MEASURING BUOYANCY

MED 17.02

Material:

Item-no.	Qty.	Description
DS090-3K	1	Claw base "Sepp", 260 x 220 mm
P7240-1G	1	Support rod, round, L=500 mm, D=10 mm
DS400-3K	1	Bosshead cross-pattern, Demo, green
C1010-1H	1	Beaker glass, 1000 ml, tall form, Borosilicate
DM360-5S	1	Ball, D=60 mm, Styrofoam
DE520-1N	1	Needle on plug pin
DE451-3A	1	Aluminum rod with plug, L=200 mm, D=6 mm
DM725-ND	1	Newtonmeter "inno" 20 N / 2000 g
P3120-5B	1	S-shaped assembly platform

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Purpose
Measuring the buoyancy of a test body whose density is lower than the density of water.

Preparation
- the 500 mm support rod is clamped into the claw base
- fix the bosshead cross-pattern on the top of the support rod
- insert the needle on plug pin into the aluminum rod
- put the Styrofoam ball on the needle
- place the Newtonmeter on the S-shaped assembly platform
- insert the plug of the aluminum rod into the opening of the weighing bar
- the weighing bar (hook points downwards) is clamped to the bosshead cross-pattern
- fill the beaker with water
- the ball is positioned above the water for now

Experiment 1
We turn in the Newtonmeter and select the measuring range „N“, afterwards we tare (set to 0).

We loosen the bosshead and lower the weighing bar slowly downwards. Once the ball is completely immersed in the water we read of the buoyancy.

Buoyancy ..... N

Experiment 2
We dip the ball deeper under water.

Is the buoyancy getting larger through this?

Buoyancy ..... N

Result
If the density of a body is less than the density of water, you need a force to push that body under water. This force does not change with the immersion depth.

Note:
To enable themselves to stay under water with as little strength as possible, divers use "additional weights" that they attach to the body with a belt.