BUOYANCY AND COUNTERFORCE

MED 17.03



Material:

Item-no.	Qty.	Description
DS090-3K	1	Claw base "Sepp", 260 x 220 mm
DS201-75	1	Support rod, round, L=750 mm, D=12 mm
DS095-3K	1	Bosshead cross-pattern, demo 03
C1580-1D	1	Measuring cylinder 250 ml, glass
DM140-2C	1	Bodies of equal mass, set of 4
DG100-1L	1	Vernier caliper, metal
DM125-4C	1	Digital balance 2000/0.1 g
DM725-ND	1	Newtonmeter "inno" 20 N / 2000 g
P3120-5B	1	S-shaped assembly platform
P7100-1A	1	Cord, roll, high tensile strength

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Purpose
Demonstrating that with the buoyancy an equal counterforce is acting



Preparation
- the 750 mm support rod is clamped into the claw base
- fix the bosshead cross-pattern on the top of the support rod
- place the Newtonmeter on the S-shaped assembly platform
- the weighing bar (hook points downwards) is clamped to the bosshead cross-pattern
- fill the measuring cylinder with water
- position the digital balance in front of the claw base
- place the measuring cylinder on the digital balance
- tie a cord with a length of about 20 cm and make loops on both sides





Experiment
Turn in the Newtonmeter and select the measuring range „N", afterwards tare (set to 0).
Hang the copper cylinder from the set of bodies of equal mass with the cord on the hook of the weighing bar.

Turn on the digital balance; if the value is not set to 0 do this now.

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Immerse the copper cylinder completely in the water by lowering the weighing bar through moving the bosshead down.





Compare the force of weight of the cylinder before and after immersing it in the water

Before: ..... N

After: ..... N

Difference: ..... N

Then we compare the difference in the mass which is displayed on the digital balance.

Difference in mass ..... g

We convert the mass into force and compare the two values.

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