

DON BOSCO HIGH SCHOOL

LESSON 5 Measurements of Length and Motion

1. What is measurement?

Measurement is the process of finding the length, mass, time, or volume of an object using standard units.

2. Why do we need measurement?

We need measurement to compare objects accurately and to avoid confusion in daily life.

3. What is the SI unit of length?

The SI unit of length is the metre (m).

4. What are some commonly used units of length?

The commonly used units of length are millimetre (mm), centimetre (cm), metre (m), and kilometre (km).

5. How many millimetres are there in one centimetre?

There are 10 millimetres in one centimetre.

6. How many centimetres are there in one metre?

There are 100 centimetres in one metre.

7. How many metres are there in one kilometre?

There are 1000 metres in one kilometre.

8. Which unit is used to measure the thickness of a coin?

The thickness of a coin is measured in millimetres.

9. Which unit is used to measure the height of a person?

The height of a person is usually measured in centimetres or metres.

10. Which unit is used to measure the distance between two cities?

The distance between two cities is measured in kilometres.

11. Name some instruments used to measure length.

A ruler, metre scale, measuring tape, and measuring wheel are used to measure length.

12. What is a ruler used for?

A ruler is used to measure the length of small objects.

13. What is a measuring tape used for?

A measuring tape is used to measure the length of curved or long objects.

14. What is a metre scale used for?

A metre scale is used to measure objects up to one metre in length.

15. What precautions should be taken while measuring length?

The scale should be placed along the object, the zero mark should coincide with one end of the object, and the reading should be taken with the eye directly above the mark to avoid parallax error.

16. What is parallax error?

Parallax error is the error caused when the reading is taken from an angle instead of directly above the scale.

17. What should you do if the zero mark of a ruler is broken?

If the zero mark is broken, the measurement should begin from another clear mark and the initial reading should be subtracted from the final reading.

18. What is motion?

Motion is the change in the position of an object with time.

19. When is an object said to be at rest?

An object is said to be at rest when its position does not change with time.

20. When is an object said to be in motion?

An object is said to be in motion when its position changes with time.

21. What is rectilinear motion?

Rectilinear motion is the motion of an object along a straight line.

22. Give two examples of rectilinear motion.

A train moving on a straight track and a car moving on a straight road are examples of rectilinear motion.

23. What is circular motion?

Circular motion is the motion of an object along a circular path.

24. Give two examples of circular motion.

The blades of a fan and the hands of a clock show circular motion.

25. What is rotational motion?

Rotational motion is the motion in which an object rotates about its own axis.

26. Give two examples of rotational motion.

A spinning top and the Earth rotating on its axis are examples of rotational motion.

27. What is oscillatory motion?

Oscillatory motion is the repeated to-and-fro motion of an object about its mean position.

28. Give two examples of oscillatory motion.

A swinging pendulum and a child on a swing are examples of oscillatory motion.

29. What is periodic motion?

Periodic motion is the motion that repeats itself at equal intervals of time.

30. Give two examples of periodic motion.

The motion of the hands of a clock and the revolution of the Earth around the Sun are examples of periodic motion.

31. Can an object have more than one type of motion at the same time?

Yes, an object can have more than one type of motion at the same time.

32. Give an example of an object showing more than one type of motion.

A rolling wheel shows both rotational motion and rectilinear motion.

33. What is the difference between rest and motion?

An object at rest does not change its position with time, whereas an object in motion changes its position with time.

34. What is standard measurement?

Standard measurement is the use of fixed and accepted units to measure quantities accurately.

35. Why are standard units important?

Standard units are important because they ensure uniform and accurate measurements everywhere.

36. What were some non-standard units used in ancient times?

Handspan, cubit, footstep, and arm length were some non-standard units used in ancient times.

37. Why are non-standard units not reliable?

Non-standard units are not reliable because they vary from person to person.

38. What is the SI system of units?

The SI system is the internationally accepted system of standard units used for measurements.

39. What is the correct way to read a measuring scale?

The eye should be placed vertically above the mark while taking the reading.

40. Why is accurate measurement important?

Accurate measurement is important in science, construction, trade, engineering, and everyday life.

41. Which instrument is suitable for measuring the length of a playground?

A measuring tape or measuring wheel is suitable for measuring the length of a playground.

42. Which instrument is suitable for measuring the length of a pencil?

A ruler is suitable for measuring the length of a pencil.

43. What is the difference between a metre scale and a measuring tape?

A metre scale is rigid and used for straight objects, whereas a measuring tape is flexible and used for curved or long objects.

44. Is the motion of the Earth periodic?

Yes, the Earth's rotation and revolution are examples of periodic motion.

45. Is the motion of a ceiling fan circular or rotational?

The blades of a ceiling fan show circular motion, while the fan as a whole rotates about its axis, showing rotational motion.

46. Is the motion of a swing periodic?

Yes, the motion of a swing is both oscillatory and periodic.

47. What type of motion does a sewing machine needle show?

A sewing machine needle shows oscillatory motion.

48. What type of motion does the second hand of a clock show?

The second hand of a clock shows circular and periodic motion.

49. Why should the measuring scale be placed parallel to the object?

The measuring scale should be placed parallel to the object to obtain an accurate measurement.

50. Why is measurement important in science?

Measurement is important in science because it helps us make accurate observations, compare results, and perform experiments correctly.