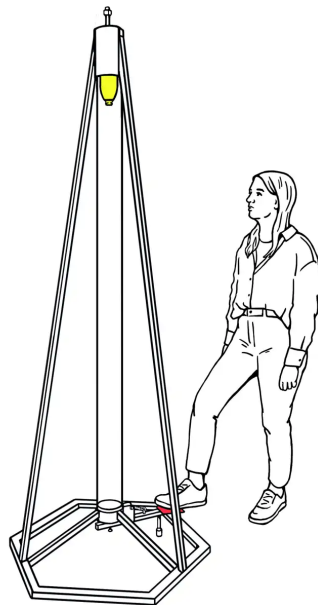


Cartesian diver

What happens in the tube when you press the pedal down with your foot?



Look at the bottle floating at the top of the tube.

Press the pedal down with your foot.

What happens when you release the pedal?

The bottle sinks when you press the pedal, and floats when you release it.

The bottle is open at the bottom and has an air space inside. Overall, the bottle is lighter than water, so it floats. When you press the pedal, you increase the pressure in the tube. This forces more water into the bottle, compressing the air inside. The bottle is now heavier than water, and so it sinks.

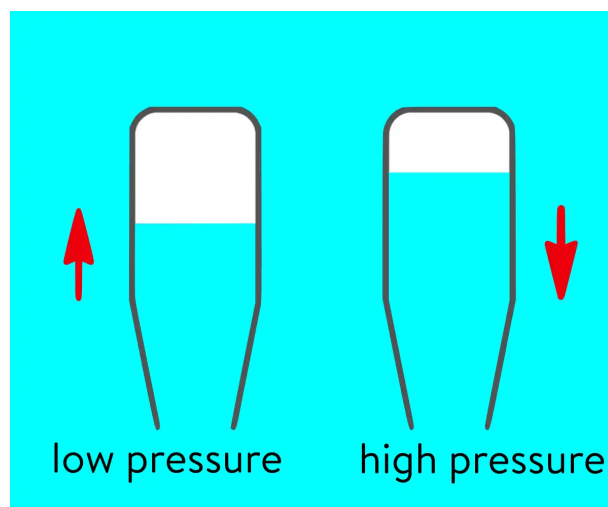


Fig. 1: Water-level change in the bottle due to a pressure change in the tube.