What are the Properties of Water?

**Structure of Water:** A water molecule (H2O), is made up of three atoms --- one \_\_\_\_\_\_\_\_\_ and two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** In each water molecule, the oxygen atom attracts more than its "fair share" of electrons,

* **oxygen end “acts” \_\_\_\_\_\_\_\_\_\_\_**
* **hydrogen end “acts” \_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_ Bonding in Water:** Formed between the negative end of a polar \_\_\_\_\_\_\_\_\_\_molecule and a positive Hydrogen end of another water molecule

**\_\_\_\_\_\_\_\_\_\_\_\_\_:** Attraction between particles of the same substance (why water is attracted to itself)

* Results in Surface tension (a measure of the strength of water’s surface)

**\_\_\_\_\_\_\_\_\_\_\_\_ Tension:** Produces a surface film on water that allows insects to walk on the surface of water

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** Attraction between water and substances other than water.

* Water will make hydrogen bonds with other surfaces such as glass, soil, plant tissues, and cotton.
* **Example:** transpiration process which plants and trees remove water from the soil, and paper towels soak up water.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_action** is the tendency of a liquid to rise in narrow tubes or to be drawn into small openings such as those between grains of a rock.

**High Specific \_\_\_\_\_\_\_\_:** Water resists temperature change, both for heating and cooling.

* Water can absorb or release large amounts of heat energy with little change in actual temperature.

**High Heat of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** Water resists evaporation b/c lots of H bonds must be broken to transition from a liquid to a gas

**Water is \_\_\_\_\_\_\_\_Dense as a Solid**

* \_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_ dense as a solid than as a liquid (ice floats)
* Liquid water has hydrogen bonds that are constantly being broken and reformed.
* Frozen water forms a crystal-like lattice whereby molecules are set at fixed distances.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Solvent:** Water is capable of dissolving a variety of different substances, can dissolves more substances than any other liquid.

**Dissociates into \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_:** Water dissociates, one of the hydrogen leaves its electron with the oxygen atom to become a hydrogen ion, while the oxygen and other hydrogen atoms become a hydroxide ion

**H2O → H+ + OH- Hydrogen ion Hydroxide ion**