

# Post-visit Activity:

## My Terrarium and the Water Cycle

### Objective

Students will observe plant growth and record observations on how plants respond to environmental conditions. Students will be able to name and explain the stages of the water cycle.

**Next Generation Sunshine State Benchmarks:** SC.3.N.1.1, SC.3.N.1.2, SC.3.N.1.3, SC.3.N.1.6, SC.3.N.3.2, SC.3.P.9.1, SC.3.L.14.1, SC.3.L.14.2, SC.3.L.15.2, SC.3.L.17.2, LA.3.1.6.1, LA.3.1.6.5, LA.3.4.2.2, LA.3.5.2.2, MA.3.A.6.2, MA.3.S.7.1

### Vocabulary

condensation      precipitation      transpiration  
ecosystem      evaporation

### Materials

Individual terrariums (created at Fairchild Tropical Botanic Garden)

“The Water Cycle” handout (page 2)

“My Terrarium Journal” handout (page 3)

Pencils

Rulers

### Procedure

1. Terrariums can be used as models to understand the global water cycle. Organize the class into groups and give them the following questions to discuss:
  - \* How is the terrarium like an ecosystem?
  - \* In what ways is it different?
  - \* What would happen if the top of the jar was removed?
  - \* How is it possible that the terrarium may not require watering for years?
  - \* How do the plants inside get the water they need to grow?
  - \* Why did you plant a fern and moss in the terrarium?
  - \* Would other plants grow well in the terrarium?
2. Distribute the “The Water Cycle” handout (page 2) and the “My Terrarium Journal” handout (page 3) to the students. After students have read the information on “The Water Cycle” handout, have them draw their observations on the “My Terrarium Journal” handout.
3. As a class or individually, have the students test the effect of different variables on the terrariums such as temperature, light levels, the effect of salt water, etc.
4. Ask the students what they expect to happen in their terrariums and record their predictions.
5. Two weeks after the field trip, students should again make observations and draw their terrarium in their journal. If several students tested the same variable, have the students compare results and discuss why there are differences.
6. Have each student (or group) present their findings to the class, using both words and pictures. Allow time for questions and answers. Encourage students to talk about things they would like to test and what they would change about the experiment if they tried it again.



# Life in a Rainforest

## The Water Cycle

### What is The Water Cycle?

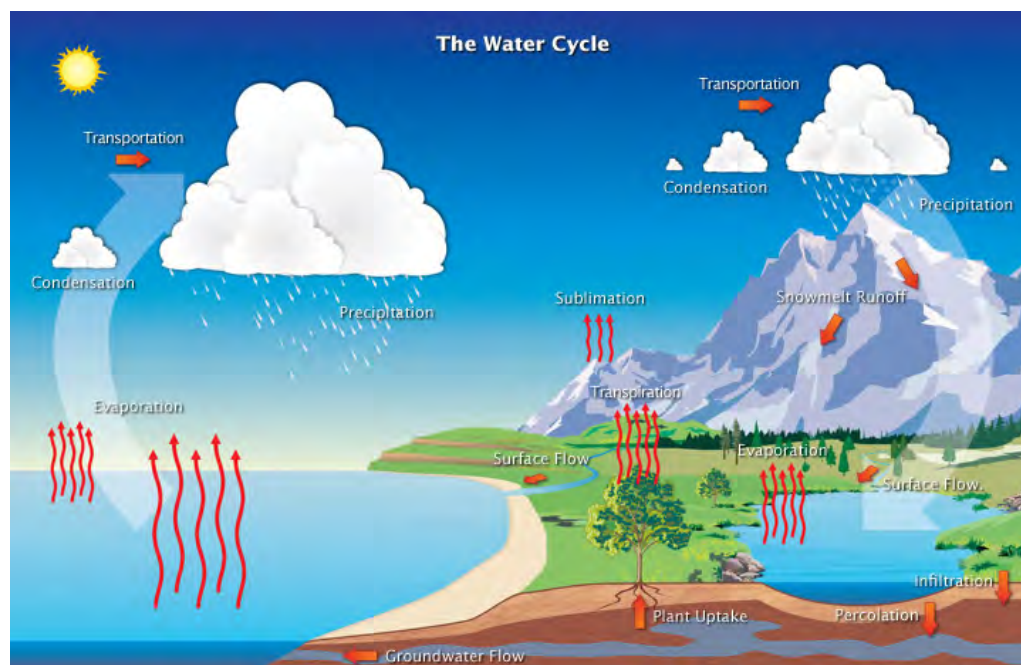
In the global water cycle, the sun heats the Earth's surface water, causing that surface water to evaporate. This water vapor then rises into the Earth's atmosphere where it cools and condenses into liquid droplets. These droplets combine and grow until they become heavy and fall to the Earth as precipitation.

### What to expect from your terrarium

The terrarium water cycle is a model of the global water cycle. The plants in the terrarium absorb the water through their roots and release it through their leaves (transpiration). The water molecules will condense on the sides of the jar (condensation), and drip down the sides of the terrarium. Some of these water molecules will also be evaporated by the sun. When the terrarium appears cloudy, the water inside has evaporated and is condensing. Plants will use the moisture in the soil for photosynthesis, a process that occurs in plant cells and provides energy for plant growth. Some terrariums may develop a problem with mold. If this occurs, try to figure out what caused the mold by comparing moldy terrariums to mold-free ones. Generally, mold is caused by excessive moisture; open the terrarium to let it dry out a bit. The plants in your terrarium are "non-flowering" plants, which means they do not produce flowers but instead reproduce with spores. They prefer to live in warm, humid environments.

### How plants transpire

Most people don't realize how much moisture comes from plant cells each day. Although we may notice higher humidity in the forest, it's hard to imagine that 90-95% of the water a typical plant absorbs through its roots passes into the air as water vapor. The water evaporates through tiny pores on leaves called stomata. The stomata open during the day to allow carbon dioxide needed for photosynthesis to enter the leaf. The oxygen released during photosynthesis exits through the same stomata. Transpiration is the term used to describe the loss of water from plant surfaces (usually leaves).



Name \_\_\_\_\_

Date \_\_\_\_\_

## My Terrarium Journal

Draw a picture of your terrarium. Record the soil level as well as plant height and width. Be sure to label the different items in your terrarium such as air, plants, soil, charcoal and clay.

After your initial observations, it's time to experiment!

What variable will you test? \_\_\_\_\_

What do you predict will happen inside your terrarium? \_\_\_\_\_

### Two weeks later

Date \_\_\_\_\_

Draw a picture of your terrarium. Record the soil level as well as plant height and width. Be sure to label the different items in your terrarium such as air, plants, soil, charcoal and clay.

What changes did you notice? \_\_\_\_\_

Did your predictions match your results? Why or why not? \_\_\_\_\_

