

**Acids, Bases, and Solutions** ▪ *Guided Reading and Study***Acids and Bases in Solution**

*This section explains what kinds of ions acids and bases form in water. It also describes how the concentrations of ions are measured in a solution.*

**Use Target Reading Skills**

*Before you read, preview the diagram in your textbook that shows a neutralization reaction. Then, complete the graphic organizer by writing two questions about the diagram. As you read, answer your questions.*

**Neutralization**

Q. What is a neutral solution?
A.
Q.
A.

**Acids and Bases in Solution**

1. What is a hydrogen ion ( $H^+$ )?

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2. What do acids in water separate into?

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3. Any substance that produces hydrogen ions ( $H^+$ ) in water can be called a(n) \_\_\_\_\_.

4. What is a hydroxide ion ( $OH^-$ )?

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**Acids and Bases in Solution** *(continued)*

5. Any substance that produces hydroxide ions ( $\text{OH}^-$ ) in water can be called a(n) \_\_\_\_\_.

**Strength of Acids and Bases**

6. Circle the letter of each sentence that is true about the strength of acids and bases.
- a. A strong base produces more  $\text{OH}^-$  ions than a weak base.
  - b. A weak acid produces more  $\text{OH}^-$  ions than a strong acid.
  - c. A strong acid produces more  $\text{H}^+$  ions than a weak acid.
  - d. A weak base produces more  $\text{H}^+$  ions than a strong base.

7. What is the pH scale?

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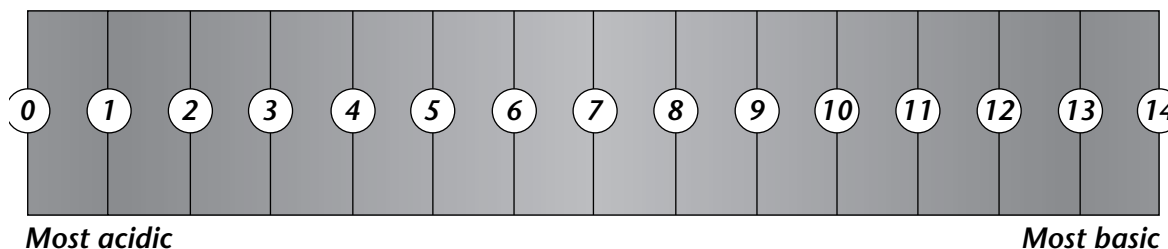


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8. On the scale below, add labels to show the pH of these substances: milk, soap, water, vinegar, lemon, and ammonia.



9. Is the following sentence true or false? A strong acid is safe as long as it's in a dilute solution. \_\_\_\_\_
10. When the pH of a solution is low, is the concentration of hydrogen ions high or low? \_\_\_\_\_
11. Circle the letter of each sentence that is true about pH.
- a. A pH lower than 7 is acidic.
  - b. A pH of 7 is neutral.
  - c. A pH lower than 7 is basic.
  - d. A pH higher than 7 is acidic.

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**Acid-Base Reactions**

12. A reaction between an acid and a base is called a(n) \_\_\_\_\_.
13. Is the following sentence true or false? An acid-base mixture is always more acidic than the starting solutions were. \_\_\_\_\_
14. What is a salt?
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
15. What two substances does a neutralization reaction produce?
- a. \_\_\_\_\_
- b. \_\_\_\_\_