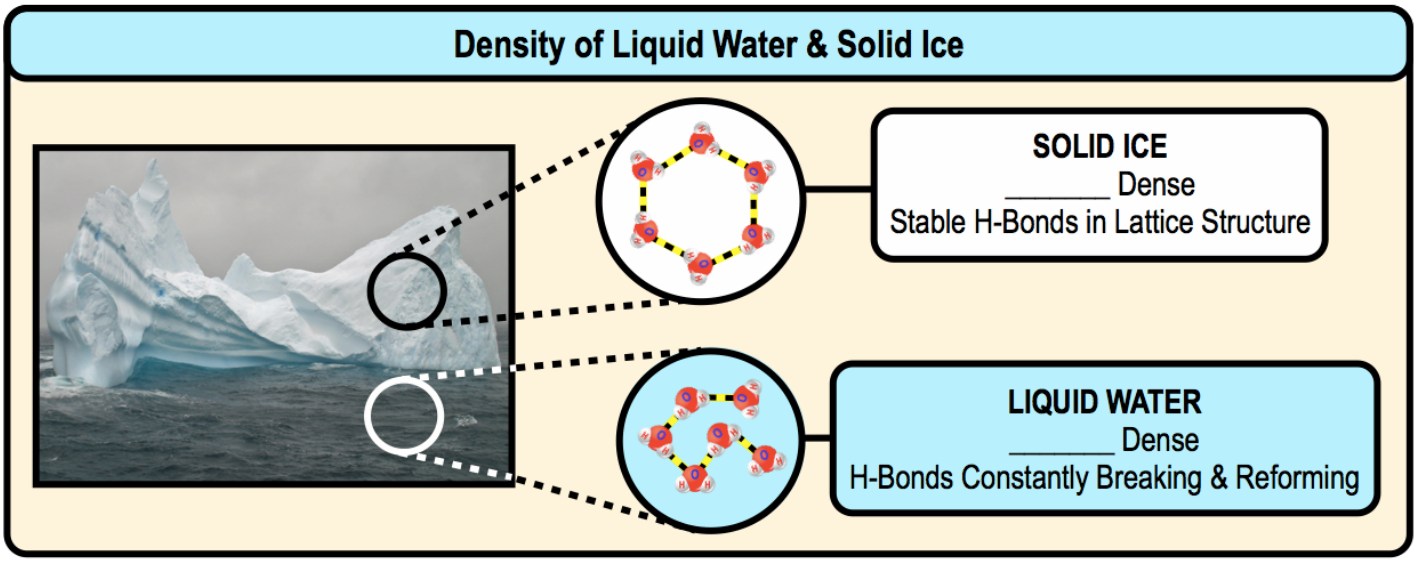
CONCEPT: PROPERTIES OF WATER: DENSITY

Density of Liquid Water vs. Solid Ice

●**Liquid** water molecules are _____ packed & constantly forming & breaking _____ bonds.

●**Solid** water molecules are _____ packed (expand) & form stable hydrogen bonds in a lattice structure.

- □ Solid ice has a _____ density than liquid water, causing ice to _____ in liquid water.
- □ This allows water to freeze from *top to bottom* & _____ the liquid below the surface to sustain life.



EXAMPLE: Why does ice float in liquid water?

a) The high surface tension of liquid water makes the ice float.
b) Stable hydrogen bonds keep water molecules of ice farther apart than water molecules of liquid water.
c) The ionic bonds between the molecules in ice prevent the ice from sinking.
d) The lattice structure of ice causes it to be more dense than liquid water.

PRACTICE: Solid substances are normally more dense than liquid substances. However, solid ice is LESS dense than liquid water. Why is this characteristic of solid ice important for life?

a) This characteristic allows lakes to freeze solid.
b) This characteristic allows the surface water of lakes to freeze.
c) This characteristic ensures that salt water does not freeze.
d) This characteristic is not important for life.