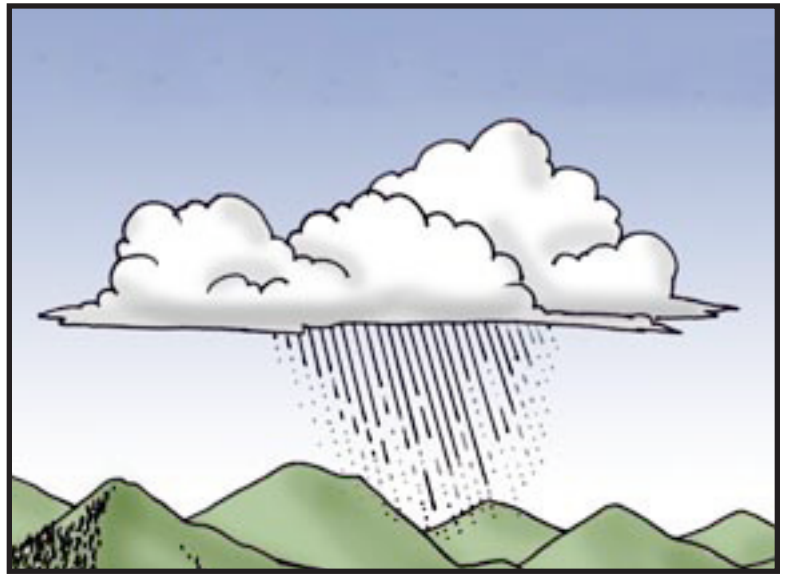


Making Clouds - Understanding Cloud Formation

Water comes in three forms – liquid (water), solid (ice) and gas (water vapor). How do clouds form? Every day, water on the Earth – in oceans, lakes and rivers – is heated by the sun and rises off the earth as water vapor by evaporation. This water vapor is cooled as it rises up into the atmosphere and turns back into water droplets – it condenses. It clings to small particles in the air – like dust or pollen. When water vapor condenses back to liquid up in the atmosphere it forms clouds. This is also helped by the lower pressure found up higher in the atmosphere.

You can see water condensation all around you on the Earth too. Just look at the glass of a cold drink on a hot day or dew-covered grass in the morning or your fogged up ski goggles. Condensation happens when warm water vapor meets cooler air and turns back to a liquid. This can be shown in an experiment. Let's try it.



Materials:

1. A clear, empty 2-liter soda bottle (no label) and its cap.
2. Warm water from the tap.
3. A match
4. Help from a grown up.

Procedures:

1. Add about 1 inch of very warm water out of tap into the bottle.
2. Lay the bottle on its side.
3. Squeeze the bottle gently – not enough to eject water.
4. As you squeeze, your grown up helper lights the match, lets it burn and blows it out near the opening of the bottle.
5. Release the bottle and it will draw the smoke from the match inside. This gives the water vapor something to condense around to form a cloud.
6. Screw the cap on and gently roll the bottle so the water coats all the sides.
7. Hold the bottle up to a bright window or lamp. Do you see the smoky cloud?
8. Now squeeze the bottle. This increases air pressure and the cloud disappears. Poof!
9. Release the pressure on the bottle and watch the cloud appear again. Wow!

Explanation: By releasing the pressure on the bottle you have lowered the air pressure, simulating low air pressure up in the atmosphere where clouds form.