

Measurement of Length and Motion

Revision at Your Tips

Measurement and Standard Units

In old times, people measured length using body parts such as measuring cloth with the length of their arms and hand span, measuring fields by counting their strides (steps).

Body-based units (hand span, foot, finger, fist, etc.) differ from person to person.



Ancient units include angula (finger width), multiples of angula, dhanusa, yojana.

The system of units now used is known as the International System of Units or SI units.

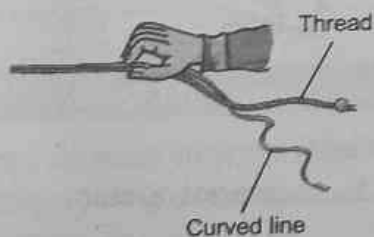
The unit of length is meter (m).

Units of length (kilometer, meter, centimeter, millimeter) and their symbols (km, m, cm, mm)

are written in lowercase, symbols are never capitalized or followed by a full stop (except at sentence end), and a space is always left between the number and the unit (e.g., 5 cm).

Measuring Length and Curved Line

Some scales have inches as markings where 1 inch = 2.54 cm



For measuring larger lengths, we use a larger unit called a kilometer (km) and for measuring smaller lengths, we use units such as centimeter and millimeter.

The zero mark is broken/unclear, start from

another full mark and subtract initial reading from final reading.

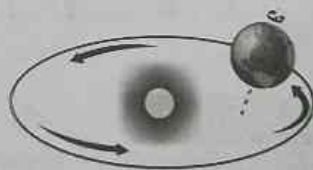
- Visually challenged students use scales with raised markings.
- The length of a curved line can be measured using a flexible tape or by placing a thread.

Describing Position

- When distance is stated with respect to a fixed object or point, then this point is called a reference point.
- Kilometer stones on the sides of the roads indicate distance from a reference point.
- An object is said to be in motion if its position changes with respect to the reference point with time. If an object is not changing its position with respect to the reference point with time, it is said to be at rest.

Motion and Its Types

- When an object moves along a straight line, its motion is called linear motion. For example, a car moving on a straight road.
- When an object moves along a circular path, its motion is called circular motion. For example, a merry-go-round in a park, revolution of Earth around the sun, etc.



Revolution of Earth around the Sun

- When an object moves to and fro about some fixed position, its motion is called oscillatory motion. For example, a simple pendulum swinging to and fro, a child on a swing.
- If an object repeats its path after a fixed interval of time, its motion is said to be periodic.