Review and Assessment

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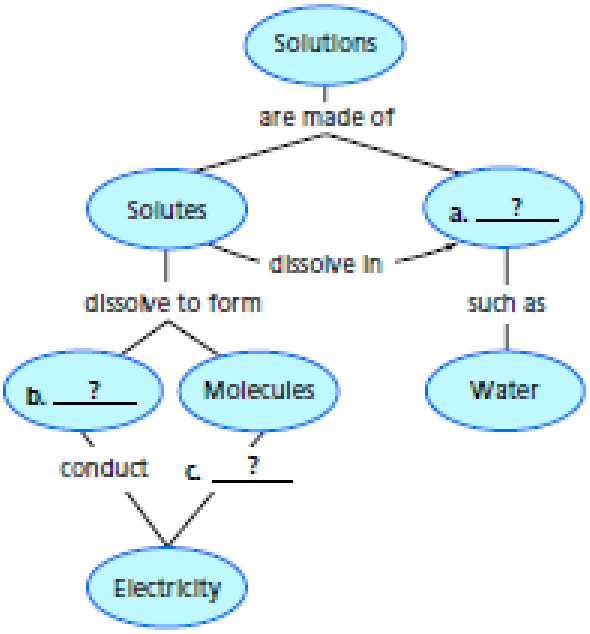
Organizing Information

Concept Mapping Copy the concept map about solutions onto a sheet of paper. Then complete it and add a title. (For more on Concept Mapping, see the Skills Handbook.)



Reviewing Key Terms

Choose the letter of the best answer.

1. Sugar water is an example of a
   a. suspension.
   b. solution.
   c. solute.
   d. colloid.

2. A solution in which more solute may be dissolved is a(n)
   a. neutral solution.
   b. unsaturated solution.
   c. concentrated solution.
   d. saturated solution.

3. A compound that changes color when it contacts an acid or a base is called a(n)
   a. solute.
   b. solvent.
   c. indicator.
   d. salt.

4. A polyatomic ion made of hydrogen and oxygen is called a
   a. hydroxide ion.
   b. hydrogen ion.
   c. salt.
   d. base.

5. Ammonia is an example of a(n)
   a. acid. **b.** salt.
   c. base. **d.** antacid.

6. The physical part of digestion is called
   a. digestion.
   b. mechanical digestion.
   c. chemical digestion.
   d. solubility.

Writing in Science

Product Label Suppose you are a marketing executive for a maple syrup company. Write a description of the main ingredients of maple syrup that can be pasted on the syrup's container. Use what you've learned about concentration to explain how dilute tree sap becomes sweet, thick syrup.

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Review and Assessment

Checking Concepts

7. Explain how you can tell the difference between a solution and a clear colloid.
8. Describe at least two differences between a dilute solution and a concentrated solution of sugar water.
9. Tomatoes are acidic. Predict two properties of tomato juice that you would be able to observe.
10. Explain how an indicator helps you distinguish between an acid and a base.
11. What might be a pH value of a strong base?
12. What combination of acid and base can be used to make the salt sodium chloride?

Thinking Critically

13. **Applying Concepts** A scuba diver can be endangered by "the bends." Explain how the effects of pressure on the solubility of gases is related to this condition.
14. **Relating Cause and Effect** When you heat tap water on the stove, you can see tiny bubbles of oxygen form. They rise to the surface long before the water begins to boil. Explain what causes these bubbles to appear.
15. **Drawing Conclusions** You have two clear liquids. One turns blue litmus paper red and one turns red litmus paper blue. If you mix them and retest with both litmus papers, no color changes occur. Describe the reaction that took place when the liquids were mixed.
16. **Comparing and Contrasting** Compare the types of particles formed in a water solution of an acid with those formed in a water solution of a base.
17. **Problem Solving** Fill in the missing salt product in the reaction below.

$$HCl + KOH \longrightarrow H_2O + \underline{\ ?\ }$$

18. **Predicting** Suppose a person took a dose of antacid greater than what is recommended. Predict how this action might affect the digestion of certain foods.

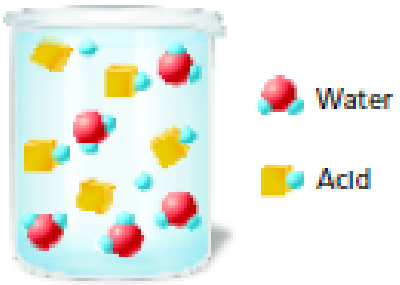
Math Practice

19. **Calculating a Concentration** If you have 1,000 grams of a 10 percent solution of sugar water, how much sugar is dissolved in the solution?
20. **Calculating a Concentration** The concentration of an alcohol and water solution is 25 percent alcohol by volume. What is the volume of alcohol in 200 mL of the solution?

Applying Skills

Use the diagram to answer Questions 21–24.

The diagram below shows the particles of an unknown acid in a water solution.



21. **Interpreting Diagrams** How can you tell that the solution contains a weak acid?
22. **Inferring** Which shapes in the diagram represent ions?
23. **Making Models** Suppose another unknown acid is a strong acid. Make a diagram to show the particles of this acid dissolved in water.
24. **Drawing Conclusions** Explain how the pH of a strong acid compares with the pH of a weak acid of the same concentration.

Lab zone Chapter Project

Performance Assessment Demonstrate the indicators you prepared. For each indicator, list the substances you tested in order from most acidic to least acidic. Would you use the same materials as indicators if you did this project again? Explain.