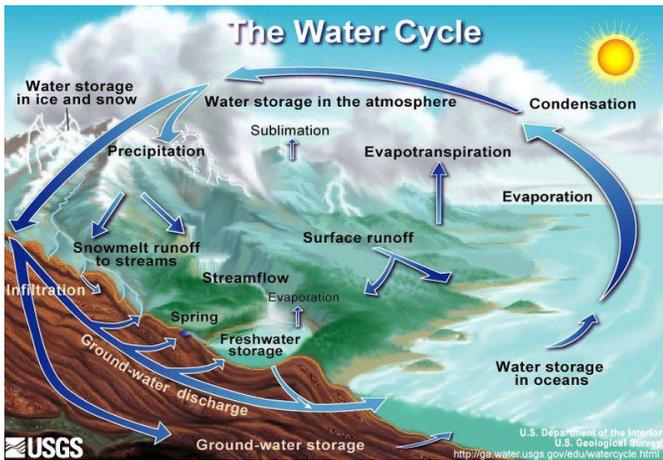


Earth's Water

Section I: Earth: The Water Planet



Water is essential for living things to grow, reproduce, and carry out important processes. The hydrosphere includes all of the water on and below Earth's surface and also in the atmosphere. About 97% of Earth's water is salt water that is found in the ocean, while the other 3% is fresh water. The majority of that 3% is found in the huge masses of ice near Earth's poles. Most water that is found in the atmosphere is water vapor.

Water has properties that are different from most other substances, which is what makes it so unique. First, a water molecule is made up of one oxygen atom and two hydrogen atoms. H_2O is the chemical formula used to represent water's structure. Secondly, water is a **polar molecule**, meaning the positive hydrogen end of one water molecule attracts the negative oxygen ends of another, which makes them tend to stick together. Thirdly, **surface tension** describes the molecules on the surface of water that cause a tightness, almost giving water a "skin." It's this characteristic that causes raindrops to form around beads when they fall on a windshield of a car. Fourthly, water is a **universal solvent** because many substances dissolve in it. It can dissolve certain solids, liquids, and gases. Also, **capillary action** allows water to move through materials with pores or narrow spaces. It's this characteristic that enables water to travel up stems and into leaves. Finally, water can change into all states of matter: solid, liquid, or gas. **Evaporation** is the process of a liquid changing to gas at the surface. **Condensation** is the process of a gas changing to a liquid.

The **water cycle** is a continuous process by which water moves through the living and nonliving parts of the environment. The sun is the energy source that drives the water cycle. Water droplets in clouds become heavy and fall back to Earth. Water that falls to Earth, such as rain, snow, sleet, or hail, is called **precipitation**. **Evaporation** takes place over the ocean and occurs when the sun's heat turns the water into water vapor that rises into the air. As the water vapor cools, it **condenses** into liquid and clouds form. Water is also given off by plants. **Transpiration** occurs as plants release water into the air through their leaves. The water cycle renews Earth's supply of fresh water.