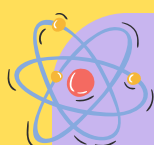




## CRUSHING CANS

Adapted from : [Frugal Fun for Boys and Girls](#)



### SUPPLIES

- Aluminum soda cans – I suggest at least 4 on hand
- A frying pan
- An electric or gas stove
- Water
- Tongs
- Two bowls
- Ice



1

Grab two empty soda cans. Put a small amount of water in each can. You just need enough to cover the bottom of the can (about a half inch of water). If you use a lot of water, it will take longer to boil, and the experiment won't be as impressive.

With an adult, set the cans in your frying pan, and heat over high heat until the water boils.

2

While the water is heating (it can take a while for it to come to a boil!), get two bowls of ice water ready. Use plenty of ice so that it's nice and cold. Once you see steam rising from the cans (or you can peak inside and see if the water is boiling), grab your tongs and quickly turn one of the cans upside down and place it into the ice water. It will INSTANTLY (and I mean instantly) collapse! Now grab the other can with the tongs. Place this one right-side-up in the ice water. This time... nothing happens! The can does not collapse!

### WHY DOES THIS WORK?

When you boil water in the soda cans, the water turns to steam. The steam fills the can and pushes most of the air out of the can. Remember that steam is not air! It is water in a gaseous state, and it takes up more space than liquid water. When you place the can upside-down in the ice water, the steam cools and rapidly turns back into water. The liquid water takes up much less space than the steam. Because the opening of the can is submerged in water, no air can rush in to fill the space. This means that the air outside the can exerts pressure on the can, and it collapses! However, the can that you placed right-side-up into the water had very different results. Because the opening of the can was not submerged, air was able to easily enter the can to take the place of the steam. The pressure from the air inside the can and outside the can remained equal, and the can did not collapse.