

Gravitation - Lesson 21

Experiment on Density



1. Cork and Nail of Same Mass

- (i) Take a beaker filled with water.
- (ii) Take a piece of cork and an iron nail of equal mass.
- (iii) Place them on the surface of the water.
- (iv) Observe what happens.

The cork floats while the nail sinks. This happens because of the difference in their densities. The density of cork is less than the density of water. This means that the upthrust of water on the cork is greater than the weight of the cork. So it floats (Figure). The density of an iron nail is more than the density of water. This means that the upthrust of water on the iron nail is less than the weight of the nail. So it sinks.

Note to Teacher

The experiment listed introduces density. The goal here is to understand that even if two objects have the same mass, the buoyant force experienced might be different and that determines whether the object will float or sink.