Cloud in a Jar

Science Film Festival — Knowledge Through Entertainment

Science Film Festival Film

Messy Goes to OKIDO – Nimby Goes to the Cloud Club

Introduction

Three things are needed to make a cloud. First, you need warm moist air. Next, you need a cooling process. Lastly, you need a cloud condensation nucleus or something to start the cloud. An example of this could be a dust particle!

By pouring warm water into a jar and trapping it, you create the first step which is warm, moist air. This warm air rises and meets with the cool air at the top of the jar which is made by the ice cubes. The aerosol hairspray provides the cloud condensation nuclei. As the water vapor inside the jar cools down, it begins to form around the hairspray nuclei into many droplets. When you remove the lid, the swirling cloud is released!

Key Objectives

- To understand the basic principles and mechanisms of cloud formation.
- To understand the basic principles and mechanisms of rainfall.
- To understand that warm air rises and cold air sinks.

Materials

- Glass Jar with a Lid
- 1 cup Hot Boiling Water
- Blue Food Coloring (optional)
- Aerosol Hairspray
- 3-5 cubes of Ice

Safety Instructions

Be careful when using the hair spray that it doesn't get into anybody's eyes.

Beginner

Resource Type
Experiment

Topics
Cloud Formation | Weather System

Subjects
Earth Science

Keywords
Clouds | Weather | Rain | Atmosphere

Time For Activity
15 minutes

Guiding Questions

1. How does a cloud form?
2. How does rain occur?

Tasks/Steps

1. Pour 1 cup of hot boiling water into a glass jar. Helpful Tip: Use food coloring to dye the water blue before pouring it into the jar. This is not required, but does help distinguish the cloud from the water. Plus, it makes the water look like the sky.
2. Quickly spray hairspray into the jar.
3. Immediately put the lid onto the jar.

   Helpful Tip: This step must be performed quickly, so have the lid handy. It also helps to have multiple people doing the experiment. One to spray the hairspray and one to put on the lid.
4. Place 3–5 pieces of ice on top of the lid of the jar.
5. Watch the top of the jar carefully and you will see a cloud begin to form.
6. After observing the cloud in the jar, remove the lid and watch the cloud escape out of the jar.

Authors/Source

http://coolscienceexperimentshq.com/make-a-cloud-form-in-a-jar/