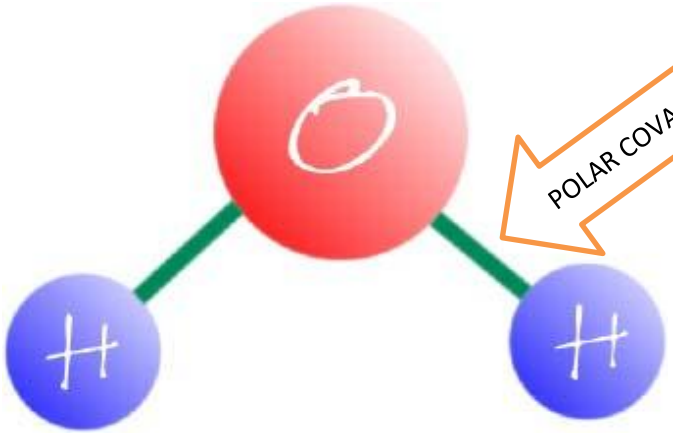
Water, Water Everywhere

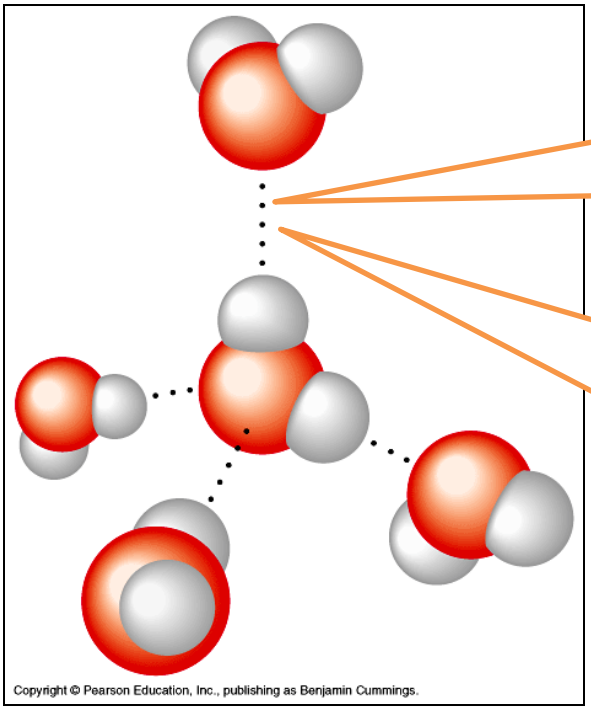
Structure of Water



Water molecules are polar

- The e- are…
- The oxygen atom…
- Results in:

Water molecules can form hydrogen "bonds"



Partially _____ _____ atoms of one water molecule are attracted to the partially _____ _____ atom of another

The bonds are _____ and _____ quickly as the _____ _____, however the _____ _____ of _____ contribute to the _____ of water.

BIOLOGICALLY IMPORTANT PROPERTIES OF WATER

Property	Significance for Life	Explanation
ICE FLOATS	Ice floats and insulates the underlying water so many plants and animals are not frozen	
TRANSPARENCY	Light penetrates tissues and aquatic environments; important for photosynthesis	

Property	Significance for Life	Explanation
SOLVENT	Water is the main transport medium for dissolved nutrients. In animals, blood (mostly water) goes through out all parts of the body, carrying nutrients. In plants, water carries nutrients up plants and through leaves.	
COHESION	Cohesion explains how water molecules can form a chain in delivering moisture to the top of a tree or through the blood stream	

Cohesion of water molecules along a surface produces SURFACE TENSION

ADHESION	Adhesion helps water climb up the thin tubes of plants to the leaves	

Adhesion and cohesion of water allows for CAPILLARY ACTION

HIGH SPECIFIC HEAT	Contents of cells are unlikely to freeze. Aquatic environments are thermally stable. Organisms have stable internal temperatures when the external temperature is fluctuating.	
HIGH HEAT OF VAPORIZATION	Organisms rely on hear of vaporization to remove body heat to remain cool. Evaporative cooling.	