

CHAPTER 08

FLOATING BODIES

Introduction:

It is a common experience that when a body is thrown into water, it may either sink or float.

Why some objects sink? and some float?

As an example, let us consider two bodies of each 1Kg, one made of marble and other wood. If we throw them into water, marble sinks whereas wood floats.

Here, the wondering factor is that when both are of same mass, why one is floating and the other sinks?

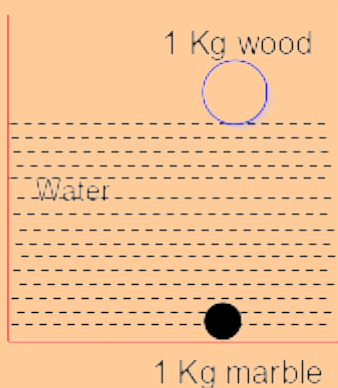


Figure 1

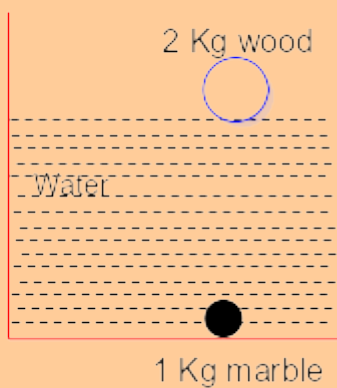


Figure 2

As shown in figure 2, even if mass of wood is greater than mass of marble still it floats. What might be the reason?

Because, marble is heavier than wood. Here, the meaning of 'heavy' is to be understood first.

If we take 2Kg of wood and 1Kg of iron in weighing balance, 2Kg wood weighs more.

But if you keep wood and iron blocks of same size in the balance, iron weighs more.

Because 'density' of iron is more than wood. From this we can conclude that when the bodies are put in a liquid, if the density is more than liquid, they sink. Similarly when the density of a body is less than the liquid, they float.

Density is defined as mass per unit volume.

$$\therefore \text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Units:

Kg/m³ – SI or MKS system

Gm/Cm³ – CGS system

$\therefore$ Denser object is heavy.

Less denser object is light.