

Egg in a Bottle Experiment

Egg Goes IN...



How does this work:

When the matches' burn, the air inside the bottle heats up and releases vapors or steam as a part of the combustion reaction. This causes the air inside the bottle to expand in turn forcing air out. There is a seal created between the egg and the top of the bottle, while the matches are quickly running out of oxygen and burn out. When the air cools in the bottle, the volume of air inside the bottle is depleted because of the condensation of the water vapor and the cooling of dry air. As the bottled air's volume drops, it exerts less pressure on the egg, meanwhile the pressure of the outside of the bottle hasn't changed. You will watch as the egg beginning to be sucked into the bottle due to the difference inside the bottle and outside the bottle of pressure. When the pressure difference is adequate enough it will deform the egg and overcome the resistance with the neck of the bottle.

Supplies:

Glass bottle with an opening at least half the eggs diameter

3 matches

An egg

EITHER a peeled, hard-boiled egg **OR** an egg that has been soaked in vinegar for 24 hours in order to soften the shell

A **RESPONSIBLE** adult

Safety goggles



Procedure:

Clean and dry bottle (Use only a bottle that didn't contain flammable chemicals)

Place bottle upright on flat counter

Light matches and place them in the bottle

Put egg onto the bottle opening, smaller end of egg touching bottle

Watch as the egg gets pulled into the bottle

Egg Goes in... Egg Comes Out!

Procedure:

There are 3 ways to remove the egg from the bottle:

Tip the bottle upside down; watching that the matches don't fall on your face

With the bottle above your head and your mouth about a half-inch from the mouth of the bottle, blow into the bottle

The egg will begin to slide out



OR

Fill a container; sink, bucket, etc., with warm water

Immerse the bottle that holds the egg into the container

Watch the pressure of the warming air in the bottle to push out the egg

OR

Pour an inch of water into the bottle

Crush a fizzing soda tablet (alka seltzer) for stomach aches

Place crushed tablet into the bottle

Turn the bottle upside down very quickly and the egg will slip out



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