



# Diver in a Bottle

## Materials

Water bottle  
Eye dropper  
Marker (optional)

## Directions

1. Fill the water bottle completely full with water.
2. Use the eyedropper to suck up water until it is about one-third full.
3. Insert the eyedropper into the top of the water bottle. The top of the eyedropper should barely float above the water. If it floats too much, suck up more water. If it sinks, dump it out and try again.
4. Cap the water bottle tightly. Now, squeeze the sides of the bottle. What do you notice happens?
5. Stop squeezing and see what happens. Do this several times and notice what happens to the air bubble inside the eyedropper. Why do you think this is happening?
6. Now try to get the eyedropper diver to float in the middle of the bottle.

## What's Happening?

Squeezing the bottle causes the eyedropper diver to sink. This is because the increased pressure compresses the air at the top of the eye dropper. This increases the mass (and density) of the eyedropper diver—causing it to sink.

The eyedropper diver hovers in the middle without floating or sinking when it has equal density as the water around it. This is called neutral buoyancy. Neutral buoyancy requires different amounts of pressure at different depths.

Academy research divers must control their buoyancy while exploring coral reefs. How do you think the pressure would affect their buoyancy as they dive to deeper parts of the reef?

