Name _____ Class _____ Date _____

Section 2–2 Properties of Water (pages 40–43)

TEKS FOCUS: 2B Collect data and make measurements with precision; 2C Organize data

This section describes the makeup of water molecules. It also explains what acidic solutions and basic solutions are.

The Water Molecule (pages 40–41)

1. Is the following sentence true or false? A water molecule is neutral. _____

2. What results from the oxygen atom being at one end of a water molecule and the hydrogen atoms being at the other end? _____

_____

_____

_____

3. Why is a water molecule polar? _____

_____

_____

4. Circle the letter of each sentence that is true about hydrogen bonds.

- **a.** A hydrogen bond is stronger than an ionic bond.
- **b.** The attraction between the hydrogen atom on one water molecule and the oxygen atom on another water molecule is an example.
- **c.** A hydrogen bond is stronger than a covalent bond.
- **d.** They are the strongest bonds that form between molecules.

5. Complete the table about forms of attraction.

FORMS OF ATTRACTION

Form of Attraction	Definition
Cohesion	
Adhesion	

6. Why is water extremely cohesive? _____

_____

7. The rise of water in a narrow tube against the force of gravity is called _____.

8. How does capillary action affect plants? _____

_____

_____

Name_____ Class_____ Date_____

Solutions and Suspensions (pages 41–42)

9. What is a mixture? _____

_____

_____

10. A mixture of two or more substances in which the molecules of the substances are evenly mixed is called a(an) _____.

11. The greatest solvent in the world is _____.

12. What is a suspension? _____

_____

13. Complete the table about substances in solutions.

SUBSTANCES IN SOLUTIONS

Substance	Definition	Saltwater Solution
Solute		
		Water

Acids, Bases, and pH (pages 42–43)

14. Two water molecules can react to form _____.

15. Why is water neutral despite the production of hydrogen ions and hydroxide ions?

_____

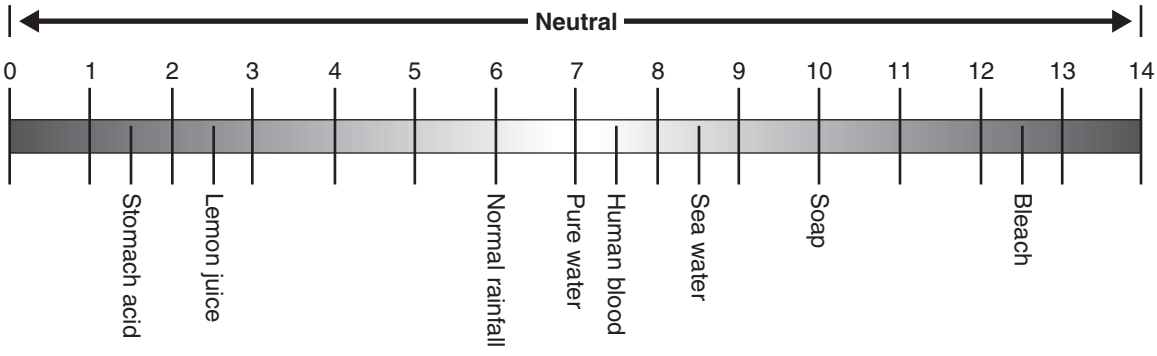
_____

_____

16. What does the pH scale indicate? _____

_____

17. On the pH scale below, indicate which direction is increasingly acidic and which is increasingly basic.



18. How many more H^+ ions does a solution with a pH of 4 have than a solution with a pH of 5? _____

19. Circle the letter of each sentence that is true about acids.

a. Acidic solutions have pH values below 7.

b. An acid is any compound that forms H^+ ions in solution.

c. Strong acids have pH values ranging from 11 to 14.

d. Acidic solutions contain higher concentrations of H^+ ions than pure water.

20. Circle the letter of each sentence that is true about bases.

a. Alkaline solutions have pH values below 7.

b. A base is a compound that produces OH^- ions in solution.

c. Strong bases have pH values ranging from 11 to 14.

d. Basic solutions contain lower concentrations of H^+ ions than pure water.

21. What are buffers? _____

_____

_____