

Water Cycle Bracelets Lesson Plan

Target age: 8 through 12 (may be adjusted for other ages)

Objective:

- ◆ To learn about the water cycle and its components
- ◆ To learn that water is a precious resource shared by plants and animals
- ◆ To learn ways to conserve water at home

Time: 15-20 minutes with a group, 5 minutes if at an event

Materials:

- ◆ Hemp cord
- ◆ Pony Beads (10 colors – what each represents)
 - Yellow - sun
 - Clear - air
 - White – clouds
 - Light blue – river or stream
 - Dark blue – lake or pond
 - Purple - ocean
 - Orange - glacier
 - Black – ground surface/soil
 - Green - plants
 - Red - animals
- ◆ Container for beads (colors separated)
- ◆ Scissors
- ◆ Yogurt cups (if conducting with a large group)
- ◆ Color chart
- ◆ Water cycle diagram
- ◆ Laminated sheet with photos of water cycle parts (optional)
- ◆ Take-home water conservation cards

Preparation:

Cut the hemp cord into 12-in. lengths and double knot each piece 4 inches from an end. Prepare as many pieces as needed for each participant of the program or event. Print out and cut the take-home water conservation cards. If conducting the activity with a large group, set out used yogurt cups and drop a bead of each color and a piece of cord into each cup.

Introduction:

This information is written as a narrative, but should be interactive with frequent questions being asked of the participants in order to gauge and maintain interest.

(If at an event where people are just passing through, shorten the introduction and get right to the activity discussing the background information as you make the bracelets)

Ask the participants whether or not they have learned about the water cycle in school. Ask additional questions to gauge their knowledge level. The water cycle, like other cycles, has no beginning or end. Using the water cycle diagram as a visual, begin to discuss the components of the water cycle. The Sun's energy is what drives the water cycle. As the sun shines down on the Earth, it warms the land, lakes, ponds, streams, rivers, and oceans. This warm water causes the liquid water on the surface of the land to change into vapor through a process called evaporation. When the water vapor reaches the colder air of the atmosphere, it turns back into a liquid and attaches to particles to form drops, which collect to form clouds through a process called condensation. Once the clouds become heavy enough, the water droplets (or ice droplets) in them are released in a process called precipitation. Precipitation includes rain, snow, sleet, or hail falling to the earth.

There are many places on earth that raindrops (or snow, sleet, and hail) land: rivers, streams, lakes, ponds, oceans, glaciers, or the ground. If raindrops land on a surface water body, the water will likely evaporate continuing the cycle. If the raindrops land on the ground, they will either run off the ground and into a surface water body, or they will seep into the ground through a process called infiltration. When water seeps into the ground it can either be used by plants or seep deeper into the ground where it becomes part of the groundwater (aquifer). Plants absorb water through their roots and transport it up to their leaves in a process called transpiration. Some of the water is utilized to help the plant grow, but excess water is released through the underside of the leaves. The water on the outside of the leaves then evaporates.

Not only do plants use water, but so do people and other animals. Animals like fish, amphibians, most insects, and some birds live in or around water habitats for at least some part of their lives. Animals also drink water that is on the surface of the land. People need water for various reasons. What are some ways we use water? We use water for drinking, brushing our teeth, taking a bath or shower, flushing the toilet, washing dishes, doing laundry, watering plants, washing the car, and swimming. It also takes a lot of water to grow our food and to make things. We use a lot of water, taking it either from a lake, reservoir or stream, or from the ground via a well. Once we are done with the water, it goes down the drain or toilet and into one of two places. It may go into a septic tank which holds the water, lets the sludge settle and pumps the liquid part out to an underground leach field (or turkey mound, sand mound). Or, it may go into a pipe, which transports it to a treatment plant which has to clean up the wastewater before piping it into a stream. Once the treated water from our homes is in the ground or in a stream it becomes part of the natural water cycle again. So, the pipes in our homes are actually a part of the water cycle.

Activity:

Explain that we are going to make water cycle bracelets, where each colored bead represents a different part of the water cycle. Those that don't wear bracelets can make it into a backpack ornament. Hand each participant a yogurt cup with 10 beads, one of each color, and a piece of hemp cord. (If this is at an event with a few participants at a time, just hand each participant a piece of hemp cord. They can pick beads directly from the bead container along the way.) Instruct the participants to hold their cord up so that the knot is at the bottom. Walk them through the water cycle as a group, instructing them to place a particular colored bead on the cord. Have the participants answer a question (such as, What color is represented by this? or, What comes part of the water cycle am I describing?) before placing each bead on the bracelet. When all the beads are on, the cord is double knotted next to the last bead so as to keep all the beads together. Each participant returns the yogurt cups and receives a take-home water conservation card, which lists water conservation tips on one side and lists the bead colors and the part of the water cycle they represent on the other side.

Wrap Up:

Now that the participants are aware of the water cycle and our role in it, discuss a few ways to save water and ask that they share what they've learned with others.