

# Can You Make It Rain?

**Estimated Time:**

**Prep:** 10 min.

**Activity:** 30 min.

## Introduction

### Overview

**Experiment:** Students observe **condensation** and **precipitation** in a jar.

**Key Concepts:** Students will deepen their understanding of condensation and how it ties in to precipitation.

### Lead-In

Review the **water cycle** briefly, reminding students that condensation is the process by which gas cools and becomes a liquid.

Point to the condensation stage on the *Water Cycle* reference card. Explain that **clouds** form when **water vapor** rises and cools. The cooling **droplets** condense and group together into larger drops that fall as precipitation—**rain**, snow, hail, etc.

Ask students if they've ever observed a mirror in the bathroom after someone has taken a hot shower. What did they see? A mist formed on the mirror because the warm **moisture** in the air condensed on the cool surface. Have they ever used their finger to draw a picture in the mist? What happened? Did they see drops sliding down the mirror? Their fingers helped the droplets of mist collect together and form drops that were heavy enough to fall—just like what happens in clouds!

## Teacher Preparation

### Lead-In Materials

- *Water Cycle* reference card\*

### Teacher-Provided

#### Experiment Materials:

- Hot water (steaming, but not boiling or scalding)
- Ice cubes

#### Try This! Materials

- Blue food coloring\*
- Ice cubes
- Clear plastic container\*
- Plastic dish\*
- Hot water

#### Prepare:

- Make copies of the Experiment Sheet.

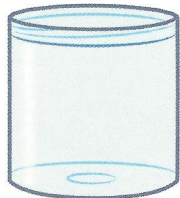
**Note:** Use hot water from the faucet for this experiment. Check temperature to ensure it is safe for children to handle.

\*included in kit

## Vocabulary

- ◆ **cloud** a white or gray mass of water droplets floating in the sky
- ◆ **condensation** the process of changing from a gas to a liquid
- ◆ **droplet** a very small drop
- ◆ **moisture** wetness in the air or on a surface
- ◆ **precipitation** water that falls to the ground as rain, snow, hail, etc.
- ◆ **rain** water that falls in drops from clouds
- ◆ **water cycle** the journey water takes as it circulates from the land to the sky and back again (also known as the hydrologic cycle)
- ◆ **water vapor** a gas formed of very small water drops or particles mixed with air

## You Will Need



clear plastic container



magnifier



plastic dish

Experiment 25: Weather

Name \_\_\_\_\_

**Can You Make It Rain?**

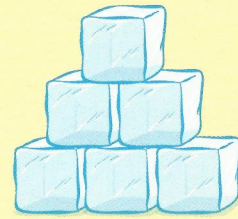
My hypothesis is \_\_\_\_\_  
because \_\_\_\_\_

At first, the container looked like this:	After a few minutes, the container looked like this:

My conclusion is \_\_\_\_\_  
because \_\_\_\_\_

Experiment Sheet

## Teacher-Provided Materials



ice cubes

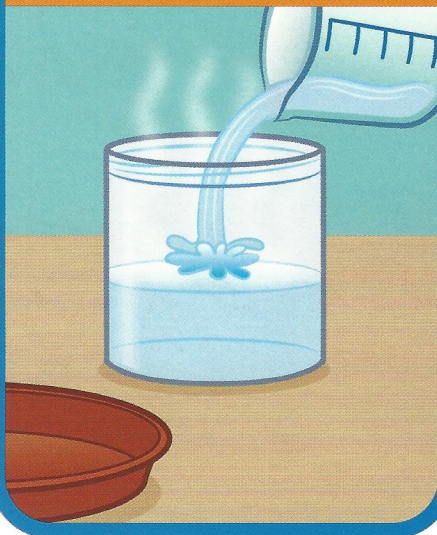


hot water  
(steaming but not boiling/scalding)

## Procedure

1

Pour hot water into the container so that it is about one-third full.

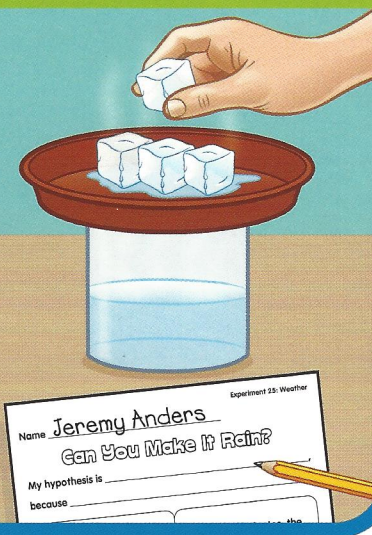


2

Cover the container with the dish.

After a few minutes, set ice cubes on top of the dish.

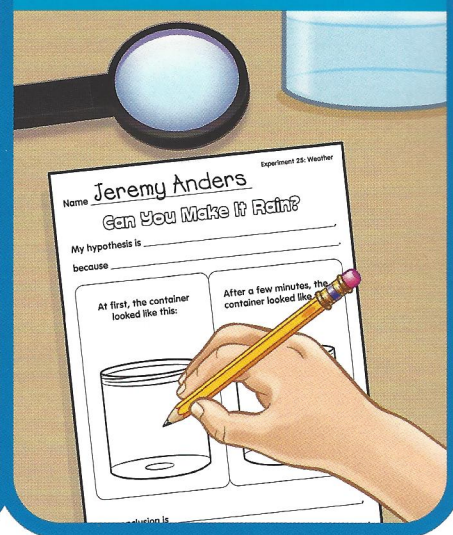
What will happen next?  
Write your hypothesis.



3

Observe what happens. Use a magnifier for a closer look.

Record your observations.  
Write your conclusion.



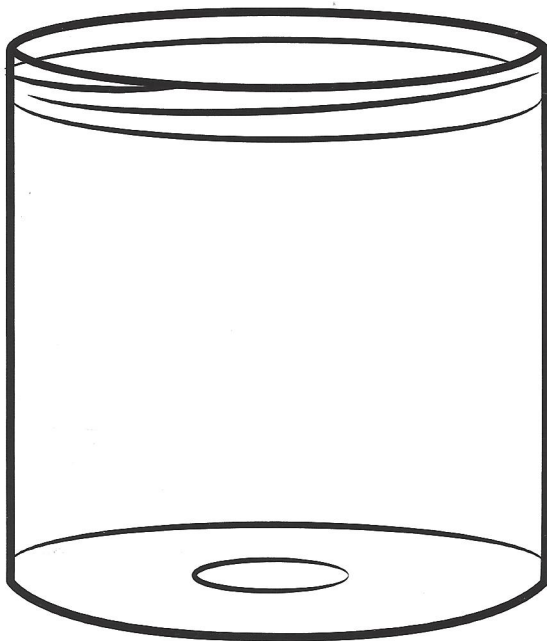
Name \_\_\_\_\_

# Can You Make It Rain?

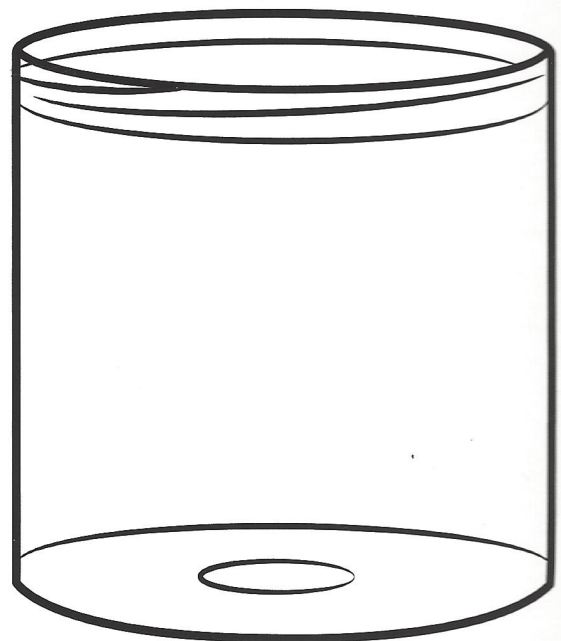
My hypothesis is \_\_\_\_\_,

because \_\_\_\_\_.

At first, the container  
looked like this:



After a few minutes, the  
container looked like this:



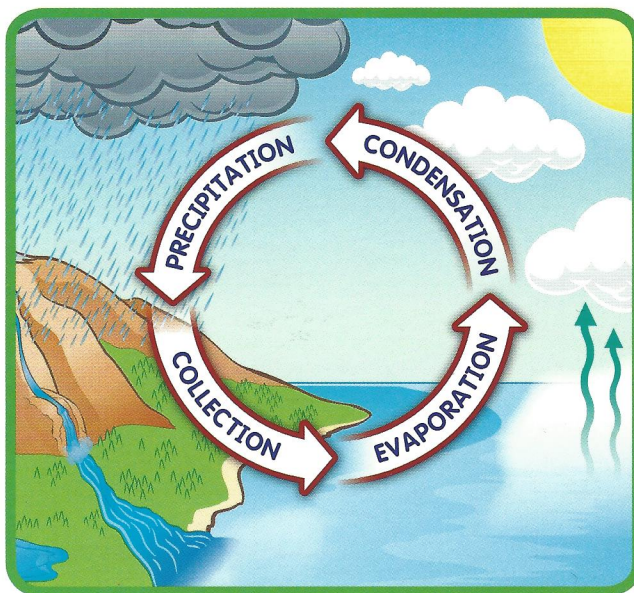
My conclusion is \_\_\_\_\_,

because \_\_\_\_\_.



## Why?

When the sun's energy heats water in lakes and oceans, the liquid water at the surface turns to vapor and rises into the air. Warm air can hold a lot of water vapor, but as the air rises, it cools, condensing the vapor into water droplets that can be seen as clouds in the sky. As more vapor condenses, the droplets get larger and heavier until they are too big to float in the air. Then they fall back to the ground as rain, hail, sleet, or snow.



## Discussion Prompts & Questions

- Why do we need to start with hot water in the container?
- What do the ice cubes do in our experiment?
- What is steam? Where does it come from?
- Where do you think the "raindrops" came from? How can you tell?



## Sentence Frames

- When I put the dish on the container, I noticed \_\_\_\_\_.
- The ice cubes felt very \_\_\_\_\_. I think they made the air in the container \_\_\_\_\_.
- I conclude that rain forms when \_\_\_\_\_.



## Try This!

If students suggest that the water drops inside the container came from the melting ice cubes, discuss how we might test this. One way would be to put food coloring in the water that is used to make the ice cubes (but not in the hot water in the container). Ask students, "If the raindrops inside the container come from the melting ice, what color will they be?" Then try the experiment and see what happens.