

## The Water Cycle

By Ada Lio

*Ada is a junior at Boston Latin School*

How do puddles of water disappear? How do clouds form? Where does rain come from? These are all parts of the **water cycle**, a natural process that recycles water on Earth through the processes of **evaporation**, **condensation** and **precipitation**.

**Evaporation** is the process in which liquid water absorbs heat from its environment and turns it into a gas called **water vapor**. Evaporation can take place anywhere on the surface of the Earth that water is present such as puddles in the streets, rooftops, rivers, seas and oceans. After the sun heats the water and it evaporates from the surface of the Earth, the water vapor rises up into the air. Evaporation is a continuous, or ongoing, process. Therefore, there is always water vapor in the air. The amount of moisture in the air is commonly referred to as **humidity**. Still, the atmosphere only contains one thousandth of one percent of the earth's water?

As the water vapor rises higher up into the atmosphere, the air becomes cooler and the water vapor turns into droplets of liquid water in a process called **condensation**. If the air is cold enough, such as in the wintertime, the water vapor condenses into ice crystals. Examples of condensation that you can see are clouds, fog and mist.

As more water vapor rises and condenses in the cooler air, more droplets of liquid water hang in the sky in the form of clouds. Finally, they become so heavy that they fall as **precipitation** in the form of rain, or if the temperature is cold enough, as sleet, snow, or hail. Most of the precipitation falls back into large bodies of water such as oceans, rivers and lakes. The rest of it may form puddles, run off the land into rivers, or soak into the ground. Then, the cycle of evaporation, condensation, and precipitation repeats all over again.

The water cycle plays an important role in shaping weather. When water evaporates from the surface of the Earth, it helps to cool off the temperature because evaporation consumes heat. Think of it this way: You feel cooler after you sweat because your perspiration, or sweat, takes away heat from your skin when it evaporates into the air. Similarly, evaporation of water on Earth serves as a cooling function. Also, cloudy days are generally cooler than cloudless days because clouds block sunlight from reaching the surface of the Earth by reflecting it back into space. But, at night clouds help to trap the heat within the Earth's atmosphere by preventing the heat from escaping into outer space. Can you imagine living on Earth without the water cycle? I certainly can't.