SWIMMING - HOVERING – SINKING

MED 17.05

Material:

Item-no.	Qty.	Description
DM481-2C	1	Cylinder, flat bottom
C7320-8B	1	Stopper rubber, 50/60/45 mm, 1 hole
C6100-2G	1	Syringe plastics, 120 ml, for vacuum-experiments
DM480-2C	1	Cartesian diver 02
Alternatively:		
DM480-2E	1	Cartesian diver, simple

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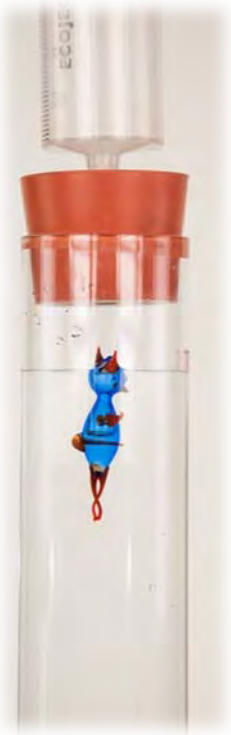
Purpose
Demonstrating swimming, hovering and sinking

Preparation
- the cylinder is filled with water up to 3 cm below the upper edge
- place the Cartesian diver in the cylinder
- the rubber stopper with hole is pressed firmly into the opening of the cylinder



Experiment
The syringe is pressed firmly into the hole of the rubber stopper. Push the the plunger carefully and slowly but firmly and observe the Cartesian diver.

Result
The Cartesian diver is constructed in such a way that he swims - so for now he is almost flat on the water surface.
If pressure is exerted on the water surface, it spreads evenly on all sides and thus presses water into the capillary opening of the diver figure. This increases the weight of the Cartesian diver and he begins to sink.

Once the pressure gets lowered again, the air bubble in the Cartesian diver gets bigger and water gets pushed out of through the capillary opening.

Due to the design the Cartesian diver makes a rotary movement when surfacing.

If the pressure is adequately leveled it can be achieved that the Cartesian diver is floating in the water.

Note
It should be noted that the Cartesian diver is initially completely hollow (unfilled). At the beginning of the experiment, the diver is only filled with water to almost 2/3 by increased pressure. This can be observed well if you look closely. Only then does the Cartesian diver stand vertically and begin to dive when the pressure increases further.

Alternative experiment
The Cartesian diver can also be placed in a full plastic bottle. This must be closed tightly. By squeezing them firmly, you can le the Cartesian diver sink or float.

Because compressing the bottle is not clearly visible, this variant of the experiment is not so clearly understandable for students.