



Making a Cartesian Diver

A Buoyancy Experiment

A Cartesian diver is a toy that moves up and down in water when the pressure around it changes.

Name: _____

Date: _____

Science Topic: _____

? Question

How does changing pressure affect the position of a Cartesian diver in water?

💡 Hypothesis

I think _____

because _____

📋 Materials

- 1 clear plastic bottle with a lid (16–20 oz / 500–600 mL)
- Water
- Eye dropper or small plastic dropper bottle (5–10 mL size)
- Modeling clay or tack
- Optional: food coloring (for visibility)

🧪 Procedure

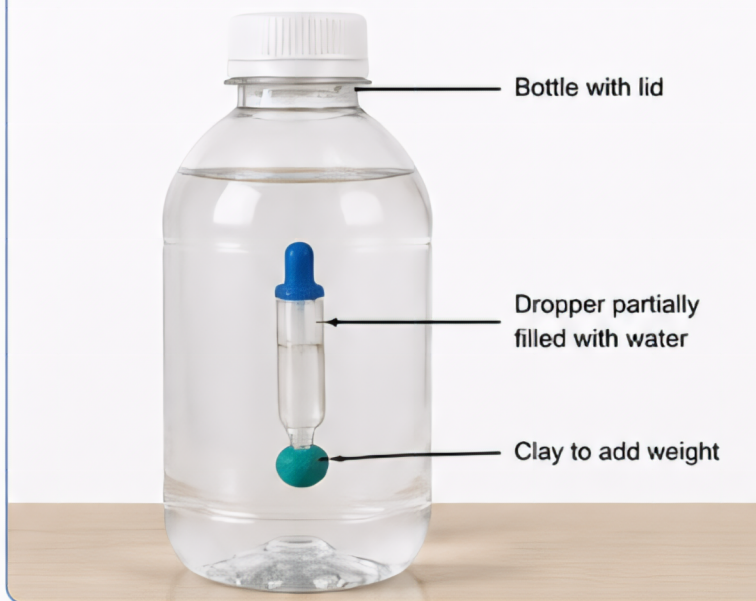
1. Fill the dropper about three-quarters full of water.
2. Add clay to the tip of the dropper.
Add enough so the dropper sinks in the bottle.
3. Put the lid on the bottle tightly.
4. Squeeze the sides of the bottle gently.
What happens?
5. Release the pressure. What happens?
6. Try squeezing harder. What do you notice?
7. Record your observations in the table below.

📊 Results

Action	What Happened	Why Do You Think It Happened?
Bottle at rest		
Squeeze gently		
Squeeze harder		
Release pressure		

What is a Cartesian Diver?

A small object that sinks or floats in water when the pressure around it is increased or decreased.



⚙️ Explanation

The diver moves because of changes in pressure. When you squeeze the bottle, the pressure on the water increases. This pressure squeezes the air in the dropper, making it take up less space. Water moves into the dropper, increasing its mass and density, so it sinks.

When you release the pressure, the air in the dropper expands, pushing water out. The diver becomes less dense than the surrounding water and floats.

This demonstrates the buoyant force of water: An object floats if it is less dense than water and sinks if it is more dense.

📝 Notes / Observations



SAFETY REMINDER: Do not drink the water used in this experiment.
Clean up water spills right away.