

# Demo Guide: Air Pressure in a Bottle

*Make sure you have help from an adult, especially when handling hot water.*



## Materials:

- Bottle
- Balloon
- 2 containers
- Hot water
- Cold water

## Instructions:

- 1) Stretch the balloon over the top of the bottle.



- 2) Pour the cold water into one container. Pour the hot water into the other container.



**Adult help is needed when handling hot water.**

- 3) Hold the bottle in the hot water. See the balloon inflate.



- 4) Hold the bottle in cold water. See the balloon deflate.



## Tell me about air pressure:

*The hot water warms the air inside the bottle. The warmer air takes up more space as warmer gas molecules spread farther apart from other molecules. The same amount of warm air takes up more space. The cold water causes the air in the bottle to cool. Cold air condenses and air molecules are closer together, taking up less space. Cold air is denser as there's more air molecules if you compare the same amount of space. Air pressure is the measurement of density of air.*

## Try This!

Tie down your bottle with the balloon outside so it is secure and will not blow away. Look for changes in the balloon when the weather is changing.