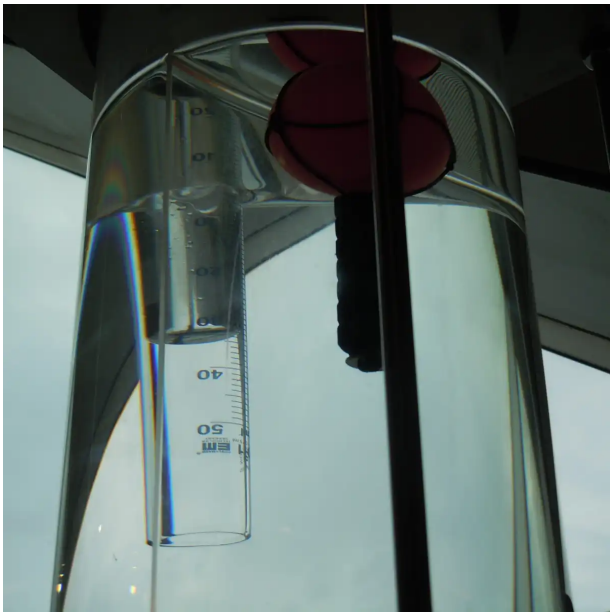
Cartesian Divers

Can you make the glas tube or the balloon with the screw nuts float in the center of the cylinder?



Use the lever to pump air into the large cylinder.

Press the red button to release the air again.

Watch the bubble in the glas tube.

How does its size change when you pump air into the cylinder – or release it again?

Can you also make the balloon with the screw nuts float in the center of the cylinder?

The glass tube is open at the bottom and air is trapped inside the tube. This makes the tube less dense than water and it swims. When you pump, the pressure in the cylinder increases, compressing the air inside the tube. The decrease in volume of air means the diver is now more dense than water, and so it sinks.

Something similar happens to the balloon. The increasing pressure compresses the balloon, so its density becomes higher than the density of the water and the balloon sinks.