

# Soda Can and Atmospheric Pressure

Demonstrate how pressure changes throughout the atmosphere by using an aluminum soda to represent the atmosphere.

## Difficulty / Time Commitment:

1 out of 10

## Coolness Factor:

7 out of 10

## Materials:

- empty 12 oz aluminum soda can
- sharp pencil, pen, or any sharp poking device
- water

## Instructions:

1. With a sharp device, poke three small vertically aligned holes into the soda can — one near the top, one in the middle, and another near the bottom.
2. Fill the soda can with water, covering the three holes with your fingers so the water doesn't escape.
3. Keep covering the holes with your fingers and move the soda can over something to catch the water.
4. Release all three fingers and watch the water shoot the furthest out of the bottom hole, and the least out of the top hole.

## What Happened?

The water shot the furthest out of the bottom hole because the pressure was greatest at the bottom of the can, just like pressure is highest at the bottom of the atmosphere at the ground. Water is a fluid just like air. We can visualize this effect with water since the cumulative weight of the water (or air) is greatest at the bottom of the can, where the pressure is highest, so the water shoots out the furthest at the bottom.

## **Basic Concepts Learned:**

- Pressure is higher at lower elevations. Thus, pressure decreases with height. The cumulative weight of the air (or water) leads to higher pressure at lower elevations. Pressure also varies horizontally at a set elevation, but this will be covered in future experiments.