to lowest)

2. After you test the beverages, use the displayed scatter plot to fill in the pH values on the table below. Then label each beverage as an acid, a neutral, or a base and rank them in order of pH (1 = highest acidity).

Sample Number	Beverage	Actual pH	Actual pH Description (acid, neutral, or base)	Rank (highest pH to lowest)
1				
2				
3				
4				
5				
6				
7				

3. Choose two graphs—a bar graph, a circle graph, or a scatter plot—to display your pH data. Sketch and label them.





## Beverage Tests

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a. What information does each give?

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b. If you drew a scatter plot, discuss the meaning of the location of the points relative to the horizontal line at pH = 7.

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c. Which does the best job of answering the lab question?

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4. Compare the actual pH rankings to your predictions. Discuss any surprises or differences you find.

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5. Match each description to a tested beverage.

Most Acidic	_____
Most Basic	_____
Closest to Neutral	_____
Median Beverage	_____

6. Give a real-life situation where you could apply these results.

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7. What is the range in the pH readings? \_\_\_\_\_

8. Find the mean pH. \_\_\_\_\_

9. Find the median pH. \_\_\_\_\_

10. How does the mean compare to the median?

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11. Which measure would best describe the average beverage:

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## Beverage Tests

12. Where do most of the beverages cluster on the graph?

\_\_\_\_\_

What does this reveal about most of the beverages you drink?

\_\_\_\_\_

13. Describe how the identity of an unknown solution can be determined based on its properties. How will knowing the pH narrow down the search?

\_\_\_\_\_

\_\_\_\_\_

14. Describe the relationship between common chemistry solutions (vinegar, ammonia, and distilled water) and these beverages.

\_\_\_\_\_

\_\_\_\_\_

15. Most of the tested beverages were \_\_\_\_\_

The average beverage had a pH of \_\_\_\_\_

16. Complete the table.

Mystery Liquids			
Unknown Liquid	pH	pH Description (acid, neutral, or base)	Name of Liquid
1			
2			
3			
4			
5			
6			
7			

17. Sketch the graph showing the pH of the five clear liquids. Label the graph.

18. Describe a strategy for determining the identity of the liquids using pH as a critical attribute.

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