

Water Cycle in a Jar

SNWA Goal 1 Objective 1.1

CCSD Curriculum Essentials Framework

It is expected that:

Science

13.5.3 Students will investigate and describes factors that affect evaporation

Purpose: This activity is designed to provide students with the opportunity to observe the processes of condensation and evaporation.

Time: 50 minutes initially
several 20-minute observations over the following weeks
30 minutes for the final discussion

For each pair of students you will need:

- a wide-mouthed jar or container, or the bottom half of a plastic soda bottle
- enough plastic wrap to cover the opening of the container
- large rubber band or tape
- a small plant (optional)
- a bottle cap (from 2-liter soda bottle)
- soil (potting soil)*
- sand*
- gravel or small rocks*

*50-250 ml, depending on the size of your jars

Each student will need:

- science notebook

Introduction

1. Tell the class, “Yesterday after school I watered my garden, but when I checked it this morning, it was dry. I wondered what had happened to all the water.”
2. Brainstorm possibilities with the class. Ask, “Do you think this water is gone forever?”

Making Discoveries

3. Tell the class, “We are going to try to find out what happened to the water. In order to find out, we will put some of the same types of soil found in my garden into a jar. We’ll put a bottle cap full of water into the jar, too. Then we’ll cover the opening of the jar with plastic wrap so we can see what happens to the water.”



Water Cycle in a Jar (cont.)

4. Give each pair of students a jar. Ask students to first measure the gravel into their jars.
5. Ask students to measure an amount of sand into the jars, layering it carefully on top of the gravel.
6. Next, ask students to measure and add an amount of soil to their jars, layering it carefully on top of the sand.

Teacher Note:

The amount of each type of material will depend on the size of your jars, but the amount of soil should be about twice as much as the amount of sand and gravel used, especially if your students will be putting plants in their jars.

7. If your students will be putting plants in their jars, have them do so now. They should hollow out a small hole in the soil with their fingers, put the plant inside, then push the soil back in around the roots of the plant.
8. Ask each pair to carefully fill their bottle cap with water and gently place it atop their soil.
9. Help students cover the tops of their jars or containers with plastic wrap, securing it with a large rubber band or tape.
10. Ask students to draw a picture of their jar (terrarium) in their science notebooks.
11. Place the jars in a sunny place, if possible.
12. Take opportunities over the next few weeks to have the students observe and redraw their jars at different times of day. (Students should not remove the plastic wrap.) Where is the water? Is it hanging in drops from the plastic wrap? Has it collected in the bottom of the jar? Has it soaked into the soil?

Closing

13. When the students have had a chance to observe and record instances of condensation and evaporation, revisit your original question. When the water evaporated, was it gone for good? Where did it go?
14. Where do you think water goes when it evaporates from oceans, lakes and rivers?

Word Bank

The teacher should introduce or review the following vocabulary with the students within the context of this lesson.

condensation: the process of changing from a vapor (gas) to a liquid

evaporation: process in which the heat energy of the sun causes the water on the Earth's surface to change into a vapor

terrarium: an enclosure (usually transparent) for keeping or raising plants or small animals indoors

