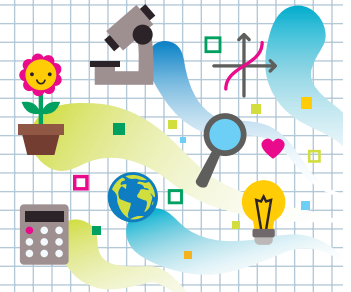




# HEADS IN, HEARTS IN

## Touch and Feel Cloud

### Instructions for Set-Up



**Warning:** Do not touch dry ice. It can cause severe burns. Use tongs.

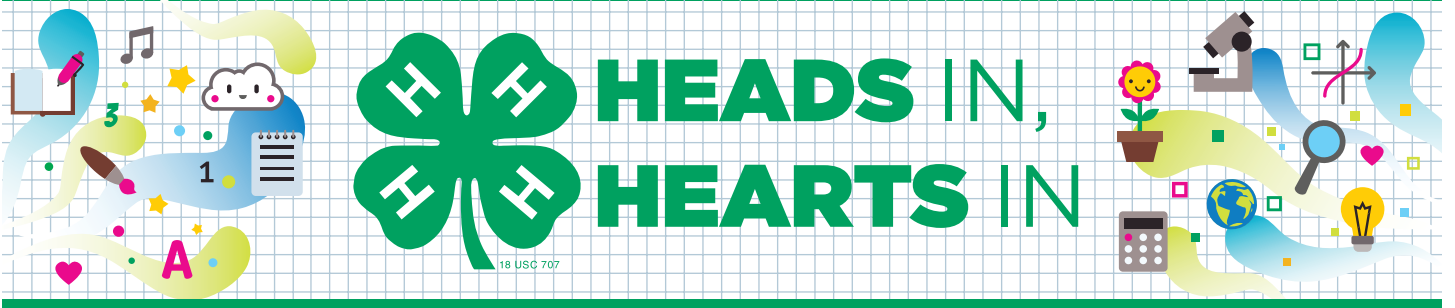
### Supplies

- “Guide for Families” handout
- 2 clear plastic standup displays (optional)
- 3–4 vases with small openings at the top
- Hammer
- Dry ice
- Tongs
- 3–4 bowls
- Water
- Dish soap
- Pipe cleaners (3 to 4)
- Towels to dry hands and clean up spills
- Safety glasses
- Warning sign
- Display table

### Activity Preparation

- ▶ Purchase or locate items on the supply list.
- ▶ Print one copy of the “Guide for Families” handout. Laminate or place in a clear plastic standup display to allow participants to see it more readily.
- ▶ Set out 3 to 4 vases. Using the hammer, break apart a few chunks of dry ice.
- ▶ Using the tongs, place a chunk of dry ice in each vase.
- ▶ Add warm water to the vase.
- ▶ Prepare 3 to 4 small bowls of soapy water.
- ▶ Set bowls of soapy water on the display table with one pipe cleaner per bowl.
- ▶ Place the rest of supplies on the display table.
- ▶ Put up the warning sign about dry ice in a clear plastic standup display, or use another method where it is clearly visible to participants.





# Touch and Feel Cloud

## Guide for Families

### Learning Objectives

#### What you need to know:

A **cloud** is made up of tiny droplets of water. When warm air rises, it expands and cools. Cool air can't hold as much water vapor as warm air. Some of the vapor condenses onto tiny pieces of dust that are floating in the air. It forms a tiny droplet around each dust particle. When billions of these droplets come together, they become a visible cloud.

**Dry ice** is frozen **carbon dioxide**. Instead of melting like regular ice, dry ice turns directly into carbon dioxide gas. Dry ice must be handled with care as it is 110 degrees below zero F (-78 degrees C). It must be handled using gloves or tongs, because it will cause severe burns if it comes in contact with your skin. When you drop a piece of dry ice in a vase of water, you will see a gas. This gas is a combination of carbon dioxide and water vapor – a model of a cloud of tiny water droplets.

#### What you will do and learn:

You will find out some of the basics of weather and how a cloud is formed. You will learn that chemicals, such as dry ice, should be handled with care.

### Instructions

1. Do not touch the dry ice in the vases. It can cause severe burns.
2. Put on the safety glasses.
3. Observe what is happening in the vases that contain dry ice and warm water.
4. Take a piece of pipe cleaner soaked in soapy water.
5. Lightly wring out the pipe cleaner to remove some of the excess water.
6. Gently slide the pipe cleaner over the rim of the vase to form a bubble cap.
7. Observe what happens when you capture the water vapor. You have just trapped a model of a cloud!
8. Touch the bubble and observe what happens.

**Warning:**  
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**the dry ice in**  
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**cause severe**  
**burns.**