

**National Institute of Open Schooling**  
**Secondary**  
**Lesson 1- Measurement in Science and Technology**  
**Worksheet -1**

1. Measurement is an essential activity in our daily life. Observe your surroundings and ask yourself why this is important. Justify your answer with reasons.
2. Measurement is a fundamental skill which is an essential part of our daily life activities without which we cannot do anything. Choose any five objects from your surroundings with different materials and different dimensions. Make a table using the above units.

Name of object	Length/breadth/height	weight	Area/Volume
Medicine box	15cm/5cm/4cm	50g	-/3000 cm <sup>3</sup>

3. Make any two questions for the following passage

We express the result of measurement of a physical quantity by its value. The number of times the value of a quantity is used for measurement, it is equal to the product of the number and the quantity defined for measurement. . The value of a physical quantity is made up of two parts, the numerical quantity and the unit, and it is equal to the product of both.

Value of physical quantity =numerical value \* unit

4. A unit is a measurement device, scale, with the help of which we measure a physical quantity. As stated in question 3, the value of a physical quantity consists of two parts, the numerical quantity and the unit, and it is equal to the product of both. Imagine that any unit can be used for any dimension? For example, can we measure distance in kilograms?
  - i. If yes, then justify the answer with reasons.
  - ii. If not, then justify the answer with reasons.
  - iii. Write the characteristic of the unit
5. The system of measuring and measuring devices has been there since ancient times. Various methods of measurement were adopted. Write the different methods of measurement used by our ancestors and explain how you found the above methods of measurement useful.
6. In the course of development of the units, many methods were adopted. The exercise to redefine the system of units led to the birth of the current system, the SI system. Comment

on why the need was felt to redefine different systems of units defined and used by different countries.

7. For measurement, each physical quantity has an SI unit assigned to it, for example "meter for distance". Units smaller and larger than the basic SI units can be converted to exponents of 10, for example  $10^{-2} \text{ m} = 1 \text{ centimeter}$  and  $10^3 \text{ m} = 1 \text{ kilometer}$ , etc. Explain why do we need different units for the same physical quantity?
8. Take any book from your bag and measure its dimensions with a suitable scale and calculate the volume of the book. After measuring, convert the units and its volume into three different units to be used to measure that quantity.
  
9. Presently we follow the interstitial method which is called as SI unit. The symbols of the units obtained from the names of the units are indicated by a special letter. Explain whether it is correct to write the units in the plural or to change the letter. For example, a unit of mass is gram which is denoted by "g", can we write it as "gm" or in plural case it can be written as "gs" or "gms"
  - i. If yes, then justify the answer with reasons.
  - ii. If not, then justify the answer with reasons.
  - iii. Explain how you have to follow the grammar of SI units when writing units.