Water Cycle Bangles

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The Water Cycle

Water is constantly moving around, through and above the Earth as a gas (water vapor), a liquid, and as a solid (ice). This never ending process is called the water cycle (or hydrologic cycle). Because this planet has a sealed atmosphere, very little water escapes into outer space, thus the same water that existed on Earth millions of years ago is still moving through the water cycle today. Water is a finite resource that we can protect and conserve for future generations.

Key Topic: Water cycle, Surface water, Groundwater, Recharge, Runoff
Grade Level: 3 - 6
Duration: 30 minutes

Objectives:

Learn the steps of the water cycle and see how water moves through it by making a piece of water cycle jewelry.

Items Needed:

- 7/8" plastic "pony beads" in eight different colors (see attached handout), sorted (each participant will need 2 to 3 beads of each color).
- Leather strips, hemp, or macrame twine cut to lengths of 14" long for bracelets/anklets, 25" long for necklaces, precut. Pipe cleaners are great for younger audiences, beads are less likely to fall off and do not require knots - just twist.
- Diagram of the water cycle (see below)
- Scissors
- Masking tape
- Paper
- Writing Utensils (markers, crayons, or colored pencils)

Advanced Preparations:

1. Cut string or twine to desired length and tie knot at one end around one evaporation bed (or other color of choice).

2. Sort beads by color and set all eight colors on each table. Idea: to keep beads tidy, store in a fishing tackle box set with eight compartments.

3. Use the paper and writing utensil to create signs of vocabulary terms and definitions and post with corresponding bead color.

Activity Steps:

1. Introduce students to the water cycle - water never stays in one place, it changes physical form (liquid, solid, vapor) and moves throughout these forms in a process called the water cycle.

2. Go over each of the vocabulary terms with the students. *Note: colors may be substituted.*

- **Evaporation**: The sun shines and warms the liquid water and turns it into a vapor in the air.
- **Condensation**: When vaporized water gathers in the sky, forming clouds. Water begins to change from a vapor into a liquid during the condensation phase.
- **Precipitation**: When moisture molecules in the clouds get colder, the molecules bump into each other and begin to grow in size. As the drops get larger and larger they become too heavy to float in the sky, thus the water falls to the ground. Precipitation comes in many forms: rain, snow, sleet.
- **Runoff**: After rain and snow fall to the ground, the moisture can collect on the surface of the ground (it does not soak in). Runoff is commonly seen as rivers and streams that flow to ponds, lakes and oceans.
- **Surface Water**: Any water stored on the surface of the ground. Examples include ponds, rivers, streams, lakes, and oceans.
- **Recharge**: Water that soaks into the ground and become groundwater. Think of recharge as a sponge that absorbs water.
- **Groundwater**: Water that is stored underground in the cracks and spaces between sand and soil. Stored in geologic formations called “aquifers,” groundwater is used as a major source for drinking water and irrigation. Groundwater supplies are naturally increased through the process of “recharge” and naturally decreased through “discharge.”
- **Discharge**: When water naturally moves from an aquifer (or groundwater supply) to the surface. Discharge areas are commonly seen as springs or geysers. These areas can also be hidden from view at the bottoms of lakes, rivers and streams.

3. Give each participant a piece of twine.

4. Ask the students to imagine that they are a tiny molecule of water and they are going to participate in a journey through the water cycle. As they move through the water cycle, they will place a single color-coded bead on the string to represent a phase in the cycle. After moving through the cycle a few times, they will have created a piece of jewelry.

5. The journey through the water cycle will begin with evaporation (or whichever bead you have already attached to the string).

6. Ask the students to define evaporation; then ask what phase a water molecule can move to next. Continue to define each term as you work your way through one complete cycle. Some phases can lead to more than one option, so it's best to guide them through one or two times to create a longer string with 12-24 beads (see teacher worksheet for three possible paths below).

7. Assist the students in trying their bracelets, anklets, and necklaces on. Trim off excess string with scissors.

Discussion:

Review the pattern created on their jewelry defining each phase as you move along the string. Remind students that water is constantly moving around the earth - through the sky as a vapor, through glaciers as ice, and across/through the Earth as a liquid in surface and groundwater.

Hand each student a piece of paper to make a guide for them to take home. Have students write out each vocabulary term and definition in the corresponding bead color.

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