Cartesian Diver

Apparatus

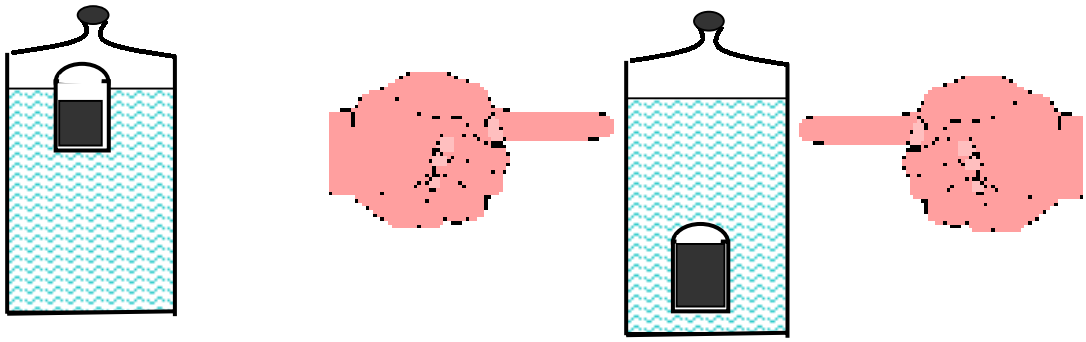
Plastic soft drink bottle filled with water.
Cartesian diver- for example upside down test tube partly filled with air, inside the bottle.

Action

The students squeeze the bottle, which makes the diver sink.

The Physics

When the bottle is squeezed the pressure is transmitted evenly and without loss to all parts of the fluid. Water is almost incompressible, but air is very compressible, hence the air bubble in the diver is compressed, changing his average density. The more you squeeze, the denser he becomes, and the faster he sinks. When you let go, he decompresses and rises again



Accompanying sheet

Cartesian Diver

Squeeze the bottle and see what happens to the diver.

Explain your observations.

Can you maintain the diver at a fixed depth?