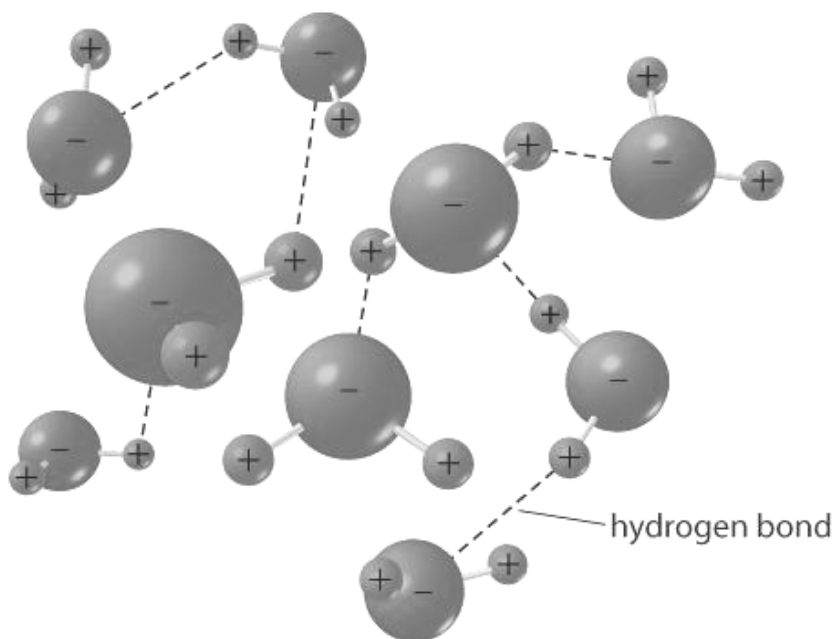


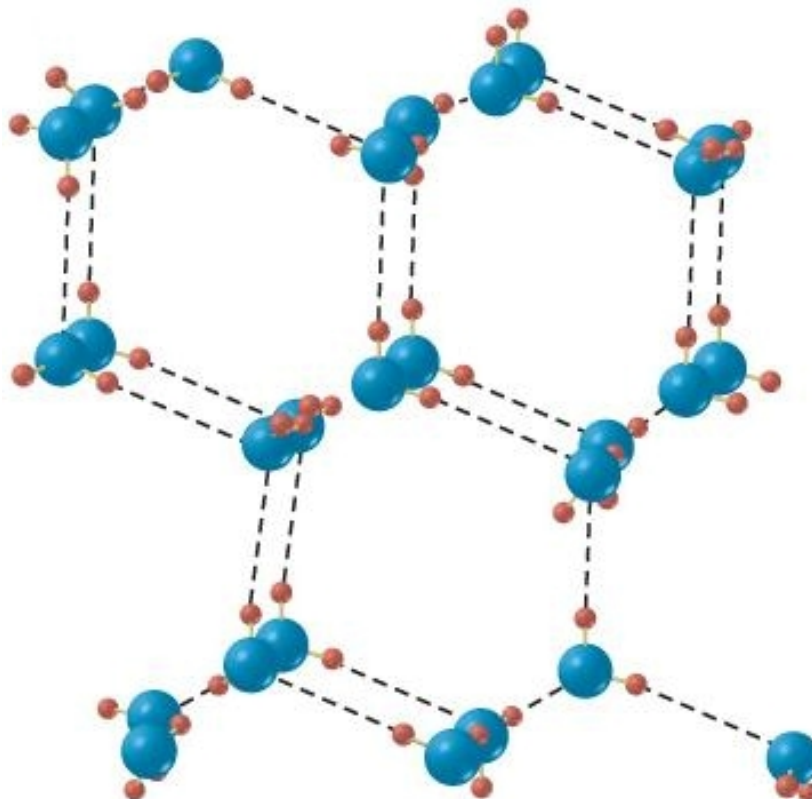
**CHAPTER 2****OVERHEAD****Crystalline Structures of  
Solid and Liquid Water****BLM 2.1.4**

Water's ability to form hydrogen bonds affects the structure of water in different phases.



- In its liquid phase, hydrogen bonds between water molecules form, break, and re-form frequently.
- Thus the molecules in water are packed together quite closely in this phase.
- They continue to pack closer together as the temperature decreases until water reaches its greatest density (1 kg/L) at 4 °C.

# Crystalline Structures of Solid and Liquid Water



- Unlike the solid and liquid phases of most other substances, frozen water is less dense than liquid water.
- When water freezes, it expands because hydrogen bonds hold the water molecules in an open crystal structure. This prevents the water molecules in ice from getting as close to each other as they do in liquid water.
- This expansion begins as the temperature decreases below 4 °C.