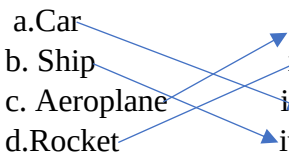
St. Andrews Scots Sr. Sec. School
9th Avenue, I.P. Extension, Patparganj, Delhi – 110092
Session: 2022-2023
Subject: Science
Class: VI **L-11:Motion and Measurement of Distances** **Topic: Ques/Ans**

Checkpoint-1 (Pg-120)

1.Name any five modes of transport.

Ans. train, aeroplane, car, bicycle and ship.

2.Match the correct answer.



3. Arrange these modes of transport, starting from the earliest to the most recent mode of transport.

Aeroplane, train, ox-cart, car, bicycle.

Ans. ox cart -> bicycle -> train -> car -> aeroplane.

4.Which of these inventions added most to the speed of the various modes of transport?

a. invention of the boat

b. invention of the steam engine. (✓)

c. invention of the flying machine.

Checkpoint-2 (Pg-124)

1.Find out the approximate distance of the places as instructed below. Compare and write which distances is greater in each option.

a.'Delhi and Agra' or 'Delhi and Mumbai'.

Ans. Delhi and Mumbai

b.'India and Sri Lanka' or 'India and the USA'

Ans. India and the USA.

c.'your house and school' or 'your house and the zoo'

Ans. Your house and the zoo.

2.Identify five body parts, which can be used to measure distances.

Ans. hand, arm, stretched arm, foot, footsteps.

3.Fill in the blanks.

The knowledge of the **distance** between two points of an object help us in determining the **size** of the object.

Checkpoint-3 (Pg- 127)

1.Identify the bigger unit of length among these.

a. a handspan and a footstep

Ans. A footstep

b. a metre and a millimetre

Ans. A metre

c. a millimetre and a centimetre

Ans. A centimetre

d. a kilometre and a centimetre

Ans. A kilometre.

2.When was the SI system of units adopted?

Ans. The SI system was adopted in 1971.

3.Write 1.5km in metres and centimetres.

Ans. 1.5 km = 1500 m = 1,50,000 cm

4.Which is the SI unit of length- centimetre, metre or kilometre?

Ans. metre

5.Fill in the blanks.

There are **seven** internationally accepted standard **units** used for different measurements.

Checkpoint-4(Pg-129)

1.Name two standard devices used for the measurement of length.

Ans. metre scale, inch tape, metre tape.

2.Select the correct answer.

A metre scale was kept along the length of a table. The readings on the metre scale at the two ends of the table are 13.6cm and 84.9cm. The length of the table is.

a.50cm b. 68.6cm c. 71.3cm d. 75.3cm

Ans. Length of the table = (84.9 – 13.6) cm = 71.3 cm

3.A scale has 10 line- marks, each at a gap of 1cm. Between two consecutive lines, there are 9 equispace lines. What are the minimum and maximum distances that can be measured using this scale?

Ans. 1 cm is divided into 10 equal parts, so each smallest division is equal to 0.1 cm. Thus, the minimum distance that can be measured by this scale = 0.1 cm.

4.Guess the correct answers.

a. Length of a tube light- less than 1 metre or more than 1 metre.

Ans. more than 1 metre

b. Distance between wickets on a cricket pitch- about 10m or about 100m.

Ans. about 10 m

c. **Height of the roof of your classroom- more than 5 metres or less than 5 metres**.

Ans. less than 5 metres

d. Length of your hand span- around 12cm or around 20cm.

Ans. around 12 cm

Checkpoint-5(Pg-130)

1.Identify two objects at rest and two objects in motion in your classroom.

Ans. Objects at rest: blackboard, chairs

Objects in motion: fan, teacher, students.

2.Classify these objects in groups of stationary objects, objects in motion and objects in continuous motion.

a. tree - stationary object
b. Earth- object in continuous motion
c. Falling rain drop- object in motion
d. Heartbeat- object in continuous motion
e. Stone rolling down a slope- object in motion
f. second needle of a clock - object in continuous motion
g. a car passing over a bridge- object in motion
h. your school building - stationary object.

Checkpoint-6 (Pg- 134)

1. Say whether these statements are True or False.

a.A motion in which each part of a body or an object moves an equal distance at the same time is called an oscillatory motion. **False**

b. Translational motion in a straight line is called rectilinear motion. **True**

c. The motion of a potter's wheel is vibratory motion. **False**

d. The movement of a swing is a periodic motion. **True**

e. All translatory motions are periodic motions. **False**

2. Give two examples of a combination of translatory and rotational motion.

Ans. The motion of the wheel of the vehicle moving from one place to another.

3.Complete these sentences.

a. A fan exhibits **circular** motion when switched on.
b. A swing has **oscillatory** motion.
c. An escalator has **translatory** motion.

Exercises Pg- 135

1.Which of these cannot be used as a unit of length measurement?

a. Thread b. Fist c. Foot **d. Stones (✓)**

2. What is a distance of 2.5 metres not equal to ?

a. 250m b. 2500mm **c. 0.025km(✓)** d. 0.0025km

3. Identify the object in motion among these.

a. Bulb fixer in a holder b. Ceiling fan in switched off state **c. Seconds needle of clock(✓)**
d. Road

4. Heartbeat is a _____ motion.

a. position **b. time interval(✓)** c. distance d. height

B. Very short answer questions.

1. What is the SI unit to measure distances?

Ans. Metre

2. Name the modern and fastest mode of transport.

Ans. Rocket

3. Express 3.46m length in millimetres unit.

Ans. 3.46 m = 346 cm = 3460 mm

4.A scale has 10 divisions between two consecutive centimetre markings. What is the minimum distance that can be measured using this scale ?
Ans. 1 mm
5.What are stationary objects?
Ans. Objects with fixed positions on the Earth are called stationary objects.

C. Short answer questions.
1. What is the need to know the distances? Give three reasons.
Ans. It is necessary to know the distances between various objects or places. The reasons for this are as follows.
a. It helps us in determining the mode of transport we should use to go from one place to another.
b. It helps us in determining the time taken to travel between two places.
c. It helps us in determining the size of various objects around us by measuring their lengths and breadths.
2.Give three examples where knowledge of distance is necessary.
Ans. The knowledge of distance is necessary on many occasions. Examples are as follows.
a. We need to know the length and breadth of a room to make a bed of an appropriate size which will fit into it.
b. We need to know the length and width of doors or windows
c. to determine the length of cloth required to make curtains for them.
3. Give a list of quantities that need to be measured in everyday life.
Ans. The quantities that need to be measured in everyday life include the following.
i)Length ii)Mass iii) Time iv) Temperature
4.Why cannot hand span be used as a standard unit of length measurement?
Ans. Hand span is the length between the tip of the thumb and the tip of the little finger of the outstretched palm. An adult's palm is bigger than a small child's palm. For example, the length of a table may be equal to 15 hand spans of an adult but 20 hand spans of a small child. This means the measurement using hand span is not fixed and varies from person to person. That is why hand span cannot be used as a standard unit of length measurement.
5.Why is a standard unit of measurement of length required?
Ans. Measurements of length using hand span, arm's length, footsteps, stick and thread string are crude methods of measurement and give inconsistent results. It is because with different people, these things will be of different size. To overcome such inconsistency, we must use some standard objects to measure the length of objects at different places.
6.What is measurement? What is the need for correct measurements?
Ans. To measure something means to find the size, weight, temperature, amount or speed of something. The process of measuring something is known as measurement. Knowing the correct measurement is necessary in various situations such as those given below.
a. For getting our clothes stitched by a tailor, we need to give him or her the correct measurements of our body parts.
b. For boarding a bus or a train, we need to measure time correctly.

7. While measuring the length of a cardboard box, the reading of the scale at one end is 5.6cm and at the other end it is 57.2cm. What is the length of the box?

Ans. The length of the box can be calculated as follows.

• Reading of the scale at one end = 5.6 cm

• Reading of the scale at the other end = 57.2 cm

• Therefore, length of the box = 57.2 cm – 5.6 cm = 51.6 cm

8. Distinguish between rectilinear and curvilinear motion.

Ans.

Rectilinear Motion	**Curvilinear Motion**
1. The motion of a body undergoing translational motion in a straight line is called rectilinear motion	1. The motion of a body undergoing translational motion along a curved path is called curvilinear motion.
2. Examples- The movement of trains on straight tracks	2. The movement of vehicles along a zigzag path.

9. How is the motion of a moving wheel of a bicycle different from that of a moving fan?

Ans. A moving wheel of a bicycle has both translational and rotational motion. On the other hand, a moving fan has only rotational motion.

10. All oscillatory motions are periodic motions. Explain.

Ans. An object which repeats its motion after a fixed interval of time is said to exhibit periodic motion. In oscillatory motion, the oscillating body completes one oscillation in a fixed interval of time. The time taken by the body for one complete oscillation is referred to as the period of oscillation. Thus, the oscillations are repeated after a fixed interval of time. This is why all oscillatory motions are periodic motions.

D. Long answer questions.

1. Write the history of the development of modes of transport.

Ans. In earlier times, people travelled on foot from one place to another. With time, people domesticated animals and used them to carry loads. They used animals like cows, donkeys, horses, oxen, bulls, buffaloes and elephants.

Thereafter, the invention of the wheel took place. According to historical records, the oldest wooden wheel was made in Mesopotamia around 3500 BC by the Sumerians. Gradually, people crafted carts which were fitted with wheel and animals were made to pull them.

Today, we use wheels made of rubber. In the 19th century, the invention of the steam engine revolutionised transport. In place of animals, engines running on steam produced by burning coal were made to pull the bogies fitted with rubber-tyre wheels.

In 1903, Orville and Wilbur Wright invented a flying machine. Later, this invention was developed into aeroplanes for mass transportation.

Further technological developments led us to superfast trains, metro trains, monorails, supersonic aeroplanes, spacecraft, rockets, etc.

2.Describe a correct method of measuring the length and width of a playground using a measuring tape.

Ans. The method for measuring the length and breadth of a playground using a measuring tape is as follows.

a. Take a yarn of cotton or wool.

b. Ask your friend to hold one end of the yarn and stand at one corner of the field.

c. Ask another friend to unroll the yarn from your first friend and move to the next corner of the field, making sure thread is not loose.

d. Then, take the thread and make markings on it using a pen. Make the markings on the thread in multiples of metre by keeping it against a measuring tape.

e. Then, calculate the total number of metres covered by the thread. It will give you the length of the field.

f. Then, follow the same steps as above to measure the width of the field.

3. Can we use an elastic tape for accurate measurement of distances? List some of the difficulties you might face in using such a measuring tape.

Ans. No, an elastic measuring tape cannot be used for accurate measurement of distances. An elastic measuring tape has no fixed length. When it is stretched, its length increases. Thus, when it is placed against an object whose length is to be measured, it will give a wrong reading even if it is stretched slightly. Therefore, it might give different results each time the measurement is taken.

4.Describe a method to measure the diameter of a football.

Ans. For measuring the diameter of a football, keep a football between two wooden blocks or two bricks. Make sure that the arrangement is not very tight. Then, using a metre scale, measure the distance between the inner edges of the blocks. This length is the diameter of the football.

5.Describe various types of motions with examples.

Ans. The various types of motions are described below:-

a. Translatory motion: A motion in which every part of a body or an object moves in the same direction by an equal distance at the same time is called a translatory or translational motion. Eg: A ball falling from the top.

i. Rectilinear motion: The motion of a body undergoing translational motion in a straight line is called rectilinear motion. Eg: The movement of trains on straight rail tracks.

ii. Curvilinear motion: The motion of a body undergoing translational motion along a curved path is called curvilinear motion. Eg: The movement of vehicles along a zigzag path.

b. Rotatory motion: A motion in which different parts of an object move around a central fixed point or axis, in a circular path but the body as a whole does not move from one place to another, is called a rotatory motion. Eg: The movement of a CD in a CD player.

c. Oscillatory motion: A kind of motion in which a body moves back and forth about its mean position is called an oscillatory motion. Eg: The movement of a pendulum.

d. Periodic motion: In some kinds of motion, the object repeats its motion after a fixed interval of time. Such motion is called periodic motion. Eg: Heartbeats.