

Here Comes the Rain

Description

In this activity, students observe changes in water as it evaporates, condenses, and precipitates in a model of a water cycle.

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:

- (A) describe and illustrate the water cycle; and

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

Water
Tea kettle or pan
Heat source such as a hot plate
Aluminum pan
Ice cubes
Oven mitt or pads
Water journals
Timing device
Water Rhyme (included at the end of this activity)

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

SAFETY: Make certain students are seated back from the demonstration. Be sure to carefully place the cord to the hot plate so that it is visible and students do not trip over it. Keep the oven pad or mitt away from the heat source.

1. Lead students in reciting the first four lines 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. Water, water, hide away, collect as droplets where you stay. Water, water, droplets play, become clouds without delay.”
2. Place pan of water on heat source. Ask students to predict which changes will be visible as the water heats. Students should also predict the amount of time needed for noticeable changes to occur.
3. Heat water to near boiling. Measure the amount of time needed for noticeable changes to occur. Have students observe and describe changes.

Note: Remember that steam is visible and made of drops of water, but water in its gaseous state is not visible.

4. Use the oven mitt to hold a pan of ice cubes just above the visible steam. Students should describe what they observe. Share verse 5: “Water, water, clouds are growing, now we find your rain is showing.”
5. Instruct students to draw and label the demonstration in their water journals. Be sure they label the drops of water, the pan, and the heat source. Monitor to see that drawings indicate the changes they have observed. Do not focus on the vocabulary, such as condensation or evaporation, but on the causes of the changes.

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.