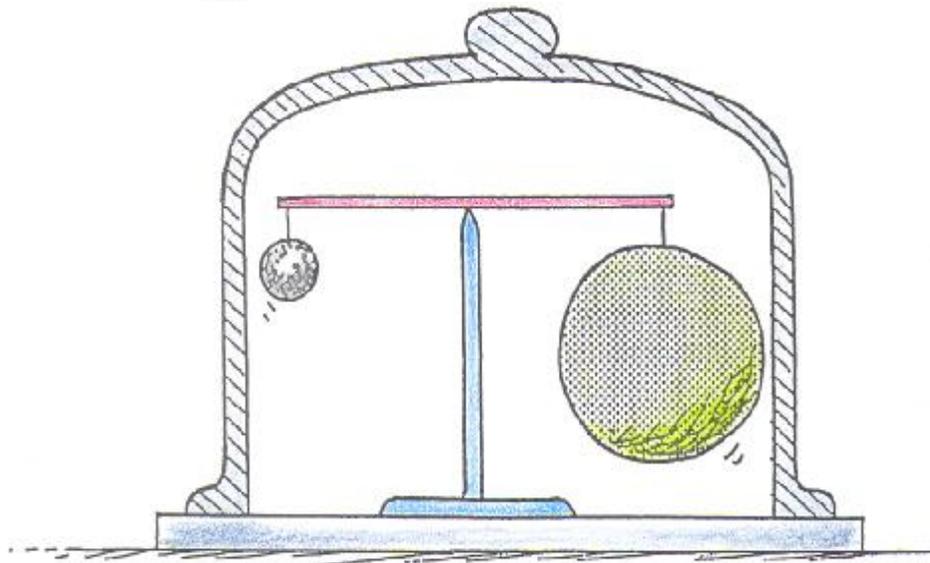


NEXT-TIME QUESTION

CONCEPTUAL Physics



In the presence of air, the small iron ball and large plastic ball balance each other. When air is evacuated from the container, the larger ball

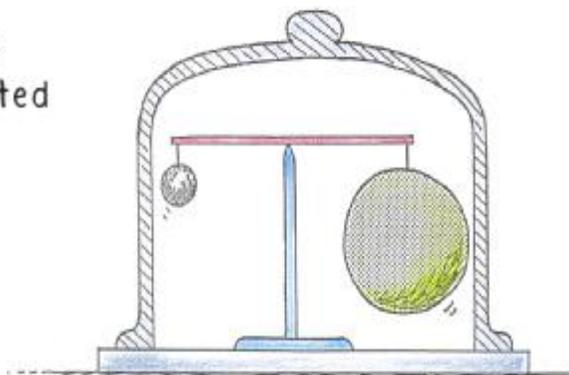
- a) rises.
- b) falls.
- c) remains in place.



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Answer: b, falls

Before evacuation, the forces acting on each ball are the gravitational force, the force exerted by the balance beam and the upward buoyant force exerted by the surrounding air. Evacuating the container removes the buoyant force on each ball. Since buoyant force equals the weight of air displaced, and the larger ball displaces the greater weight of air, the loss of buoyant force is greater for the larger ball, which falls.

In the presence of air, a larger object with its greater buoyant force must have a slightly greater weight to balance a smaller object with its correspondingly-smaller buoyant force.



Hewitt
Draw it!

