

A Water Cycle Chamber

Summary

Classroom activity helps students understand the water cycle.

Group Size

Small Groups

Materials

per group:

- clear 2-liter pop bottle with lid
- knife (teacher use)
- scissors
- ice cubes
- gooseneck lamp
- cup of warm water
- 1 plastic bag

Background for Teachers

Refer to [Condensation Chambers](#) (pdf) and [Condensation Data Collection](#) (pdf) in the Search for the Water Cycle Teacher's Edition.

Instructional Procedures

Invitation to Learn

At the beginning of the day place a water bottle filled with ice and water on the table in the classroom. If students bring water bottles, each student could conduct this experiment. Throughout the day observe what happens to the outside of the water bottle. Discuss what causes the bottle to "sweat".

Instructional Procedures

Demonstrate and review the water cycle using a commercial water cycle chamber of your own model.

With each of the 2-liter pop bottles, use a knife to poke a starter hole in the top portion of the bottle where it starts to straighten out.

Distribute one bottle to each group. Instruct the students to utilize the starter hole to cut off the top portion of the bottle with scissors. Tell them to look at the diagram below.

Instruct each group to place a cup of very warm water in the bottom of the pop bottle. (Use hot water to speed the evaporation process.)

Close the chamber with the top of the bottle inverted.

Place four or five ice cubes in a plastic bag and set the ice cube bag on top of the container.

Place the light source (lamp) within a few inches of the chamber to simulate heat energy from the sun. Be sure the area around the water is completely in the light.

Notice how the top begins to fog. Remind students that the water vapor evaporating provides the moisture in the air allowing condensation to occur.

After a couple of hours, the droplets on the ceiling of the bottle are so large that they begin to drip, simulating precipitation.

Have the students record their findings.

Extensions

If resources permit, organize this activity as a take home science demonstration. Students can teach their family about the water cycle and report their experience to the class. You may choose to extend this activity by having the students mold landforms out of clay in the bottom their bottle. You may use the following recipe for Salt Ceramic Dough. Salt Ceramic Dough

Mix together:

1 cup of salt

1/2 cup corn starch

3/4 cup cold water

Heat this mixture on the stove. (A double boiler works best, but a saucepan on low to medium heat is satisfactory.)

Stir constantly (about 2-3 minutes) until it becomes so thick that it follows the spoon in the stirring process, similar to bread dough. Spoon out the mixture onto foil or wax paper. When it is cool enough to handle, knead the dough for several minutes, and store in a sealed plastic bag until ready to use.

Assessment Plan

Check for students' understanding as they operate their chambers and do a class review of appropriate science language including: condensation, evaporation, precipitation, and water cycle. Engage students in a classroom discussion of the roles condensation, evaporation, and precipitation play in the water cycle.

Authors

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