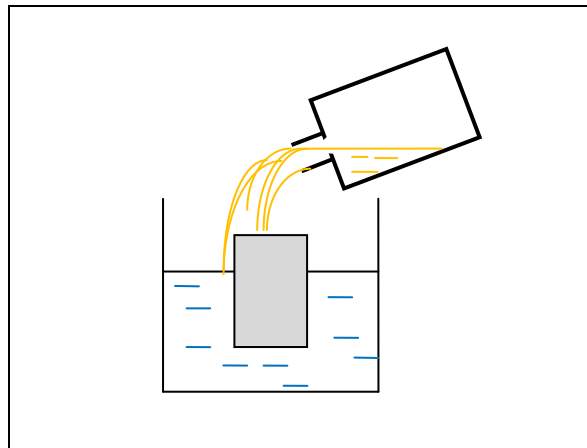


Published by the MUSE group (More Understanding with Simple Experiments) , Physics Education Division (PED) of the European Physical Society (EPS) <http://education.epsdivisions.org/muse/>

SHEET No. 1¹

Activity 1

1a. A cylindrical body (mean density ρ_s) floats on water (density ρ_w). Oil is poured on top of water. Note that $\rho_{oil} < \rho_s$, therefore the cylinder would sink in oil alone.



What will be the new equilibrium position of the cylinder?

- A. Same as before
- B. higher than before
- C. lower than before
- D. at the bottom
- E. more information is needed

Explain your reasoning.

.....

.....

.....

¹ The MUSE group (G. Planinsic, E. Sassi, L. Viennot) takes responsibility for the content of this paper (July 2011). The intellectual property remains with the authors.

1b. Describe and discuss possible students' difficulties with this problem.

.....
.....
.....

1c. Perform the experiment and discuss similarities and differences between the results and prediction.

1d. Predict what will happen if the cylinder is pushed down until covered by oil and released.

.....
.....

.....
.....

1c. Perform the experiment using wooden stick and discuss similarities and differences between the results and prediction.