

DIY SCI: Inverted Balloon in a Bottle

What is it?

We typically see a balloon to be seen “blown” up upright, but have you ever seen a balloon to be blown up upside-down or inverted? In this experiment, prepare to be “blown” away with the awesome science behind the inverted balloon in a bottle.

What you need

- Glass bottle with a skinny neck or a flask
- Water
- Balloon
- Paper Towel, towel rag, or oven mitten
- Access to a microwave, pot, or water-boiler



How to make it:

Microwave/Pot method

1. Pour just enough water to cover the bottom surface of the water or a tablespoon of water into the glass.
2. Place the glass into a microwave and microwave for a minute. If you are using a pot, fill the pot with enough water to reach the middle of the glass. Place the glass inside the water so the water and wait till the water on the outside boils.
3. Using a paper towel, take out the glass from the microwave or pot.
4. Wait 45 seconds to 1 minute to put the balloon onto the lip of the bottle and make sure the balloon is standing upright.
5. Observe the expansion of the balloon!

What do you notice?

The balloon continues to expand inside of the bottle due to the varying air pressures inside the glass and outside. When the water inside the glass turned into water vapor, the vapor pushed out the air inside the bottle. When the water eventually cools down and the balloon has expanded inside the bottle, the water vapor therefore condenses which then ultimately creates a different air pressure inside the bottle. Since the air pressure outside the glass is higher, it therefore pushes air into the bottle and ultimately into the balloon making it expand invertedly. When the water continues cooling down and condensing back into its liquid form, more air will be pushed into the balloon making it expand!

<https://www.adabofgluewilldo.com/inverted-balloon-in-a-bottle/>

