**Name:  
 Date:**

***Water Chemistry Test***

1. Circle the letter of each sentence that is true about water's structure.   
   a. Water is made up of atoms bonded to form molecules.   
   b. Water contains half as many hydrogen atoms as oxygen atoms.   
   c. Water molecules tend to push away from each other.   
   d. The chemical formula for water is H20.
2. One side of the water molecule has a positive charge, while the other side has a negative charge. What do the charges indicate about the molecule?  
     
   a. Water is a polar molecule.  
   c. Water is an ionic compound.   
   b. Water is a nonpolar molecule.  
   d. Water is an ion.
3. The chemical equation for water is
4. 2H2 + O2 🡪 2H2O
5. 2H2 + C 🡪 CH4
6. H2 + Cl2 🡪 2HCl
7. Bonds that form between water molecules are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. *True or False*? Hydrogen bonds are strong and require a lot of energy to break. \_\_\_\_\_\_\_\_\_\_\_\_
9. The tendency for water molecules to stick to other water molecules is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. A force that acts on the particles of a liquid at the surface is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. The tendency for water molecules to be attracted and stick to other substances is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. Circle the letter of each sentence that is true about water's surface tension.   
    a. It helps some insects "skate" across the surface of the water.   
    b. It refers to the tightness across the surface of the water.   
    c. It is caused by polar molecules repelling each other.  
    d. It causes raindrops to form round beads.
13. Draw a water molecule. Label the hydrogen and oxygen atoms, and tell which have positive charges and which have negative charges.

1. Draw two water molecules interacting with one another. Be sure to label the hydrogen bond.
2. Explain what it means for water to be a polar molecule.
3. What is a solute? Define and give an example.
4. What is a solvent? Define and give an example.
5. What is a solution?
6. Why is water considered a universal solvent?
7. Explain how cohesion and adhesion (combined) cause capillary action.
8. Explain how capillary action is used for water to make its way up the stem of a plant (think about the water AND the stem walls).
9. What does it mean for something to be hydrophobic? Give an example of a liquid that is hydrophobic.
10. Explain how high specific heat relates to regulation of body temperature OR how it relates to the ocean water temperature on a hot summer day.

**Match the terms review.**  
  
***\_\_*** 1. cohesion  \_\_2. capillary action ***\_\_*** 3. adhesion   
\_\_4. polarity ***\_\_*** 5. hydrogen bond \_\_6. surface tension   
***\_\_*** 7. specific heat  
  
a. tendency to stick to other substances   
b. tightness caused by the pulling of water molecules on each other   
c. the amount of heat needed to raise 1kg of a substance 1o   
d. weak bonds formed between water molecules   
e. tendency to stick to other water molecules  
 f. uneven distribution of charges in a molecule   
g. tendency to climb up due to cohesion and adhesion properties of water