



Chapter 2

Chemistry of Life

2.3 Water, Acids, and Bases

Learning Objectives for section 2.3:

- a. Describe the distribution of Earth's water
- b. Identify water's structure and properties
- c. Define acids, bases, and pH.
- d. Explain why water is essential for life.

Water, Acids, and Bases

Water is a common chemical substance on Earth.

Almost 75% of the planet is covered in water.

- 97% of that water is salt water ocean

- 3% is freshwater

- 68% of all freshwater is locked in ice caps and glaciers (although that is changing)

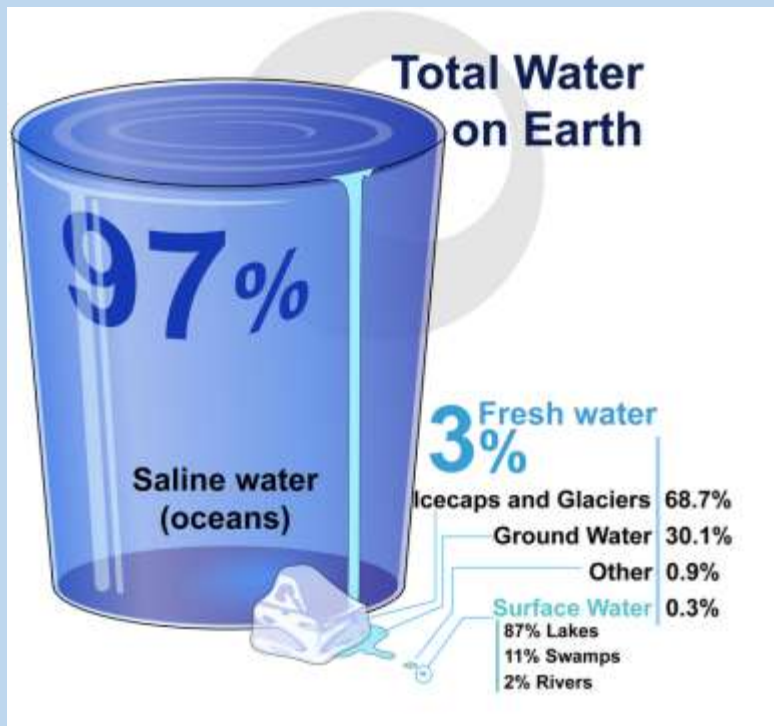
- 30% is ground water

- 2% is surface water

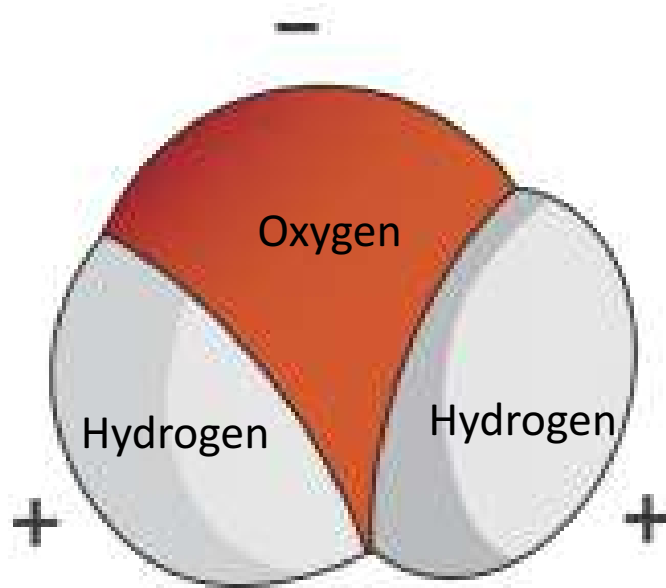
- 87% of the surface water is found in lakes

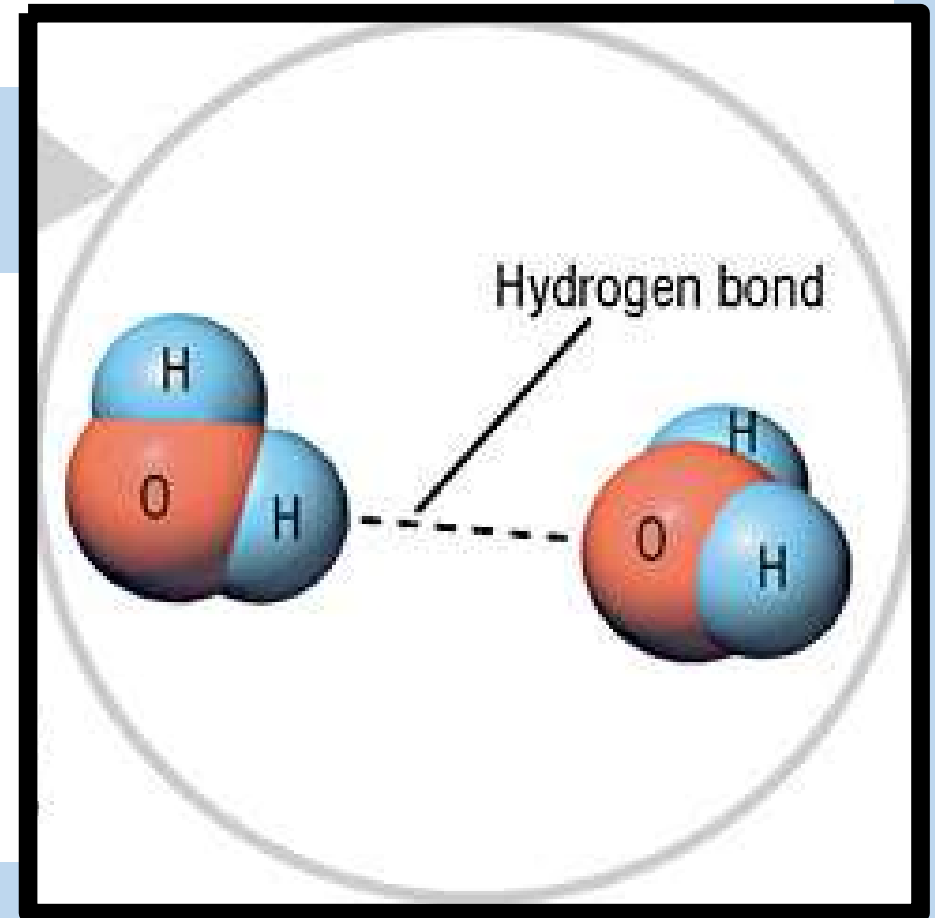
- 11% is located in swamps

- 2% is found in our rivers

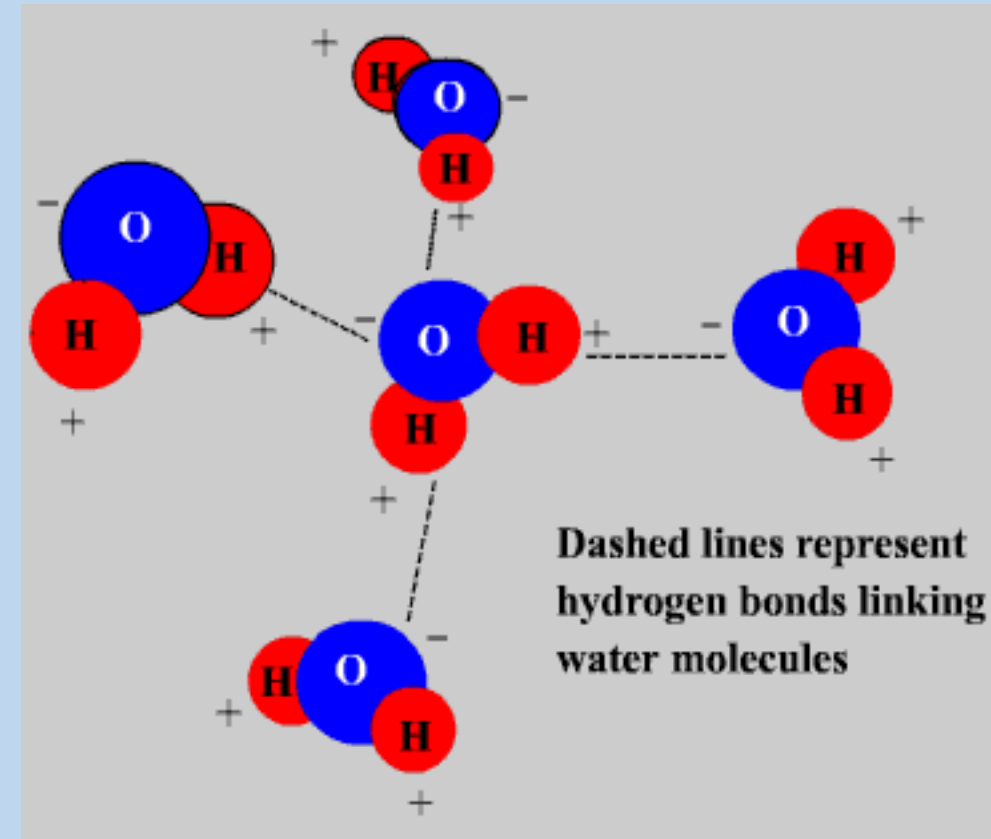


Chemical Structure of Water

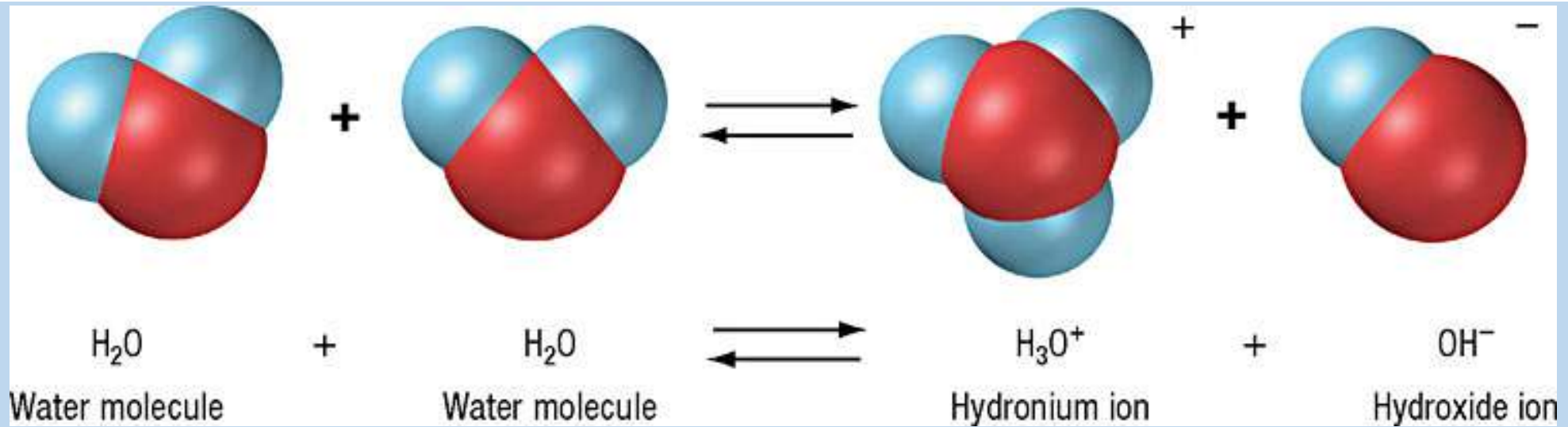


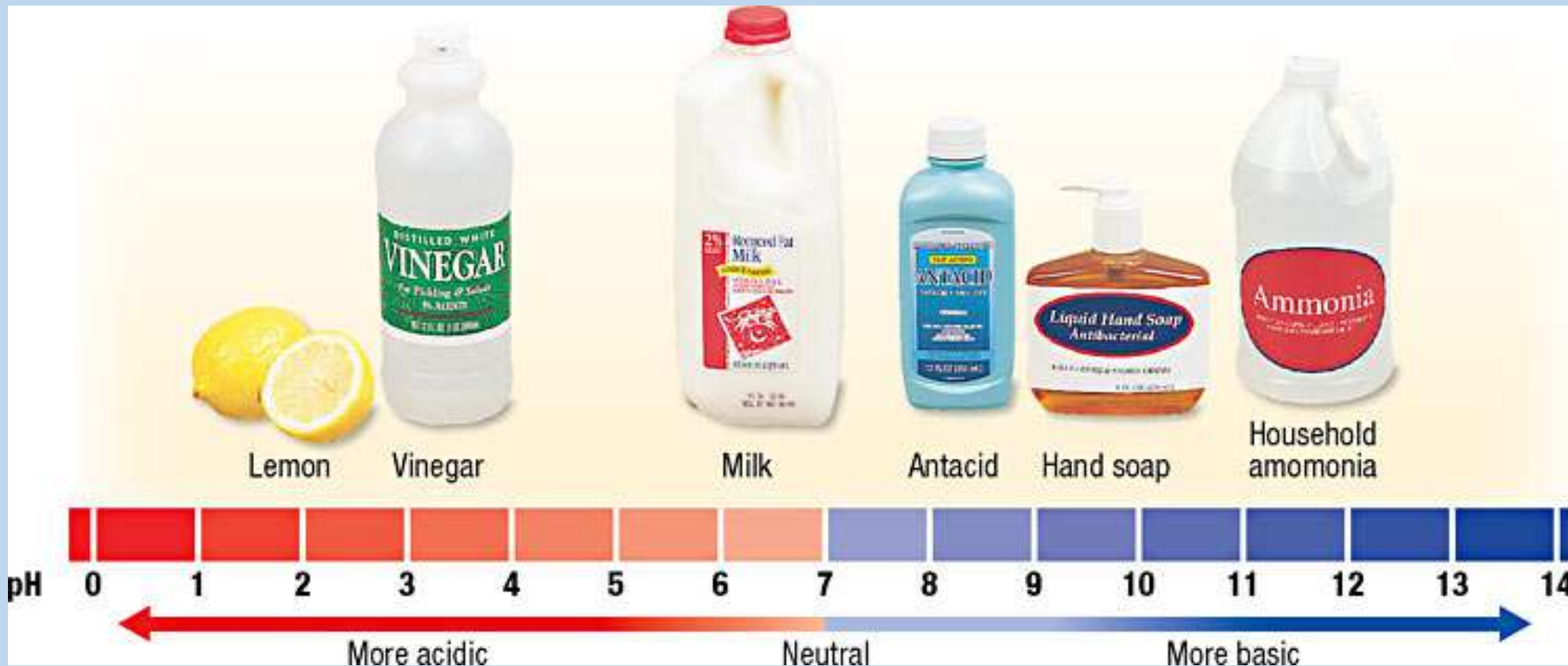


Hydrogen bonding explains much about the various properties of water.



Acid, Base and pH





The scale is **logarithmic**. Each value, from 0 – 14, has **10 times** greater ion concentration than the value below it.

pH 5 is 10 times more acid than pH 6.