

CBSE Notes

Chapter X

Motion and Measurement of Distance

Distance :

Distance is measurements of how far apart object of place are.

Measurement :

The fixed known quantity used to measure something is called a unit of measurement. Every measurement consists of two part a number and a unit.

Standard unit of measurement :

A standard unit is a standard or fixed measure of a physical quantity .

Need of standard unit :

- To measure quantities accurately .
- For sake of uniformity.

SI unit :

To avoid confusion and for the sake of uniformity scientists all over the world have accepted a set of standard unit of measurement . This system of unit is used known as the international unit of system (SI units).

Measuring the length :

The SI unit of length is meter , which is written symbolically (m).

For example : $1\text{km} = 1000\text{ meter (m)}$

Many different instruments can be used to measure a particular physical quantities .

For example : you can not measured waist with a ruler, you must used a measuring tap.

Correct measurement of length :

Using a ruler Correctly :

- **Placements of the ruler :**

Place the ruler along the length you wish to measure , as close to length as possible .

- **Position of the eye:**
Your eyes must be exactly above the point where you are making your measurements.

Measuring the length of curved line and edge :

- You can not measured curved line ,or edge by using ruler , but can easily measure by using thread .
- Place a thread with curved point or edge .
- Fixed pin vertically if we measure curved edge of cardboard design , and change direction of thread.
- Make knot at the end of the piece of thread , and fixed the pin at one end of the curved edge.
- And last you can measure this thread by a ruler .

Measuring the mass :

The weight of body is depends on its mass or the amount of matter it contains.

The SI unit of mass is kilograms (kg) .

Motion :

Motion is the phenomenon in which an object changes its position over time.

Types of motion :

- **Linear motion :**
When the body change Linear motion are two types.
 - 1) **Rectilinear motion:**
When body move in a straight line , its motion is called rectilinear motion.
 - 2) **Curvilinear motion :**
When you filing a ball from the roof of the house the fall follow a curve path , this is called curvilinear motion .
- **Rotational motion**
When a body move around the centre or axis passing through itself are called rotational motion.

Example : wheels , motor , spinning top etc.

- **Circular motion :**

When body move around a circular path , its motion are called circular motion.

Example : earth around the sun,

- **Oscillatory motion :**

The oscillation of a pendulum the movement of swing and the swinging of the bell are example. It is also said the repeated motion itself.

- **Periodic motion :**

Motion that repeats itself after some period of time is called periodic motion.

Anything that occur at fixed interval of time is called period

Example : the rotation of earth about its axis is repeated every 24 hours , so it is periodic motion.

Story of transportation ;

- **Walking :**

Transportation occur in older time by walking of human and animals , like horse , elephant , donkey etc.

- **Invention of wheel :**

Wheel was invented 3500BC ago. The first wheel was made up of wood , wheel were attached to cart and chariots , it is a major invention in transportation.

- **Transportation in water:**

Transportation in water occur by the boat made up of hollow logs , streamlined shape of boat , boat made up of different wood or Bamboo .

- **Steam engine was invented in beginning in 19th century .**

- **Modern technology transportation .**

Aeroplane , electric vehicles , sleeping bus etc.

