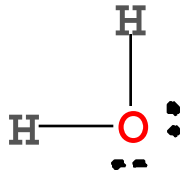


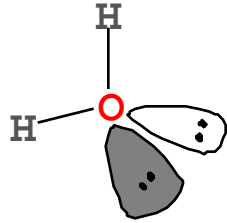
# Properties of Water

## Molecular Structure

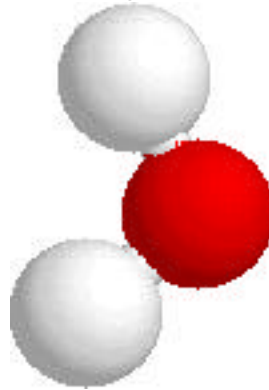
polar bonds, 104.5° bond angle, polar molecule, 4 H bonds  
high boiling point, high melting point, high enthalpies of  
vaporization and fusion, high heat capacity ("thermal buffer")



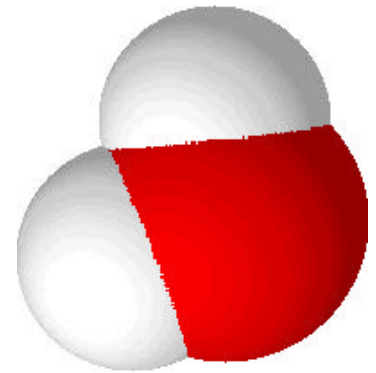
Lewis Structure



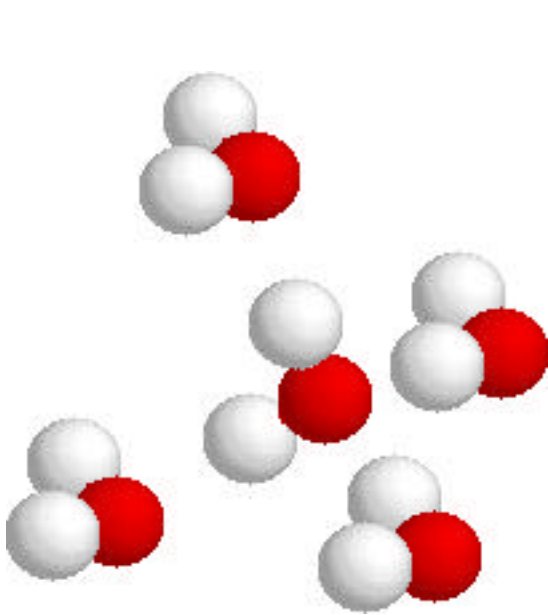
VSEPR Shape



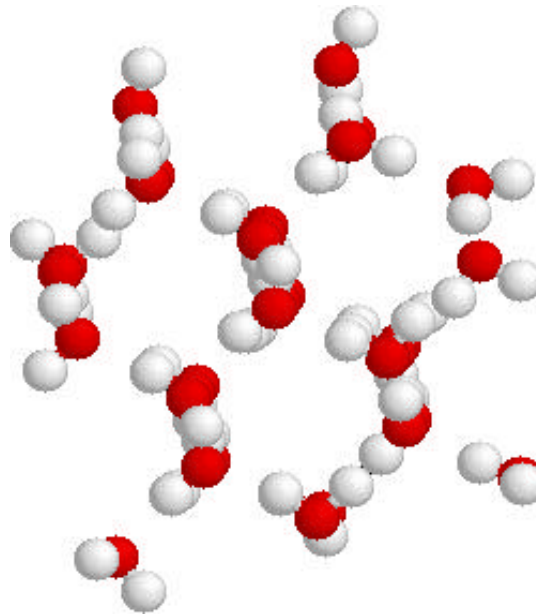
Ball & Stick Model



Spacefilling Model



Hydrogen Bonding



Ice Structure

## Solute Interactions

non-covalent interactions: dipolar, London forces, H bonding

### Ions

solvation spheres, water dipoles surround ions with opposite charge

### Polar molecules

water orients its dipole with solute dipole

### Nonpolar molecules

hydrophobic interactions, water surrounds in cagelike structure

### Amphipathic molecules

molecular assemblies