|	**INDIAN SCHOOL AL WADI AL KABIR**	
Class: VI	DEPARTMENT: SCIENCE 2024-25	DATE: 21-08-2024
WORKSHEET NO: 4 WITH ANSWERS	TOPIC: MEASUREMENT OF LENGTH AND MOTION	NOTE: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

I. OBJECTIVE-TYPE QUESTIONS

1. Deepa wants to calculate the length of the caterpillar which she had collected for a science project. All she could find was a broken ruler. She lined up the ruler and the caterpillar like this:
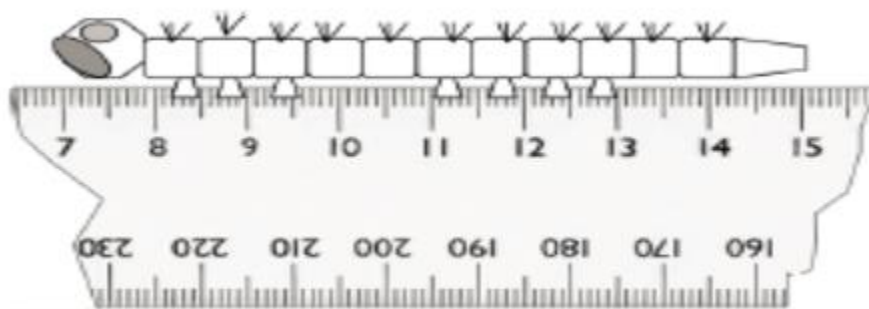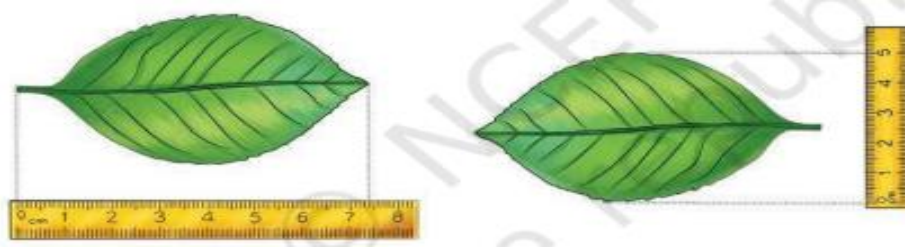

What is the length of the caterpillar?

a) 6 cm   b) 7 cm

c) 8cm   d) 14cm

2. Four pieces of wooden sticks A, B, C and D are placed along the length of 30 cm long scale as shown in Fig below. Which one of them is 3.4 cm in length?

a) A   b) B
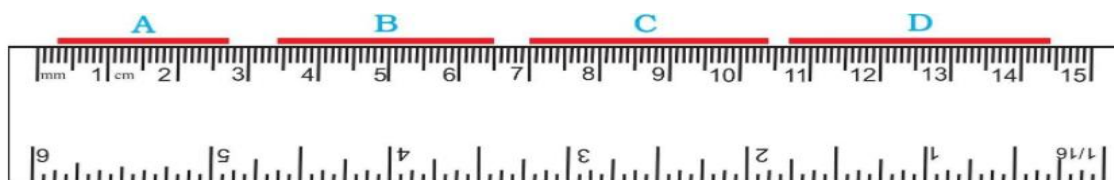
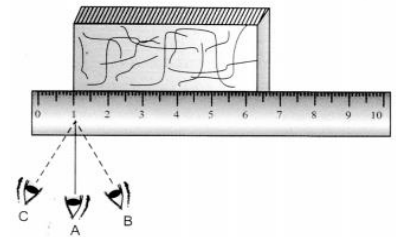**c) C**   d) D

3. Collect fallen leaves from the same tree. Measure the length and breadth of the leaves using a 15-cm scale, as shown in Fig. Record your observations:

a) **L-7.7 cm B-5 cm**   b) L-5 cm B- 4 cm

c) L- 6 cm B- 5.5 cm   d) L- 4.5 cm B- 2 cm.

4. In the following figure, the proper way of reading the scale is –

a) C   b) B

c) A   d) Both (a) and (c)

5. Four children measured the length of a table which was

about 2 m. Each of them used different ways to measure it.

(i) Sam measured it with a half-metre-long thread.

(ii) Gurmeet measured it with a 15 cm scale from her geometry box.

(iii) Reena measured it using her hand span.

(iv) Salim measured it using a 5 m-long measuring tape.

Which one of them would get the most accurate length?

a) i   b) ii

c) iii   **d) iv**

6. 15 cm is equal to _____

a) 1500 mm   **b) 150 mm**

c) 1.5 mm   d) 0.15 mm

For the following questions, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below
i) Both A and R are true and R is the correct explanation of the assertion.
ii) Both A and R are true but R is not the correct explanation of the assertion.
iii) A is true but R is false.
iv) A is false but R is true

7. **Assertion (A):** A branch of a tree moving to and fro and the motion of a child on a swing are examples of periodic motion.
    Reason (R): The motion which repeats itself after regular intervals is known as periodic motion.

    i) Both A and R are true and R is the correct explanation of the assertion.

8**. Assertion (A):** The International system of standard units is called the SI system.
    Reason (R): The SI unit of length is a kilometre.

    iii) A is true but R is false.

9. **Assertion (A):** The motion of the blades of the fan is an example of circular motion.

    Reason (R): When a body moves along a circular path, it is said to be in circular motion.

    i) Both A and R are true and R is the correct explanation of the assertion.

10**. Assertion (A):** The length of the space between two points is called distance.

    Reason (R): The distance between two places is usually expressed in cm.

    iii) A is true but R is false.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. Differentiate between a body at rest and in motion. **[Hint: Rest- An object that does not change its position with time, relative to its surroundings, is said to be at rest. Motion- An object that changes its position with time, relative to its surroundings, is said to be in motion.]**

2. Is it possible for a body to undergo both circular motion and periodic motion at the same time? Justify? **[Hint: Circular motion is when it is moving in a circular path. Periodic motion is when it repeats its path after an interval of time. So, when**

circular motion is repeated, it also becomes a periodic motion. e.g.: blades of a running fan.]

3. How can a measured length be expressed? **[Hint: Each measurement has – i) A number describing the numerical value. ii) The unit in which that quantity is measured.]**

4. Observe the pictures given below and write down the type of motion exhibited by each.
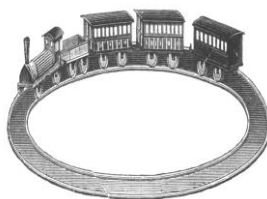
A	B	C

[Hint: A – linear motion, B – Circular motion, C – Oscillatory motion]

5. Define Handspan. **[Hint: The length between the tip of the thumb and the little finger of an open palm is known as 'handspan'.]**

6. How are the motions of a wheel of a moving bicycle and a mark on the blade of a moving electric fan different? Explain. **[Hint: The wheels of a moving bicycle depict circular as well as linear motion i.e., the wheels rotate and at the same time they cover a distance as well whereas the blade of a moving electric fan shows only circular motion.]**

7. Define linear motion with two examples.
   [Hint: When an object moves along a straight line, its motion is called linear motion. e.g.: a bus moving on a straight road, march past of soldiers during the parade.]

8. What do you mean by reference point? **[Hint: When distance is stated with respect to a fixed object or point, then this point is called a reference point.]**

III. SHORT ANSWER TYPE QUESTIONS: (3M)

1. A 30 cm scale has one end broken. The mark at the broken end is 2.6 cm. How would you use it to measure the length of your pencil? **[Hint: Put one end of the pencil at the nearest full mark say 3.0 cm in this case. Take the reading of the other end. Now subtract 3 from the previous reading and this will be the required length of pencil.]**
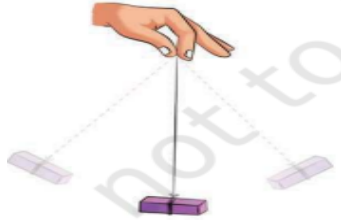
2. Rahul wants to measure his new study table but he found that a zero mark is missing in his scale. In such a case, how will he measure his table?

   [Hint: (a) Avoid taking measurements from the zero mark.

   (b) Use any other full mark of the scale.

   (c) Subtract the reading of this mark from the reading at the other end.]

3. Discuss and define Oscillatory motion with an activity.

   [Hint: Activity- Tie an eraser at one end of a thread. Hang the eraser by holding the other end of the thread. Keep your hand steady. Using the other hand, take the eraser slightly to one side and then release it to observe the oscillatory motion. Definition: When an object moves to and fro about some fixed position, its motion is called oscillatory motion.]

4. Identify the type of motion exhibited by each of the following-

1. A bus moving on a straight road	**- Linear motion**
2. Motion of a pendulum	**- Oscillatory/Periodic motion**
3. A stone tied to a string and whirled	**- Circular motion**
4. The plucked strings of a guitar	**-Oscillatory/ Periodic motion**

5. Convert the following :

   a) 43 km = _____m   b) 78 m = _____ cm   c) 159 cm = _____ mm

   [Hint: a) 1 km=1000 m, Thus 43 km = 43 x1000 = <u>43000 m.</u>

   b) 1m = 100 cm, Thus 78 m = 78 x 100 cm = <u>7800 cm</u>

   c) 1 cm = 10 mm, Thus 159 cm = 159 x 10 mm = <u>1590 mm</u>]

6. The distance between the two stations of the Mumbai metro is 6.28 km. Express this distance in i) metres ii) centimetres

   [Hint: 1 km=1000 m, Thus 6.28 km = 6.28 x1000 = 6280 m.

   1m = 100 cm, Thus, 6280 m = 6280 x 100 cm = 628000 cm]

IV. LONG ANSWER TYPE QUESTIONS. (5M)

1. While travelling in a train, it appears that the trees near the track are moving whereas co-passengers appear to be stationary. Explain the reason. **[Hint: When we see the trees from a moving train, their position is changing with respect to us. Hence, they appear to be moving. On the other hand, the position of co-passengers is not changing with respect to us, hence they appear to be stationary. Motion and rest are sometimes relatable.]**

2. Explain the thread method to measure a curved line.

   [Hint: Take a string and put a mark at one of its ends.
   Place the marked end of the thread at the beginning of the curved line.
   Press it down with your thumb and keep tracing the entire length of the curved line.
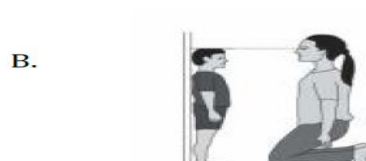   **The thread should be carefully and marked properly. Mark the endpoint.**
   Stretch the thread and measure its length between the two marks using a ruler.
   It gives the length of the curved line.]

V. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS

1. Jenny wants to measure the height of her son. She asks her son to stand against a wall.

a. Which picture shows the correct way of marking his height? **(B)**

b. The height of her son was measured to be 1.32m. Express it in cm and mm.

[Hint:1 m =100 cm, Thus 1.32 m = 132 cm.

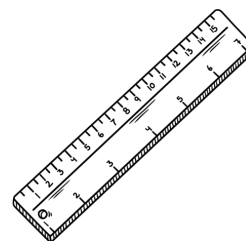**1 cm = 10 mm, thus 132 cm = 132 x 10 mm = 1320 mm]**

c. Which of the following can be used by Jenny to measure her son's height?

MEASURING TAPE   WEIGHING SCALE   RULER

[Hint- Measuring tape and ruler]

2. Deepa and her friends demonstrated a few activities in class in the presence of their teacher. The teacher asks them to take an eraser and drop it from a certain height to observe its motion. When an object moves along a straight line, its motion is called linear motion. To demonstrate circular motion students were asked to tie an eraser at one end of a thread. Hold the other end of the thread with your hand and whirl it to observe its motion. When an object moves along a circular path, its motion is called circular motion. When an object moves to and fro about some fixed position, its motion is called oscillatory motion they are demonstrated by tying an eraser at one end of a thread, hanging the eraser by holding the other end of the thread and release to observe oscillatory motion. They understood that an object is said to be in motion if its position changes with respect to the reference point with time.

Observe the picture given below and answer the following questions carefully.

a. Define circular motion with one example from the given picture. **[Hint: When an object moves along a circular path, its motion is called circular motion. e.g.: children's playing on a merry-go-round chair.]**

b. Define motion [Hint: **An object is said to be in motion if its position changes with respect to the reference point with time.]**

c. Mention the different types of motion from the above picture.
[Hint: (i)Linear motion. (ii) Circular motion/periodic motion. (iii) Oscillatory motion/periodic motion]

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