

Cloud in a Bottle



Materials:

- 1 clear, plastic 2-liter bottle
- 1 bike pump & inflating needle
- Rubbing alcohol
- Duct tape
- 1 pin or tack

Instructions:

1. Make sure the bottle is clean and dry. Be sure to remove any labels on the outside.
2. Lightly coat the inside with a small amount of rubbing alcohol. Rotate the bottle so it gets on as much of the bottle as possible. There should be very little, if any, remaining.
3. Put a small piece of duct tape over the opening of the bottle. Make sure the seal is tight.
4. Making the hole as small as possible, pierce the duct tape with the pin or tack.
5. Put the bike pump needle into the hole. Make the seal as tight as possible when you hold on. Careful not to tear the tape.
6. Start pumping air into the bottle. Pump enough in so that it begins to bulge out a little.
7. Then quickly remove the nozzle from the top of the bottle. The cloud should quickly appear inside!

Bonus: While the cloud is in the bottle, put the nozzle back on and add air into the bottle. What happens?



The Science

The evaporating rubbing alcohol simulates water vapor which is natively found in the air. Pumping additional air into the bottle simulates high pressure forcing the water vapor closer together. Once the pressure is released, the temperature of the surrounding air cools slightly allowing the water vapor to condense, forming the cloud inside the bottle. Did you try the bonus? When you pump pressure back in you create high pressure and the cloud vanishes.

Clouds in the sky form by air rising through the atmosphere. The air cools and expands as it rises and the water vapor eventually condenses out into a cloud once the temperature reaches the dew point.

Did you complete this experiment?

You could become a certified Weather Lab Assistant. Send us a photo or video of you and the completed experiment at kaaltv.com/weatherlab. The Weather Lab Assistant of the week is announced on **Wednesdays on ABC 6 News Good Morning!**

