

BUOYANCY OF BODIES OF DIFFERENT DENSITY

MED 17.04



Material:

Item-no.	Qty.	Description
DS101-1G	1	Support base, large, L=500 mm
DS093-04	1	Sliding saddle "Sepp", H=40 mm
DS300-50	1	Support rod, squared, L=500 mm, 12x12 mm
DS300-25	1	Support rod, squared, L=250 mm, 12x12 mm
DS400-3K	2	Bosshead cross-pattern, Demo, green
DM210-2K	1	Pulley on rod, ball bearing, D=100 mm
DM140-2C	1	Bodies of equal mass, set of 4
C1000-1K	1	Beaker glass, 2000 ml, low form, Boro
DG200-1S	1	Cord, white, D=1.7 mm, L=5 m

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Purpose

Determination of the density difference for bodies of equal mass due to the buoyancy.
The „heureka“ of Archimedes.

Preparation

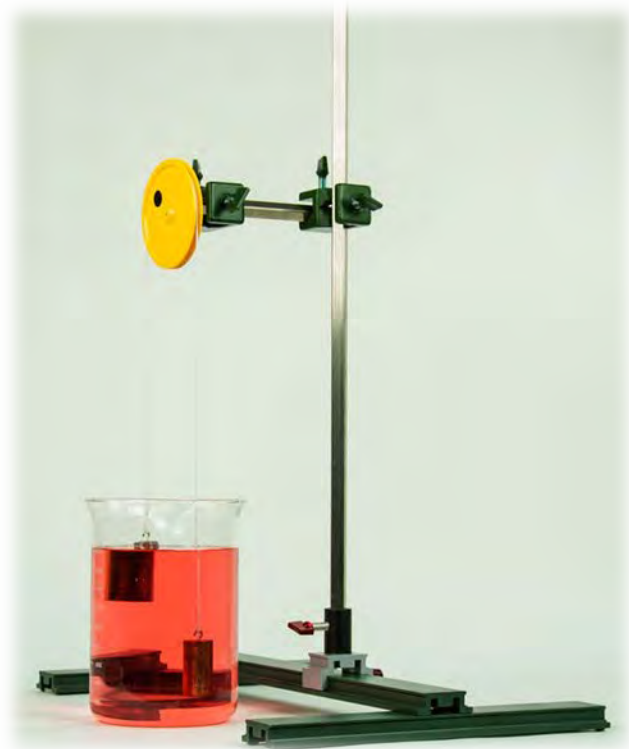
- place the sliding saddle in the centre of the support base
- the 500 mm support rod is clamped into the sliding saddle
- fix the bosshead cross-pattern on the support rod (in the height of 35 cm)
- the 250 mm support rod is mounted in the bosshead and another bosshead is fixed to the end of the support rod
- fix the pulley on rod to this bosshead
- tie a cord with a length of about 70 cm and make loops on both sides
- put the cord over the pulley and hang the two bodies on the loops
- fill the beaker with water and place it below the two bodies

Experiment

First the two bodies are in equilibrium.

Loosen the bosshead on the vertical rod and lower the pulley with the bodies attached slowly so that they start to immerse in the water.

What can be observed?



Result

If you immerse two bodies of equal mass but of different densities in the water, the body with the greater density sinks.

It displaces less water with a smaller volume, so the buoyancy is smaller.

Note

When Archimedes recognized this phenomenon in the bathtub, it is said that he called "heureka" (I found it).