

Water and the Fitness of the Environment.

Name _____

Date _____

Biology 12

Place the characteristic of water in the blank that best explains the following statements.

1. Water form rain drops as it flows through the air.

COHESIVE

2. Two pieces of glass are held together by several drops of water.

ADHESIVE

3. The land adjacent to the ocean has moderate temperatures year round.

HIGH SPECIFIC HEAT
(TAKES LOTS OF ENERGY TO
HEAT OR COOL)

4. Many types of materials are able to be dissolved in water.

GOOD SOLVENT

5. Fish and other aquatic life are able to survive sub zero temperatures.

SOLID WATER (ICE) LESS
DENSE THAN LIQUID WATER
(ICE FLOATS ON WATER)

Or

HIGH SPECIFIC HEAT
(TAKES LOTS OF ENERGY TO
HEAT/COOL)

6. Surface tension

COHESIVE

7. Water is able to ascend tall trees.

COHESIVE & ADHESIVE
(CAPILLARY ACTION)

Answer the following questions concerning the water molecule.

8. Why does the water molecule exhibit polarization?

ELECTRONEGATIVITY DIFFERENCE BETWEEN OXYGEN AND HYDROGEN CAUSES
ELECTRONS TO GO CLOSER TO OXYGEN THUS THE MOLECULE OF WATER HAS
AN UNBALANCED CHARGE.

9. If two water molecules come in close contact a(n) HYDROGEN bond forms between them.

10. If one were to separate the H and O in a water molecule what type of bond would have to be split?

COVALENT

11. In what state does water exhibit the minimum number of hydrogen bonds? **GAS**
 12. At what point does water exhibit the minimum distance between molecules? **LIQUID (4°C)**
 13. Water molecules dissociate into two ions: the **H⁺** and the **OH⁻**
 14. This separation is the basis for the **pH** scale.
 15. On this scale the substance that contributes H⁺ are considered **ACIDIC or ACIDS**
 16. The substances that take up and hold on to the H⁺ are considered **BASIC or BASES**
 17. If a solution has a pH of 5, how much more acidic is it than a solution with a pH of 8? **1000 TIMES MORE ACIDIC!**
 18. A(n) **BUFFER** is a special chemical that has the ability to regulate a solutions pH. If the solution is too acidic it will **OVERCOME** the buffer and **pH WILL CHANGE**
 19. All solutionS contains the **SOLUTE** and the **SOLVENT** portions.
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