

Chapter 8 Solutions, Acids, and Bases

Section 8.3 Properties of Acids and Bases

(pages 240–245)

This section describes the general properties of acids and bases.

Reading Strategy (page 240)

Using Prior Knowledge Before you read, write your definition of each vocabulary term in the table below. After you read, write the scientific definition of each term and compare it with your original definition. For more information on this reading strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Term	Your Definition	Scientific Definition
Acid	Answers will vary.	A compound that produces hydronium ions (H_3O^+) when dissolved in water.
Base	Answers will vary.	A compound that produces hydroxide ions (OH^-) when dissolved in water.
Salt	Answers will vary.	A compound produced when the negative ions in an acid combine with the positive ions in a base during neutralization.

Identifying Acids (pages 240–241)

1. Define an acid. An acid is a compound that produces hydronium ions (H_3O^+) when dissolved in water.

Match these common acids to their uses.

Acids	Uses
<u>c</u> 2. acetic acid	a. fertilizer production
<u>d</u> 3. hydrochloric acid	b. carbonated beverages
<u>b</u> 4. carbonic acid	c. vinegar
<u>a</u> 5. nitric acid	d. digestive juices in stomach

6. Place the following substances in the correct column in the table: lemons, vinegar, grapefruit, sour milk, tomatoes.

Foods Containing Acetic Acid	Foods Containing Citric Acid	Foods Containing Butyric Acid
Vinegar	Lemons, grapefruit, tomatoes	Sour milk

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7. The reaction between an acid and a metal can be classified as a(n) _____
 _____ single-replacement reaction _____.

Identifying Bases (pages 242–243)

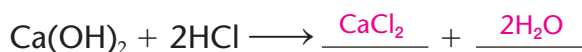
8. Define a base. A base is a compound that produces hydroxide ions (OH⁻) when dissolved in water.
9. Use the following compounds to complete the chart: aluminum hydroxide, calcium hydroxide, and magnesium hydroxide.

Common Bases		
Name	Formula	Uses
Sodium hydroxide	NaOH	Drain cleaner, soap production
<u>Magnesium hydroxide</u>	Mg(OH) ₂	Antacid, laxative
<u>Calcium hydroxide</u>	Ca(OH) ₂	Concrete, plaster
<u>Aluminum hydroxide</u>	Al(OH) ₃	Deodorant, antacid

10. Circle the letter that describes how basic solutions generally taste.
- a. sweet
 b. sour
c. bitter
11. Is the following sentence true or false? Bases turn red litmus paper blue. _____ true _____

Neutralization and Salts (page 244)

12. The reaction between an acid and a base is called _____. Circle the correct answer.
- decomposition **neutralization** oxidation
13. Complete the chemical equation describing the neutralization reaction between calcium hydroxide and hydrochloric acid.

**Proton Donors and Acceptors (page 245)**

14. Acids can be described as proton _____ donors _____; bases can be described as proton _____ acceptors _____.
15. When hydrogen chloride ionizes in water, which reactant is the proton donor? HCl is the proton donor.