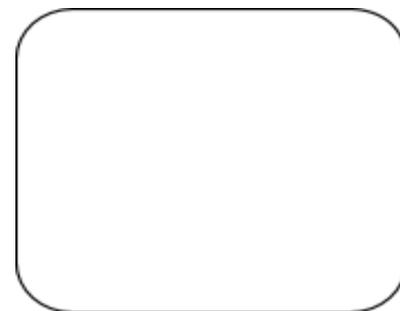


Properties of Water and pH Reading Guide

Answer the following questions after reviewing the information in the **Properties of Water and pH Lesson**. Use this as a study resource for the **Properties of Water and pH Quiz**.

The Water Molecule

1. Draw a picture of a water molecule showing oxygen and two hydrogens bonded together.
2. Why is a water molecule polar? Indicate the location of charges on the molecule you have drawn.
3. Is the following sentence true or false? A water molecule is neutral.
4. What causes water molecules to be attracted to each other?
5. Which of the following statements are true about hydrogen bonds?
 - A hydrogen bond is stronger than an ionic bond.
 - The attraction between the hydrogen atom on one water molecule and the oxygen atom on another water molecule is an example.
 - A hydrogen bond is stronger than a covalent bond.
 - They are the strongest bonds that form between molecules.
6. Distinguish between cohesion and adhesion.
7. Look at the picture of liquid in a glass tube (burette) at the right. What property of water is represented?
8. Why is capillary action important for plants?
9. What makes water a good solvent?
10. Sugar is dissolved in water to make a sugar solution. What is the **solvent**? What is the **solute**?



11. Which type(s) of substances can water dissolve? (check all that apply)

- polar
- non-polar
- ionic
- hydrophilic
- hydrophobic

12. Why does ice float in liquid water?

13. How does the density of solid water help living organisms in lakes?

14. Water's high heat of vaporization makes it a good _____.

15. Why is water's high specific heat good for living things?

Acids, Bases, and pH

16. Water molecules can dissociate to form what two ions?

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

18. What does the pH scale indicate?

19. Complete the table to review pH:

Substance	pH range	amount of OH ⁻ and H ⁺	Examples
Acid		more H ⁺ than OH ⁻	
Base			
Water	7		

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

21. Why is a change in pH dangerous for cells?

22. What are buffers?