

KIDS' ACTIVITY:

Make a Cartesian diver

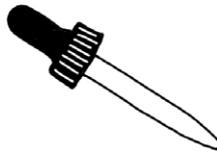
Trick your friends into thinking you're controlling an object with your mind—and learn some science at the same time!

What you'll need:

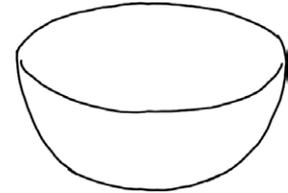
Two-liter bottle
(or smaller plastic bottle)



Plastic or glass eye dropper
(this is the "diver")



Bowl (for testing
"diver" buoyancy)

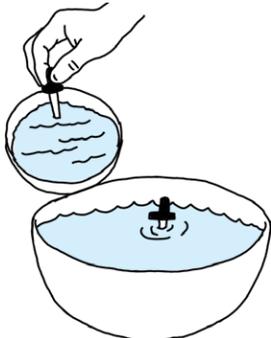


What to do:

1. Fill the empty bottle almost completely with water.



2. Partially fill the eye dropper with water by squeezing the bulb in a bowl of water. Fill until it just barely floats upright, at the surface but almost completely submerged.



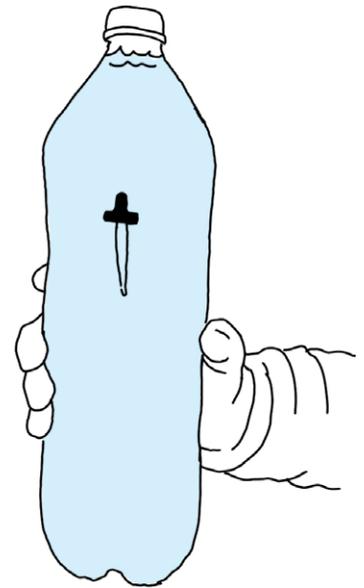
3. Place the dropper inside the bottle, fill bottle the rest of the way with water to very top, and put the lid on TIGHTLY.



4. Gather your friends and tell them you can make the dropper sink and rise using mind control.



5. Squeeze the bottle so gently that your friends can't see you do it (this may take some practice). Say, "Diver, I command you to sink!" and, as you squeeze, the diver will do just that. Say, "Diver, I command you to rise," then stop squeezing—and the diver will float to the top.



Why it works:

The diver sinks when you squeeze the bottle because the increased pressure forces water into the diver, compressing the air inside and increasing its density. Increasing the density of the air makes the diver less buoyant. The diver floats back to the top when you stop squeezing because when the pressure is decreased, the water comes back out of the diver and the air inside expands, resuming its previous lower density.