

TRB 4:1 - Investigation 3 - Condensation Chambers

Summary

These activities will help students understand the concept of water condensation.

Group Size

Small Groups

Materials

Teacher:

Small mirror

Per group:

2 Small clear plastic cups

Water

tape

Graduated cylinder

Worksheet: ["Condensation Chambers"](#) (pdf)

Home Activity:

- ["A Water Cycle Chamber"](#) (pdf)

Background for Teachers

The process by which water vapor turns into liquid water is called condensation. When warm, moisture-laden air is cooled, the water vapor in the air changes into its liquid state and forms water droplets. This is evident when water condenses on the cool surface of a mirror or window in a bathroom while you are taking a shower or when chilled car windows fog up on the inside. Condensation is generally associated with warm water vapor in contact with cold surfaces or other relatively cold solid particles.

Intended Learning Outcomes

1. Use science process and thinking skills
2. Manifest scientific attitudes and interests
3. Understand science concepts and principles

Instructional Procedures

Pre-Assessment/Invitation to Learn

Hold up a mirror. Ask students how they might get water to form on the mirror. If no one suggests breathing on it, do so and indicate that the warm moist air from your lungs hits the colder mirror and condenses.

Discuss the process of condensation. (Refer to the teacher background if needed.) Indicate that students are going to construct condensation chambers.

Instructional Procedures

Refer to the worksheet, "Condensation Chambers." Share a pre-constructed condensation chamber, and instruct the students to follow the steps outlined.

Write your name or group name/number on the cup.

Measure 20 ml (2 teaspoons) of water and add it to one cup.

Place the second cup inside down over the first cup as illustrated.

Use tape to connect the two cups.

Have each group place their chambers in a warm, sunny place. After it has sat for 1-3 hours,

students should record their observations on the worksheet.

The following day have students record the rest of their observations on the worksheet.

Extensions

Science-

As an open-ended experience, allow students to plan, carry out, and design other experiments related to the findings questions found on the worksheet. *(ILO 1)*

Homework & Family Connections

Have the students investigate different places condensation may appear in their houses - bathroom mirror, windows (winter), pitchers with ice and water (spring/summer/fall), objects in the refrigerator, etc. Have them write what they found and return it to school.

Have students do the worksheet "[A Water Cycle Chamber](#)" (pdf) at home. Have them record what they observe every half-hour for two hours on the back of the home work paper. Answer the findings questions.

Assessment Plan

Using the questions found on the backside of the student worksheet, you may lead an oral discussion or have the students work individually to explore the process that took place with their condensation chambers. Have students review appropriate scientific language as you discuss the appearance of the condensation chamber before and after placing it in a warm, sunny place. Listen for facts such as the concept of energy from the sun warming the chamber and causing evaporation to occur within it. At night the cool air outside the chamber will make the lid cool off and the water vapor will condense on the inside of the chamber. Condensation will most likely be more concentrated on the side facing the window. Ask students to explain why there was more condensation on the side of the lid facing the window - the temperature outside was colder and so the side facing the window cooled more than the side facing the heated room.

Authors

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