EYEDROPPER CARTESIAN DIVER

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EYE DROPPER CARTESIAN DIVER

Is it mind control or just a clever science trick?
It's a classic science experiment using an eye-dropper, a soda bottle filled with water, and some great showmanship!

Materials
• A plastic soda bottle with a cap
• A glass eye-dropper
• Water

EXPERIMENT
1. Fill the plastic soda bottle to the VERY top with water.
2. Fill the glass eyedropper 1/4 full with water. You may need to experiment with the amount of water in the pipette to make it work.
3. Place the eyedropper into the soda bottle. The eyedropper should float and the water in the bottle should be overflowing. Seal the bottle with the cap.
4. Squeeze the sides of the bottle and notice how the eyedropper (called a diver) sinks. Release your squeeze and it floats back up to the top.
5. Squeeze again and observe the water level in the eyedropper (it goes up).
6. Practice making the diver go up and down without making it look like you're squeezing the bottle. Amaze your friends with your ability to make the eyedropper obey your commands!
This experiment is named after Rene Descartes (1596-1650), a French scientist and mathematician who used the diver to demonstrate gas laws and buoyancy.

HOW DOES IT WORK?
Squeezing the bottle causes the diver to sink because the increased pressure forces water up into the diver, compressing the air at the top of the eyedropper. This increases the mass, and density, of the diver causing it to sink. Releasing the squeeze decreases the pressure on the air at the top of the eyedropper, and the water is forced back out of the diver.
HERE IS WHAT YOU NEED

1 LITER BOTTLE WITH CAP
EYEDROPPER
WATER
1. Pour the water into the 1 liter bottle.

2. Fill the eyedropper with enough water so that it just barely floats in the water.
3
ADD THE EYEDROPPER AND FILL THE BOTTLE COMPLETELY WITH WATER
PUT THE CAP ON

SICK science
4
Squeeze the sides of the bottle and see what happens.

Why does the eyedropper sink when you squeeze the bottle?