# Creating the Water Cycle

*A lesson from the New Jersey Agricultural Society*
*Learning Through Gardening Program*

Overview: What better way to teach the water cycle than to have your students recreate the process in terrariums they built themselves? In this lesson, students observe evaporation, condensation, and precipitation while watching seeds germinate and sprout as well. All you need are some plastic salad containers such as the takeout containers from a restaurant, some potting soil, and seeds. Ask a local restaurant for a donation.

Grades: 2-5

Objective: The student will be able to:

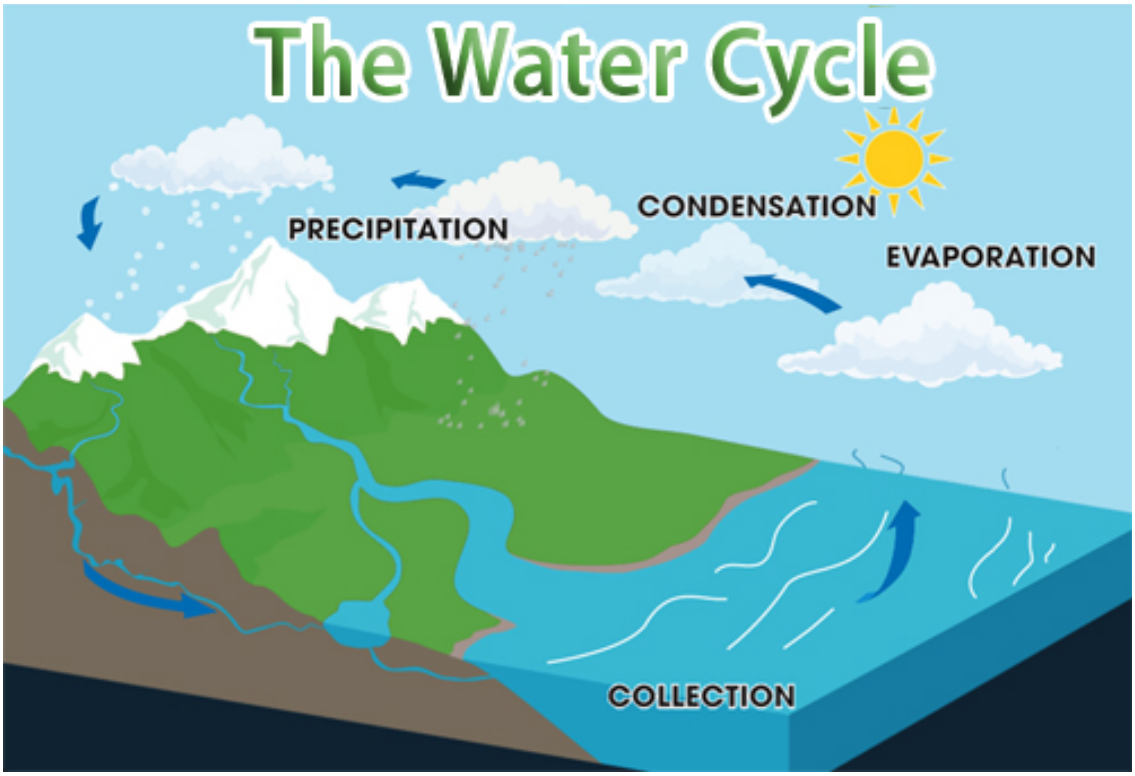
- Define evaporation, condensation, and precipitation
- Describe the water cycle with the processes of evaporation, condensation, and precipitation.

## Materials:

Salad-type takeout containers from a restaurant. You can ask each child to supply his or her own, or you can ask a local restaurant for a donation. (A large ziplock baggie will work if there are not enough salad containers available.)
Soil
Spray bottle filled with water
fast-germinating seeds such as radishes, beans, marigolds, or grass

## Introduction:

Get a discussion going about the different parts of the water cycle: evaporation, precipitation, and condensation. Ask: What are clouds? What are they made of? What is rain? What does the sky look like when it rains? Why does it rain? Where does the rain go after it falls? What happens to puddles after it rains? Use as many questions as possible to determine which concepts the students may understand and where any misconceptions may be.




*Courtesy of easyscienceforkids.com*

## Definitions

Precipitation occurs when so much water has condensed that the air cannot hold it anymore. The clouds get heavy and water falls back to the earth in the form of rain, hail, sleet or snow.

Condensation occurs when water vapor in the air gets cold and changes back into liquid, forming clouds. This is called condensation.

Evaporation occurs when the sun heats up water in rivers, lakes or the ocean and turns it into vapor or steam. The water vapor or steam leaves the river, lake, or ocean and goes into the air

## Procedure:

Assemble the terrariums. Have the students build their own terrariums by putting about an inch of soil in the bottom of their plastic containers, planting a few seeds according to the package instructions, and thoroughly watering the soil with the spray bottle. The initial watering should be all that is necessary since the plastic container will create a closed environment that will not allow the water to escape into the atmosphere. Have students write their names on the containers with permanent marker. Place the terrariums in a sunny window or under a grow light.

Observe the terrariums. Have the students make observations about their terrariums each day and record them in their science journals. Try to do the observations at different times each day. Have the students record what they see in writing and with pictures. Discuss as a class anything the students observe. Continue this throughout the lessons on the water cycle.

Possible questions to ask the students include: We only watered the soil in our terrariums once; how did the water get on the lid? Take your lid off the terrarium and feel the soil. Why is the soil still wet? Do you think that any water has evaporated from the soil? Why? If water evaporated, where did the evaporated water go? Did it ever rain in your terrarium? How do you know? Where did the rain come from? Is there anything in your terrarium that reminds you of a cloud?"

The teacher may want to make a connection between the water cycle in the terrarium and in the real world with a discussion using the following: If the terrarium is a model of the real world, what do you see outside the reminds you of the plant in our terrarium? What reminds you of the soil in our terrarium? What reminds you of the small water droplets on the lid? Water collects on the lid of the terrarium, and water also collects in the sky as clouds, so where does the water in the clouds come from?

## Evaluation:

Have the students make a picture model in their science journals that represents their terrariums. Have them draw and label the processes – evaporation, condensation, precipitation – they see happening and their locations in the terrarium.

## Extension:

Read and discuss All the Water in the World by George Ella Lyon.