

Water Cycle Bracelet

Activity Description

This activity teaches students about the different components of the water cycle.

Take-Home Message

The water on the earth today is the same water that has existed for billions of years. It is continually being recycled through the water cycle.

Massachusetts Frameworks

Earth Science

Earth Material #1

Supplies

- Beads:
 - Light blue
 - Green
 - Dark Blue
 - Yellow
 - Clear
 - White
- White or black string
- 6 clear plastic cups
- Scissors
- Water Cycle poster

Set-up

For each child set up the following:

- 1 10-12” strand of string (tie the light blue bead on to start to keep the other beads from falling off)
- 6 cups or baggies filled with enough beads for the day

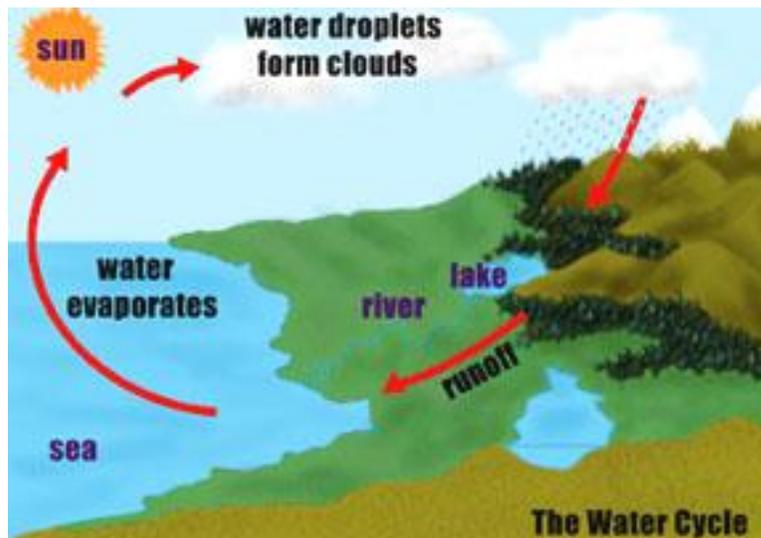
Set up the Water Cycle Poster on the table



The Water Cycle Review

All water on earth moves through the hydrologic cycle. This cycle includes four basic processes: precipitation, percolation and surface runoff, evaporation and transpiration, and condensation.

Rain and snow are the most common forms of **precipitation**. After reaching the earth's surface, some portion of the water is absorbed into the soil. On Cape Cod, over half of the rain and snow that falls each year filters into the ground and recharges the aquifer or groundwater supply. The water is pulled downward by gravity and **percolates** or **infiltrates** through the air spaces. Water taken in by the roots of plants is returned to the atmosphere through the process of **transpiration**, along with water evaporated from ponds, lakes, rivers, oceans, puddles, and the soil. These two paths of water returning to the air are often lumped together under the term **evapotranspiration**. Water vapor in the air rises up and may condense from gas to liquid to form clouds. Much of this falls back to earth as precipitation, thus completing the hydrologic cycle.



Activity Procedure/Script

- Ask the students if they recycle. Have someone explain what happens to a soda can when you recycle it.
- Tell them nature recycles too, and has been for a long time—even when the dinosaurs were alive. Ask them if they have ever been to the dump with their parents. Have they seen the recycling stations? Tell them that in nature, the whole earth is one big recycling station. Has anyone ever heard of the **hydrologic cycle**? That's the name of nature's recycling station. It's also called the **water cycle** because that's a lot easier to say.
- Talk about how all the water on the earth today is the same water that's been here for millions of years, just recycled over and over. They are drinking the same water the dinosaurs drank. (Show picture of T-Rex.)
- **Have the light blue bead tied on the string to begin with—this is the rain.**
 - If they're in third grade, have them define "precipitation" and name other forms besides rain. (Older kids will probably be too old for this and get bored—but it always depends, they might like to show off what they know.) Make them guess how much precipitation Cape Cod gets per year. (About 42".)
- **Ask the students what happens when a raindrop hits the earth—what can it hit?**
 - It will either hit water or land. If it hits the land, it can slide off the surface (the students might say buildings or the road) or sink into the ground. If it hits the water it fills up lakes, ponds, streams, and oceans. (Also talk about the aquifer here)

- **Have the students add the dark blue bead to represent the groundwater and other water found on earth.**
- **Have the students add the green bead. What is something green that uses water?**
 - Plants.
 - **Ask the students if they know how plants get water.**
 - Plants get water from their roots. The roots are the plants’ hands—they pull water up from the soil and into the plant.
 - Explain to the students that plants, trees, and grass give off excess moisture—they “sweat”—just like humans. Just as we have pores in our skin, they have pores in their leaves. When plants sweat we call it **transpiration**.
 - **Ask the students if they have ever seen wilting leaves on a plant.**
 - That’s what happens when a plant loses too much water. If you water the plant, the leaves stop wilting because they fill back up with water.
- **Have the students add the yellow bead.** See if they can guess what it represents. (The sun.)
 - Explain to the students that the sun provides energy for **transpiration** to occur. See if anyone can remember what transpiration is. Remind students that the sun is what changes the water from a liquid to a gas.
- **Ask the students what happens to a puddle when the sun comes out.**
 - A puddle will evaporate. Explain that we can’t see evaporation, so we add a clear bead because water is changing from a liquid to a gas and going up into the sky.
- **See if they can guess what happens next—what’s the white bead for?**
 - The water vapor forms clouds. It cools and condenses or comes together into tiny droplets that attach to specks of dirt, dust or salt crystals from the sea and come back down again as precipitation.
- **Tie the bracelet to complete the circle.** See if they can repeat what each bead means. Ask them the trick question, “Where does it start?”

Clean-Up

During the festival

- After each group, clean up the extra pieces of string.
- Put new beads in each cup.
- Cut more string pieces and tie on the light blue beads.

After the festival

- Clean up all the extra pieces of cut string.
- Put the beads back in their correct plastic bags.
- Pack everything up into the box and help other people clean up.