

CARTESIAN DIVER

Tsunamis can be generated by earthquakes or landslides hundreds of miles offshore. Scientists try to detect tsunamis before they make landfall by attaching sensitive pressure detectors to the sea floor. When a tsunami moves across the ocean, the sensors record a change in pressure and beam a signal to a warning center.

Experiment with water pressure using a Cartesian diver!

Materials:

- Glass of water
- Clear plastic 2-liter bottle with cap
- Medicine dropper

First, test your medicine dropper by putting it in the glass of water. Fill the dropper with enough water that it floats just below the surface.

Now, remove the label from the 2-liter bottle. Fill the bottle with water almost to the top, and transfer the medicine dropper from the glass to the bottle. Put the cap on the bottle, and squeeze! What happens? Can you guess why the dropper moves?

The Cartesian diver is a classic experiment that illustrates the principle of buoyancy. When you squeeze the bottle, you increase the pressure in the water. The air that is in the dropper is compressed, which makes the dropper less buoyant, so it sinks. When you release the bottle, the water pressure drops, the air expands, and the dropper becomes buoyant and rises.