

Here It Comes Again

Description

In this activity, students observe water droplets forming on the outside of a cold container.

Time Frame

1 lesson (45 minutes)

Correlation to Texas Essential Knowledge and Skills

During this activity, students will be exposed to the following Texas Essential Knowledge and Skills:

Note: Some TEKS statements below end with a ; or *and* and nothing thereafter—this indicates that further TEKS statements follow but are not included here.

(2.10) Science concepts. The student knows that the natural world includes rocks, soil, water, and gases of the atmosphere. The student is expected to:

- (B) identify uses of natural resources.

Note: The TEKS listed here are the main content TEKS for this activity; however, this activity may also cover additional content and process skills included in other TEKS.

Materials

Clear plastic cups (2 per group)
Warm water
Ice water
Felt-tip markers
Small mirror or square of Mylar (1 per group or 1 for the entire class)
Water journals (1 per student)
Paper towels (one towel per group)
Water Rhyme (included at the end of this activity)

SAFETY: Since students will be handling the water, the warm water should only be warm to the touch, not hot.

Background Information for the Teacher

Approximately 71% of the earth is covered by water. Water evaporates when energy is added. Water condenses when it loses energy. The loss of energy causes the water to cool. Small drops of condensed water suspended in the air can become enlarged as the droplets come together. When they become too heavy, the water precipitates (falls from the air)..

Evaporation, condensation, and precipitation that occur in the water cycle are abstract concepts. Because water vapor is an invisible gas, teachers and students may use the terms, but in this activity the purpose is to observe and describe the processes rather than to explain how or why it occurs.

Advance Preparation

1. Create a water journal by stapling together several sheets of paper for each student.
2. Write the Water Rhyme on the board or overhead transparency.

Procedures

1. Review Lines 1 and 2 of the Water Rhyme: “Water, water, will you stay or find a way to go away? Water, water, went away, found a place to hide away.”
2. Divide class into small groups and distribute one cup of warm water and one of ice water to each group. Place the plastic cups on a paper towel. Have students mark the water level on each cup with a felt tip marker. Students should touch, observe, and describe the outside of the plastic cups. Ask, “How do you think the cups will look and feel in a few minutes? Will they be the same? Do you think they will have changed? What changes do you think will occur?”
3. Set the cups aside and give students a small mirror or piece of Mylar. Instruct students to hold the mirror close to their mouth and exhale with their mouth open.

SAFETY: Remind students to exercise caution when handling mirrors.

Note: If you do not have enough mirrors or pieces of Mylar, have one or two students volunteer and show the results to the entire class.

4. Observe and describe how the mirror changes in appearance. Ask, “Have you ever written your name on a fogged bathroom mirror or window? What is the fog made of?”
5. Discuss where the water on the mirrors (classroom and bathroom) might have come from. [*Moisture from breathing or moisture in the air.*] Add verse 3 from the Water Rhyme: “Water, water, hide away, collect as droplets where you stay.”
6. Have students observe the plastic cups of warm and ice water again and discuss changes. They should notice water droplets on the outside of the cup of ice water; call their attention to the water line marked on the cup. Mention that since the water is still at the same level, it could not have leaked through. Ask, “Where did this water come from? How do we know that this water did not leak out of the cup?”

Note: If droplets are too small to be seen, look for evidence of moisture/dampness on the paper towel. Discuss the source of the water on the towel.

7. Discuss how the water on the mirrors and on the outside of the cups of ice water are related. Ask, “Where did the water come from?” Review lines 1–3 of the Water Rhyme, and then add verse 4: “Water, water, droplets play, become clouds without delay.”

Water Rhyme

(Sung to the tune of Rain, Rain, Go Away)

1. Water, water, will you stay or find a way to go away?
2. Water, water, went away, found a place to hide away.
3. Water, water, hide away, collect as droplets where you stay.
4. Water, water, droplets play, become clouds without delay.
5. Water, water, clouds are growing, now we find your rain is showing.
6. Water, water, circle away, come as rain another day.
7. Water, water, reappear, keep the circle going here.