

Bizarre Stuff

You Can Make in Your Kitchen

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Cartesian diver



A simple little project, but a classic nonetheless. Fill a large empty plastic soda bottle to the brim with water. A liter size clear soda bottle works best.

The diver is either a ball point pen cap, small vial or test tube, or the rubber bulb from an eyedropper. Weigh the open end using modeling clay, wire, or whatever you can get to work so that the diver just floats in the water (it needs to have a little bubble of air in the top). It should be just on the verge of sinking. Paper clips (two small ones) work well with plastic pen caps.

Make certain that the bottle is filled to almost overflowing and screw on the cap. When the bottle is squeezed, the diver should descend. You can alternately use a large, wide mouth glass jar with a piece of thin rubber sheet secured tightly over the mouth. It will also work with a bottle and cork, although this is more difficult to operate.

The reason this works is that as the bottle is squeezed, the water is forced into the diver, the only place it can go. The tiny bit of air in the diver is compressed, and the overall density of the diver increases, causing it to sink.

Paul Orselli, of the Long Island Children's Museum, adds this:

"A sealed plastic soy sauce packet works great as a "diver" and you can see the air bubble change size as the packet dives or rises!"
Thanks, Paul!

Peter Balch adds:

Break the heads off three or four wooden matches. The air bubbles trapped in the splintered wood make the match heads act as cartesian divers.

A glass bottle with a rubber screw-top makes the best container: screw and unscrew the top to alter the pressure. It's difficult to generate high pressure with modern PET bottles.
Thanks, Peter!



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