

GIRLS' HIGH SCHOOL AND COLLEGE, PRAYAGRAJ

WORKSHEET – 1

SESSION 2020-2021

CLASS 8 (A, B, C, D & E)

SUBJECT – PHYSICS

Note:- Parents please ensure that the student takes the reference of the chapter from the links mentioned below.

Link – Spring Balance - <https://www.youtube.com/watch?v=bSg7M2NgKZA> Physical Balance - https://www.youtube.com/watch?v=A_3pr-xQets

CHAPTER 2 - PHYSICAL QUANTITIES AND MEASUREMENT

Read the passage given below and answer the following questions.

Density

The density of a body (or substance) is its mass per unit volume.

$$\text{Density } (\rho) = \frac{\text{Mass } (m)}{\text{Volume } (v)}$$

The CGS unit of density is g/cm^3 (gram per cubic centimeter or g/cm^3), while the SI unit of density is kg/m^3 .

$$1000 \text{ kg/m}^3 = 1 \text{ g/cm}^3$$

Therefore, to measure the density of any object, we must first know its mass and volume.

Measuring the Mass

Mass can be measured with a common balance, electronic weighing machine, spring balance or a physical balance.

Spring Balance – A spring balance has a steel spring inside its cover. A small pointer attached to the spring moves over a scale marked on the cover. As we suspend the weight from the hook at the lower end of the spring, it pulls down the spring and the pointer moves down along the scale.

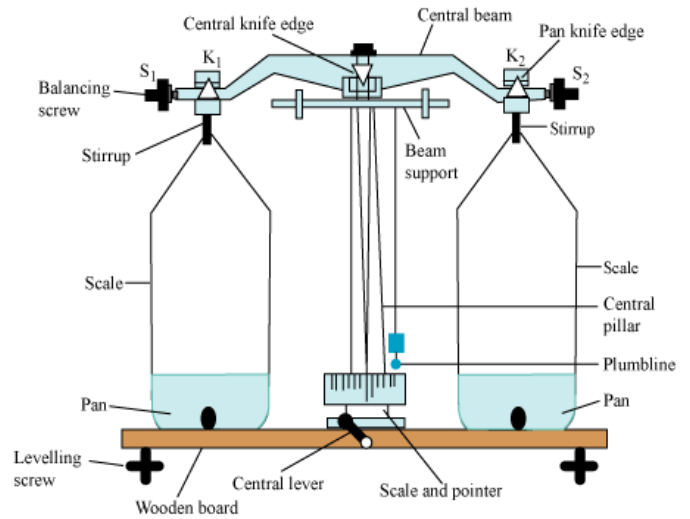
A spring balance thus measures the weight of the object. As the weight an object is proportional to its mass, the scale is graduated in such a way to give the mass of the object.

Spring balance measures the mass of the body in accordance with the distance through which the pointer moves.



Physical Balance

The physical balance can measure masses upto 1 kg with an accuracy of 10 mg. The two pans of the balance are suspended from the end of the horizontal beam, which rests on a knife edge (fulcrum). A long pointer attached to the beam moves over a scale fixed at the base of the central pillar. When the balance is not being used, the beam rests on supports fixed to the pillar. When it is to be used, the handle at the bottom is turned and the beam moves up from the supports to rest on the knife edge. The object to be weighed is placed on the left pan and suitable weights are placed on the right until the pointer swings equally on both sides, which shows that the pans are perfectly balanced.



The weight box, provided with the balance contains weights from 500 gm to 10 mg.

A – ANSWER IN DETAIL

Draw a labelled diagram of a physical balance and explain its working.

B – ANSWER THE FOLLOWING QUESTIONS IN SHORT

- Define density.
- Write the relationship between CGS unit and SI unit of density.
- Explain the working of a spring balance.
- A rock has a volume of 15 cm^3 and a mass of 45 g. What is its density?

C – FILL IN THE BLANKS

- The weight of a body is proportional to its
- The four instruments that can be used to measure mass are, and
- The greater the weight, the the spring is stretched in a spring balance.

----END----

