



CLASS:VI

SUBJECT: SCIENCE

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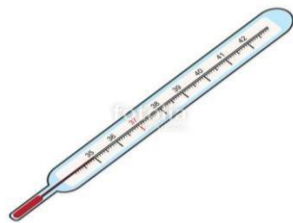
CH 8: Motion and measurement of distances

New words: 1. Circular motion 2. Distance 3. Measurement 4. Motion 5. Periodic motion 6. Rectilinear motion 7. SI units (International System of Units) 8. Units of measurements

Pre activity: Draw or stick picture of scale, thermometer, clock, Measuring tape.



Scale



Thermometer



clock



Measuring Tape

I. Fill in the blanks:

(i) One metre is 100 cm.

(ii) Five kilometres is 5000 m.

(Explanation: We know that $1 \text{ km} = 1000 \text{ m}$

$\therefore 5 \text{ km} = 1000 \times 5 = 5000 \text{ m}$)

(iii) Motion of a child on a swing is periodic oscillatory.

(iv) Motion of the needle of a sewing machine is periodic and rectilinear.

(v) Motion of wheel of a bicycle is circular and rectilinear.

Answer the following:

1. Why can a pace or a footstep not be used as a standard unit of length?

Ans: Because the size of pace or footstep of different people are different so the lengths measured by two different persons using their footsteps will not be the same. Due to this reason pace or a footstep cannot be used as a standard unit of length.

2. Arrange the following lengths in their increasing magnitude: 1 metre, 1 centimetre, 1 kilometre, 1 millimetre

Ans: $1 \text{ m} = 100 \text{ cm}$ $1 \text{ cm} = 10 \text{ mm}$ $\therefore 1 \text{ m} = 100 \times 10 = 1000 \text{ mm}$

Now, $1 \text{ km} = 1000 \text{ m}$ $\therefore 1 \text{ km} = (1000 \times 100) \text{ cm} = 100000 \text{ cm} = (100000 \times 10) \text{ mm} = 1000000 \text{ mm}$

So, arranging 1 metre, 1 centimetre, 1 kilometre, 1 millimetre in increasing order we have: $1 \text{ mm} < 10 \text{ mm} < 1000 \text{ mm} < 1000000 \text{ mm}$ Or $1 \text{ millimetre} < 1 \text{ centimetre} < 1 \text{ metre} < 1 \text{ kilometre}$

3. The height of a person is 1.65 m. Express this in cm and mm.

Ans: Height of the person = 1.65 m We know that 1 m = 100 cm \therefore 1.65 m = $100 \times 1.65 = 165$ cm
Again, 1 m = 100 cm = 1000 mm \therefore 1.65 m = $1.65 \times 1000 = 1650$ mm Thus height of person in cm = 165 cm And height of person in mm = 1650 mm

4. The distance between Radha's home and her school is 3250 m. Express this distance in km. Ans:
The distance between Radha's home and her school is 3250 m. We know that 1 km = 1000 m Or 1000 m = 1 km Or 1m = 1/1000 Km Thus, $3250 \text{ m} = (1/1000) \times 3250 = 3.25 \text{ Km}$ Therefore, distance between Radha's home and her school in km = 3.25 km

5. Give four examples of periodic motion.

Ans: Examples of periodic motion are: i. Motion of a pendulum ii. Motion of a swing iii. Motion of Earth round the Sun iii. Motion of a rocking chair

6. While measuring the length of a knitting needle, the reading of the scale at one end is 3 cm and at the other end is 33.1 cm. What is the length of the needle?

Ans: Length of the knitting needle is the difference between two readings. Thus, length of knitting needle = $33.1 - 3.0 = 30.1$ cm

7. Write the similarities and the differences between the motion of a bicycle and a ceiling fan that has been switched on.

Ans: Similarity between the motion of a bicycle and a ceiling fan is that both the wheels of bicycle and the fan are moving around a fixed point and possess circular motion. Differences between the motion of a bicycle and a ceiling fan is that a bicycle has linear motion as it moves forward, whereas ceiling fan does not possess the linear motion.

8. Why can you not use an elastic measuring tape to measure distance? What would be some of the problems you would meet in telling someone about a distance you measured with an elastic tape?

Ans: Elastic tapes are stretchable. So, the length of an elastic measuring tape will change each time due to stretching. So, it will not give correct measurement of a distance. Therefore, we cannot use an elastic measuring tape to measure distance. While measuring the distance with an elastic tape, we will get different values of the same distance each time.

9. Why should we have standard units of measurement? Explain giving an example.

Ans: We need standard units of measurement because the unit like handspan, foot, cubit differ from person to person or even different countries.

So, for a uniform measurement, standard unit of measurement is really required to:-

a. Avoid confusion.

b. To maintain accuracy and uniformity.

10. Express:

a. 1.5m as cm

Ans: We know that 1 m = 100cm

Therefore, $1.5 \text{ m} = 1.5 \times 100 = 150 \text{ cm}$

b. 2.4 Km as m

Ans: We know that 1 Km = 1000 m

Therefore, $2.4 \text{ Km} = 2.4 \times 1000 = 2400 \text{ m}$

11. Explain how will you decide whether an object is in motion or at rest.

Ans: An object is said to be at rest when it does not change its position with time. If an object changes its position with respect to time it is said to be in motion

Post Activity: Draw the web picture showing the types of motion and stick or draw picture for each.

