

Look for the Silver Lining

Creating a Cloud in a Bottle*

For clouds to form, three key ingredients are needed—1) water, 2) dust particles, and 3) temperature or pressure changes.

Materials

- » Two-liter soda bottle
- » Water
- » Matches
- » Bicycle pump



Instructions

1. Add a small amount of warm water to the bottle. Replace the cap and shake up the bottle so the water drops stick to the inside of the bottle. Pour out the rest of the water so there is none sitting in the bottom. This provides the first ingredient of water.
2. Light a match and let it burn for a few seconds. Blow it out, immediately drop it in the bottle and replace the cap. The smoke from the match provides the key ingredient of dust!
3. Squeeze the bottle as hard as you can then release both hands evenly and quickly six or seven times (or more). This provides the last key ingredient of temperature and pressure changes.
4. After several squeezes, squeeze and hold for a few seconds. You should see a cloud appear when you release your hands. (Try placing in front of a dark background for easier viewing.)
5. For a more advanced version, you can use the bicycle pump to greatly increase the pressure inside the bottle and then quickly release it to create a cloud.

Results

Dust particles are necessary for the formation of clouds. Water vapor in the air collects on these particles and make the clouds we see in the sky and in our bottle. Also, when air pressure or temperature decreases it cannot hold as much water...so by increasing the pressure inside the bottle (by squeezing or pumping in air with the bike pump) and then letting the pressure drop, we can see a cloud.



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