Name: _____ Date: _____

Water Cycle

Science Literacy Article

Did you know that all of the water on Earth's surface is *continuously cycled*? This means that the water from thousands, or even millions, of years ago is the same water found on Earth today. This process of *continuously moving water* between Earth's oceans, atmosphere, and land is known as the **water cycle**. Of all the water that exists on our planet, approximately 97% is salt water found in oceans. About 3% is fresh water, but most of this fresh water is locked in glaciers, ice sheets, or below ground. Only 1% of fresh water is easily accessible to us in *liquid form* (i.e. lakes, rivers, ponds, etc.). The **water cycle**, which is continuously powered by the Sun's energy, has three main processes: **evaporation, condensation, and precipitation**.

1. **Evaporation** is the process of liquid water changing states of matter into water vapor (gas). If you have ever seen a puddle of water on the street seem to *disappear* a few hours later, then you have observed **evaporation**. However, the puddle of water did not just simply disappear. Energy from the Sun caused the *molecules* of liquid water to heat up and change into water vapor. The main sources of evaporation occur when the **Sun heats water** from large, collected bodies of water such as *oceans, lakes, and rivers*. However, plants can also change liquid water into water vapor through a process called **transpiration**. Transpiration is the evaporation of excess water through the pores (stomata) in the leaves of plants that was not used during *photosynthesis*.

2. **Condensation** is the process of water vapor in the air changing states of matter into liquid water. Condensation occurs when warm water vapor *rises* up into the cooler temperature of the atmosphere. As water particles cool, they move *closer together*. If you have ever poured a glass of ice water and the glass begins to "sweat" or feel wet on the outside, then you have observed **condensation**. Examples of condensation include the *formation of clouds and fog in the air*.

3. **Precipitation** is the process of water (in any form) falling from the atmosphere to Earth's surface. As water vapor in the atmosphere *condenses* into larger and larger droplets of water, they become too heavy and fall to Earth in the forms of *rain, snow, sleet, or hail*. This water often flows over Earth's surface and is referred to as *runoff*. As **runoff** combines and collects on the surface of Earth it is referred to as **surface water** (i.e. lakes, rivers, ponds, etc.). Water that *infiltrates* (soaks) into the Earth and exists underground is referred to as **groundwater**.

The **water cycle** plays a significant role on Earth. All living organisms depend on the **water cycl**e for *survival*. As water evaporates, condenses, and precipitates it is *purified* and helps to *replenish* the amount of fresh water on Earth's surface. Imagine this…the water you drink or that falls on you when it rains is the *same water* that existed millions of years ago when dinosaurs roamed the Earth!

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