



Title: Archimedes' Principle of Buoyancy

Aim:
We want to determine the density and weight of an object in the air, in water and in salt water.

Material:
Metal cylinder, Newton Meter or spring scale, graduated cylinder, salt, scales

Procedure:

1. First measure the mass of the metal cylinder.
2. Second weigh the object with the Newton Meter and record the result.
3. Then submerge it in water and weigh it again.
4. Determine the volume of the displaced water.
3. Finally repeat steps 1. & 2. in salt water.

Results: *(Be careful: express the result properly!)*

Mass = Volume =
 Weight in the air = Density =

	water	Salt water
Weight in (N)		
Buoyant Force = $W_{air} - W_{liquid}$		

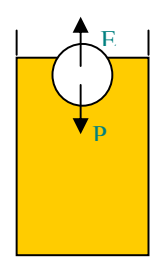
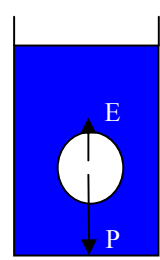
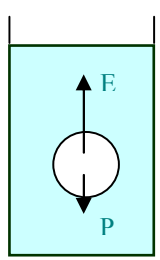


Conclusions:
 This experiment has shown that when we submerge an object in water,

 - An object weighs *more/less* in water than in the air.
 - Because salt water is *more/less* dense than pure water, it weighs *more/less* in salt water.
 - The density of the iron is: $d_{iron} = 7,89 \text{ g/mL}$. Is the object made of iron?

Questions:

1. Why is it easier to float in the sea than in a river or swimming pool?
2. Put the words in order: *is equal to / the liquid displaced / The buoyant force / the weight of*
3. Decide which one **floats, sinks** or **has neutral buoyancy**



Decide which object has **less / more / equal** density than the fluid's density.