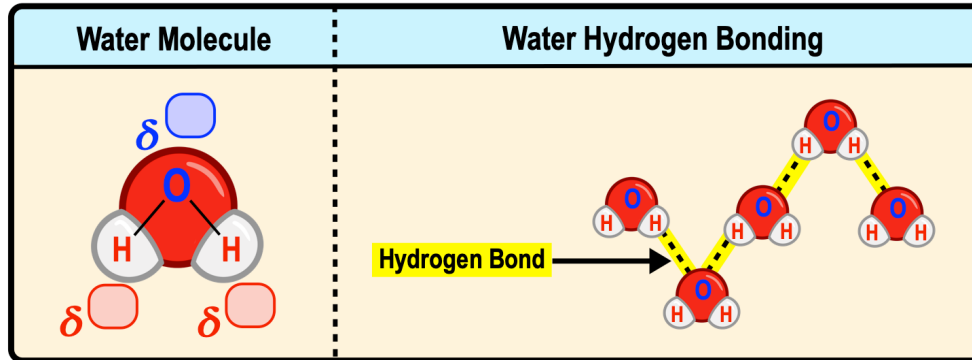


CONCEPT: INTRODUCTION TO WATER

● **Water:** a *small, polar* molecule with _____ Hydrogen atoms & _____ Oxygen atom (_____).

- Has _____ negative & positive charges.
- Recall: _____ bonds form between water molecules.

EXAMPLE: Water & its Hydrogen Bonding.



PRACTICE: Individual water molecules bind to each other through:

- a) Covalent bonds. b) Ionic bonds. c) Hydrogen bonds. d) Hydrophobic bonds.

Emergent Properties of Water

● Water's hydrogen bonding gives rise to _____ emergent properties that are essential to maintain life on Earth:

Emergent Properties of Water	
1	_____hesion, _____hesion & _____tension.
2	_____ density of <i>solid</i> ice compared to <i>liquid</i> water.
3	_____ Specific Heat & Heat of Vaporization.
4	Used as a universal _____ in <i>mixed</i> solutions.

EXAMPLE: Which of the following is not an emergent property of water?

- a) Adhesive and Cohesive properties.
- b) Moderation of temperature.
- c) High density of ice compared to liquid water.
- d) Used as a universal solvent in chemical reactions.

PRACTICE: The emergent properties of water (cohesion, high heat capacity, good solvent) come from the fact that water is _____ and _____ hydrogen bond.

- a) Polar, can. b) Polar, cannot. c) Non-polar, can. d) Non-polar, cannot.