



## Curiosity Guide #305

### Buoyancy

Accompanies Curious Crew, Season 3, Episode 5 (#305)

#### Cartesian Divers

Investigation #5

#### Description

Play with buoyancy to find out what an eyedropper "diver" can do!

#### Materials

- 2-liter pop bottle
- An eye dropper, which will be your diver

#### Procedure

- 1) Completely fill the 2-liter bottle with water.
- 2) Leave the cap off.
- 3) Fill the eye dropper half full of water.
- 4) Place the eyedropper in the bottle of water. The goal is to for the top of the eyedropper to be at the surface of the water.
- 5) If the eyedropper sinks, remove it and squeeze out a small amount of water.
- 6) Place the eye dropper in the water again. Repeat until the eye dropper is in the correct position.
- 7) Screw the cap back on the bottle.
- 8) Firmly squeeze the bottle and watch the eyedropper.
- 9) What do you notice?

## My Results

### Explanation

Things sink when their density is greater than the density of the fluid the objects are pushing aside. Although gravity pulls down on every object, there is an opposite upward force, called buoyancy, in liquids and gases that pushes up on the objects.

At the beginning, the eyedropper diver was floating because there was a certain amount of air and water in the diver that was pushing down on the water. The amount of water pushed aside was denser than the diver itself, so the diver floated. As the bottle was squeezed, the action forced additional water into the eyedropper and compressed the air. Compressing the air increased the diver's overall density and caused the diver to sink.

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