

Name _____

AP Biology

TEXT: *Biology, Campbell and Reece*

7th Edition

Chapter 3 – Water and Fitness of the Environment
Guided Reading

1. Why is water considered a polar molecule?

2. For each of the properties of water listed below, briefly define the property. Then explain how water's polar nature and polar covalent bonds contribute to that special property of water. *Include an example found in nature of each property.*
 - a. Cohesion

 - b. Adhesion

 - c. Surface tension

 - d. High specific heat

 - e. Heat of vaporization

 - f. Evaporative cooling

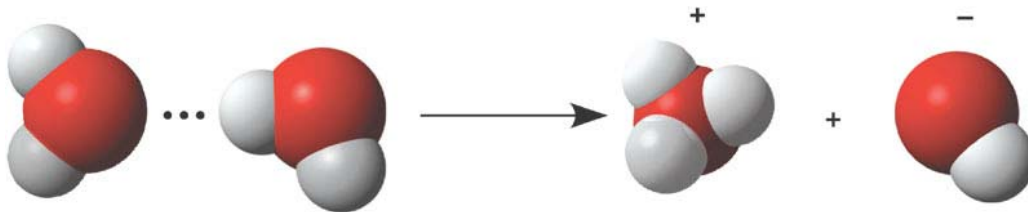
3. Explain the special relationship between water and density?

4. Define the following terms:
 - a. Solute

 - b. Solvent

- c. Aqueous solution
- d. Hydrophilic
- e. Hydrophobic
- f. Colloid
- g. Hydration shell
- h. Molarity

5. Label the diagram below to demonstrate the dissociation of the water molecule and then relate this diagram to pH.



6. What properties define an acid and a base?
7. Why are “apparently” small changes in pH so important in biology?
8. What is a buffer? Write and explain the carbonic acid buffer system in human blood.
9. What is acid precipitation and why is it important to living organisms?

AP Biology Exam Checkpoint

10. Which of the following is NOT considered to be an emergent property of water?
- a. cohesion
 - b. transpiration
 - c. moderation of temperature
 - d. insulation of bodies of water by floating ice
 - e. a versatile solvent