



STEPPING STONE  
SCHOOL (HIGH)

CLASS: 6

Subject: Physics

Date: 05/06/2020

Topic: Measurements (Approximations & Accuracy)

Time Limit: 30 min.

*Worksheet No. : 9*

*[Copy the questions following the notes and solve them on a sheet of paper date wise.  
Keep the worksheets ready in a file to be submitted on the opening day.]*

**Measurement by Estimation**

**Estimation or approximation is a quick judgment about the measurement of a particular quantity. Estimations are made using the senses of sight, touch, hearing, taste or smell. But they cannot be made all the time. An approximation of estimation is a reasonable guess about the measure of a physical quantity.**

**Accuracy in Measurement: - The accuracy of the measurement depends upon how expensive the material is and how well it fits in a particular situation.**

**Averages: - Average is a number that gives a general idea of the value of a group. In order to minimize error we take averages. The average of a group is calculated as:**

$$\text{Average} = \frac{\text{Sum of all observations}}{\text{Number of observations}}$$

**Example-**The record annual rainfall between 2004 and 2008 in a city was 90cm, 85cm, 87cm, 93cm, and 105cm. Find the average annual rainfall in this city.

**Solution**

The sum of recorded rainfall = 90cm + 85cm + 87cm + 93cm + 105cm = 460cm

Number of years = 5

$$\text{Average annual rainfall over this period} = \frac{460\text{cm}}{5} = 92\text{cm}$$

**Note:** In India “The department of Legal Metrology”, located in New Delhi is responsible for maintaining the accuracy of weighing and measuring instrument.

**Dishonesty in Measurements:** - While buying things we should take the following precautions-

- The beam balance should not be riveted or welded at the handle.
- The two arm of the balance should be equal.
- The pan should be equal in weight.
- Make sure that there must be lead in the hole of standard weight, and a proper stamp on the lead.
- Measuring capacity of measuring can be made less than the correct value by pushing up the bottom of the can by hammering or pouring some lead into the can.
- The scale used to measure cloth may be less than one meter. Make sure that the arrow mark and stamp of the legal metrology department are there on the scale.

**Questions**

**Q1.** What is an approximation?

**Q2.**When is approximations necessary in daily life and when should they be avoided?

**Q3.**We should measure everything accurately. Do you agree? Give reason.

**[Think & Answer ]**

**Q4. Write some precautions to be followed during measurement to stop dishonesty?**

**Q5. The record of temperature for a week of a city are  $33^{\circ}\text{C}$ ,  $37^{\circ}\text{C}$ ,  $35^{\circ}\text{C}$ ,  $38^{\circ}\text{C}$ ,  $40^{\circ}\text{C}$ ,  $36^{\circ}\text{C}$  &  $39^{\circ}\text{C}$ . Find the average temperature of this city for a week.**