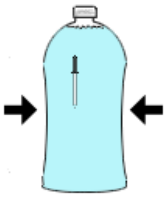
Cartesian Diver: What's going on?

This experiment demonstrates the property of buoyancy. An object is buoyant in water due to the amount of water it displaces or 'pushes aside'. If the weight of water that is displaced by an object in water exceeds the weight of the object then the object will float. As you apply pressure to the bottle, you apply pressure to the air bubble in the dropper reducing its size. As the bubble's size reduces, the dropper becomes less buoyant and begins to sink. Release the pressure on the bottle and the dropper begins to rise back to the top.



Fish keep themselves from either sinking or floating to the surface by using muscles to squeeze or relax a small sac (with a small air bubble inside) in their bodies. By squeezing the sac smaller, the fish will sink. By relaxing their muscles, the sac increases in size, displaces more water, and a fish will begin to rise to the surface. Man uses this same principle to control the buoyancy of a submarine. By pumping water in and out of tanks stored in the submarine, a submarine can be made to rise and sink.

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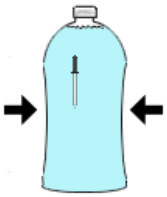

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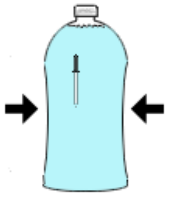

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