THE WATER CYCLE

GRADES K-2

This activity was designed as a companion for the music video "We All Live in a Watershed."

BACKGROUND

A watershed is an area of land where the water drains to a common low point. We name watersheds after the waterbody where the water collects, such as the Mississippi River Watershed. Watersheds can be as large as the Mississippi River Watershed (the fourth largest in the world), or as small as the area of land draining to a small creek in your neighborhood. The video demonstrates rain flowing over land, into a river, and to a lake at the lowest point. When it rains on the cornfield on the hill, the dots show the water moving either right or left. This high point where the water either goes one way or the other is the boundary between two adjacent watersheds, as the water always flows downhill.

The video also shows who lives in a watershed and how that can affect the water quality. Every living thing lives within a watershed, including humans. How we use the land or what we put on our land will affect the water. A cornfield's loose brown soil can erode into the water, a factory could be leaking dangerous chemicals into the water (pink dots), the urban area could be leaking oil or litter from the streets, and cows (and other animals) could be pooping in the water which cause bacterial problems. Any pollutants that the water obtains moving over the land, anywhere in the watershed, will accumulate in the final collection point.
It is important to understand the quality of our land; how we use it directly affects the quality of our water. The video shows the different animals living in the watershed, and like humans, they depend on natural resources such as soil and water for survival. There are also vast amounts of living organisms in the soil (e.g. worms and germs) that affect how fertile the soil is and how well water will move through and over it. There is no new water on Earth, but instead water is continually moving through the water cycle over time.

TEACHER PREPARATION

Label different corners or walls of a classroom, activity room, or gym with different elements of the water cycle: Ocean/Lake, Atmosphere (or Air), Clouds, Precipitation (or Rain), Surface Runoff, Infiltration, Groundwater. The signs should be placed in order so one can start in the ocean and end in the ocean after runoff or groundwater.

1. As a group, walk the students through the cycle as if each student were a water droplet. Stop at each station to discuss what's happening.

2. Start in the ocean/lake and have the students describe what water is like in this environment. Have the students swim like fish and other creatures they can think of like octopus, sharks, and whales.

3. Next, talk about the sun heating the water on a hot day. Describe how the sunlight is energizing all the students as droplets, and they jump out of the ocean/lake into the sky. Once in the sky water droplets keep rising and form around dust particles that float in the air. Have the students start fidgeting when you describe being energized by heat, then they can move around more and more until they jump from the ocean station into the sky.

4. As the students rise into the sky they start getting heavier, and start joining together to form clouds. Once they've jumped out of the ocean have them move slower floating through the air. The students can then bunch together forming heavier and heavier raindrops until the whole class is bunched together.

5. Because of the weight, rain will start to fall, so the students break the cloud and fall toward the ground. The group that was formed in the cloud will break into individuals running fast to the next station like rain falling from the sky.

6. Divide the class into two groups. Have the first half of students infiltrate into the ground and discuss how they move down in between crack and crevices and into plant roots. They can sink and wiggle until they're sitting on the ground like they're moving through soil. Optional: Discuss where some of our drinking water comes from. Some of the droplets from groundwater will be pulled up by wells for humans to drink.

7. Have the second half of the class become surface runoff because the ground is saturated from the first half of class infiltrating. This group is forced to flow over top of the land. Discuss what they might encounter in their paths to slow them down. Describe these droplets flowing downhill to a stream which points them towards the ocean/lake. Students can log roll or spin standing up towards the ocean/lake.

8. Everyone moves back to the ocean/lake, either from the stream or groundwater flowing down to the ocean/lake. Have the students move like water moving in a river, smoothly to the ocean/lake.

9. Back in the classroom discuss there is no new water on the Earth, and water is instead always cycling through the system.

10. Using a diagram of a watershed, discuss how the water moves throughout the landscape. Referencing the video, define a watershed as an area of land where the water drains to one point such as the ocean/lake in the water cycle activity. Have the students think about what each drop of water can come in contact with as it moves through the cycle. There are living organisms in the ocean/lake, on the surface, and underground that all use the water. We depend on water for drinking, bathing, growing plants/food, and for fun!