

WATER, ACIDS, BASES, BUFFERS

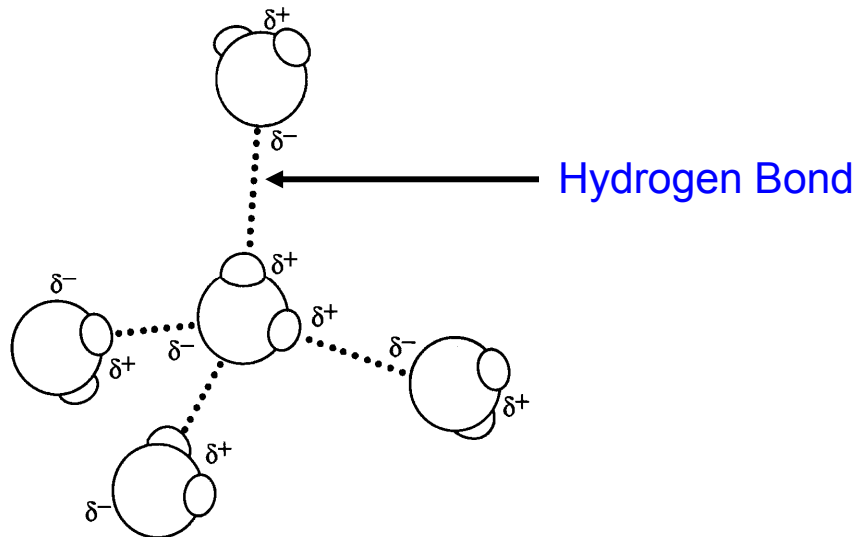
STRUCTURE & GEOMETRY OF WATER:

Water is polar



Maximum number of H bonds = 4

Each water molecule can form a max. of 4 hydrogen bonds with 4 other water molecules



PROPERTIES OF WATER:

Liquid water is cohesive

Cohesion = H bonds between water molecules; H₂O molecules tend to stick tog.

Importance = Transport H₂O against gravity in plants
Higher surface tension

Water has a high specific heat

Takes a lot of energy to raise 1 gram of H₂O 1 °C

Why? Must break H bonds

Liquid H₂O can absorb large amounts of heat with small changes in temperature

Water has a high heat of vaporization

Takes a lot of energy to convert liquid H₂O into vapor

Why? Must break H bonds

Keeps water in liquid state

Water expands with it freezes

Solid H₂O is less dense than liquid H₂O

Why? In solid state H₂O locked into max. number of H bonds; takes up more space

Water is a versatile solvent

Will dissolve polar covalent and ionic compounds