

**Water and Solutions**

**Section Review**

**2.5**

**The Big Idea**

Life processes depend on the properties of water and the characteristics of solutions. 2.5

**Concepts**

- Life's chemical reactions all occur in water solutions. Because water is a polar molecule, it can dissolve many kinds of molecules.
- For an organism to function properly, the degree of acidity, or pH, of internal fluids such as blood must be maintained within a narrow range.

**Words**

solution    acid    base    pH value

**PART A**

1. What is a solution?

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2. What is a solute? A solvent?

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3. Why is water often called the "universal solvent"?

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4. What is cohesion?

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5. What role does cohesion play in transporting water molecules to the leaves high up in tall trees?

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6. Why does ice float in water?

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7. How do acids, bases, and salts differ?

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8. What is the pH scale used for?

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**PART B** Use Figure 2.22 to complete the following table.

Substance	pH of Standard Solution	Acid or Base	Ion Produced in Water	Relative Strength
Lime water	9.4	1.	OH <sup>-</sup>	2.
Vinegar	3.	4.	H <sup>+</sup>	5.
Saliva	6.2	acid	6.	weak
Bleach	7.	8.	OH <sup>-</sup>	9.
Battery acid	10.	acid	11.	12.

**PART C** Match each term or phrase in Column A with the phrase in Column B that best describes it. Write the letter of the correct response on the line provided.

**COLUMN A**

- \_\_\_\_\_ 1. strong acid
- \_\_\_\_\_ 2. weak base
- \_\_\_\_\_ 3. neutral substance
- \_\_\_\_\_ 4. a base
- \_\_\_\_\_ 5. water
- \_\_\_\_\_ 6. cohesion
- \_\_\_\_\_ 7. solution
- \_\_\_\_\_ 8. solvent
- \_\_\_\_\_ 9. salt
- \_\_\_\_\_ 10. acid rain

**COLUMN B**

- a. has a pH of 7
- b. uniform mixture of two or more substances
- c. results from the burning of fossil fuels
- d. substance with a pH of 8
- e. substance with a pH of 1
- f. produces neither H<sup>+</sup> nor OH<sup>-</sup> ions when dissolved in water
- g. the "universal solvent"
- h. produces OH<sup>-</sup> ions in water
- i. "sticking together"
- j. substance in which solute dissolves