

1. Which side of a water molecule is more negative, which is more positive?
The hydrogen are more positive, oxygen side is negative.
2. Because water is so polar (it has **BILATERAL** symmetry, not radial), the molecules are attracted to each other. The bond that causes this attraction between molecules is called **HYDROGEN** bonding.
3. Water sticks to itself, but not to air. This gives water the first property in the text, which is a high **SURFACE TENSION**. Bugs walk on water because of this property. Look at the drawing on page 477 top right. What do those arrows represent? **HYDROGEN BONDS**
4. A chemical that breaks down these intermolecular bonds is called a **SURFACTANT**
5. Soap is an example. What would happen to a water strider bug (page 476) if you put a few drops of soap into the pond near him? **The surface tension would collapse, the bugs would fall into the water.**
6. Specific Heat Capacity is a constant. For water it is: **4.18J/g·°C**
Describe in words what that actually means:
It takes 4.18 J energy to raise the temp of 1.0 gram water by 1.0°C.
7. When a molecule of water gains enough kinetic energy to break the hydrogen bonds it has with its neighboring molecules, the water is said to **EVAPORATE**. This happens at any temperature that water is a liquid. When ALL the molecules have enough kinetic energy to escape, the water is **BOILING POINT**.
8. The normal boiling point for water in Kelvin is **373 K**, and in centigrade **100°C**
9. What's the "normal" mean? At normal pressure, **101.3 kPa, or 760 mm Hg**
10. Steam can be changed into a liquid. That's called **CONDENSATION**
11. What is the formula used to determine how many joules it takes to melt ice?
 $q = mH_f$ How about to vaporize water into steam? **$q = mH_v$**
12. Ice is less dense than water. Explain how this is possible. **The hydrogen bonds lock 6 molecules in a circle, which as a greater volume than when the molecules are squeezing together as a liquid.**
13. **Hey, how's it going?**

14. Water and table salt mix together. Which is the SOLVENT **WATER** and which is the SOLUTE **SALT** ?
15. The solution process is when an polar or ionic compound gets dissolved into a polar solvent. (salt in water, sugar in water). Look at page 483. Describe the directions of the water molecules to the ions. **Oxygen of water has a negative charge, surrounds the cations, Hydrogen are positive, they surround anions**
16. Electrolytes **CONDUCT** electricity. Non-electrolytes **DON'T**.
17. To be an electrolyte, a solution must have **IONS** dissolved into it.
18. Aqueous sodium chloride **IS an electrolyte?**
19. Sugar water is or is not an electrolyte? **IS NOT**
20. Circle the compounds that would be electrolytes when dissolved in water:
copper (II) sulfate, magnesium chloride, HCl, NaCl
21. What is the difference between a STRONG electrolyte and a WEAK one?
The amount of IONS in solution. Strong electrolytes have MORE IONS
22. Water of Hydration refers to hydrated crystals. Name two that we have used in lab: **CuSO₄·5H₂O and MgSO₄·7H₂O**
23. Sodium sulfate decahydrate (page 486) is a hydrated ionic compound. What is the molar mass of this compound? **322 g/mole**
- What is the % composition by mass of water in this compound? **56%**