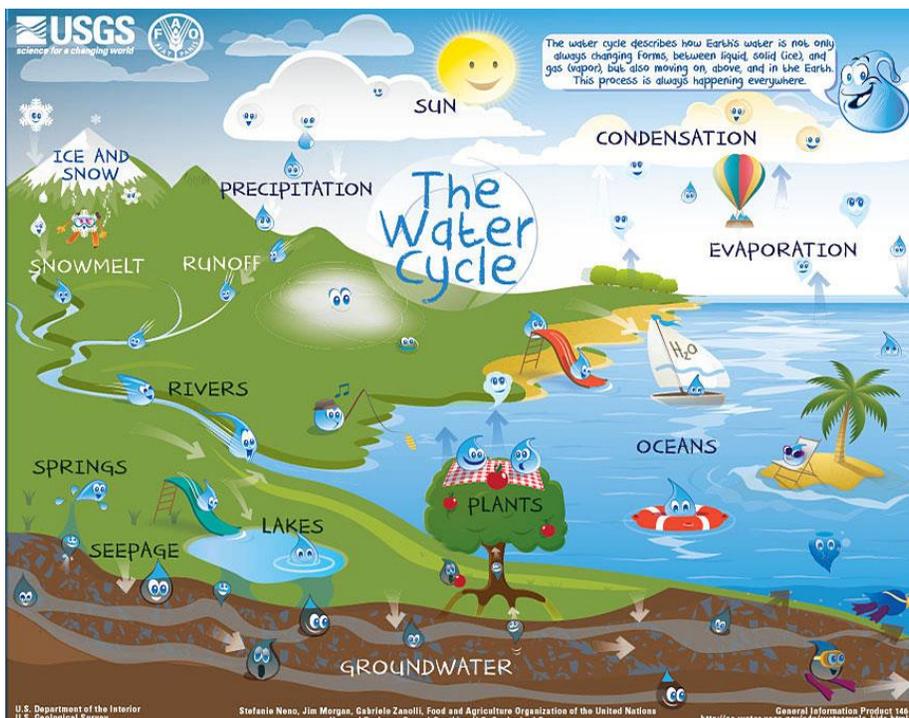


## WATER CYCLE IN A BAG

Water is an important fluid that helps keep our bodies healthy and hydrated. We can drink it straight from the tap or bottle, poured over ice, or boiled for making hot tea and cocoa. We also cook with it, bathe and brush our teeth with it, and even take vacations to enjoy being near it. Water is an essential part of our world.

The **water cycle** describes the way water moves continuously around the Earth. As water moves, it can be found in different states: **liquid**, **solid**, and **gas**. **Liquid** water is found in lakes, rivers, streams, and the oceans. **Solid** water is found in ice and snow. **Gas** or **vapor** can be found in the Earth's atmosphere.

Heat from the Sun causes liquid water to **evaporate**, which means the liquid becomes a gas in our atmosphere. Warm water evaporates faster than cold water. If you boil water in a pan, you can see the steam rising from the surface. Even when you can't see it, evaporation can be happening at a slower rate. If you leave a cup full of water in the sun, you will notice that there is less water in the cup if you check it a couple of hours later. Water can also enter the atmosphere from plants and trees. When the warm water vapor rises higher and higher, the cool upper atmosphere causes the vapor to turn back into liquid in the form of clouds. This is called **condensation**. When the clouds become full of water, the water falls back to earth in the form of rain, sleet, hail, or snow. This is called **precipitation**. The water returns to the lakes, oceans, and streams, some soaks into the ground to feed plants, and some is consumed by animals (including humans). The process then starts over again, which is why it is called the water cycle.



<https://water.usgs.gov/edu/watercycle-kids-beg.html>

In this activity, you'll be able to observe the different stages of the water cycle. Ask an adult to help you.

Materials you will need:

- 2-gallon plastic zippered storage bag
- Permanent markers
- Water
- Blue food coloring (optional)
- Packing tape

Draw the water cycle diagram on the plastic bag using the permanent markers (Photo 1 below).

Warm up the water until steam starts to rise but don't let it boil.

Pour the water into the plastic bag. Add blue food coloring to the water to represent the ocean, then zip it closed.

Hang the bag upright on a window or door using packing tape (Photo 2 below).

As the water evaporates, vapors rise and condense at the top of the bag. A white patch can be seen resembling clouds in the upper atmosphere (condensation). After some time, water drops will appear on the inside of the bag and will eventually slide downward. This represents precipitation.

If the water is still warm or if the bag is left in the sunlight, it will keep cycling through the three stages of the water cycle.



Photo 1: draw water cycle diagram



Photo 2: hang bag in window with tape

The next time you have a sip of water, just imagine all the places that water has been!

**ADDITIONAL RESOURCES:**

<https://climatekids.nasa.gov/water-cycle/>

<https://www.usgs.gov/special-topic/water-science-school>

<https://www.youtube.com/watch?v=al-do-HGuIk>

<https://youtu.be/kxqbpPWTI6A>

Books (available from the Washoe County Library System):

**The Water Cycle** by Nancy Dickmann

**The Great Big Water Cycle Adventure** by Kay Barnham and Maddie Frost