Chapter 6

Measuring Length

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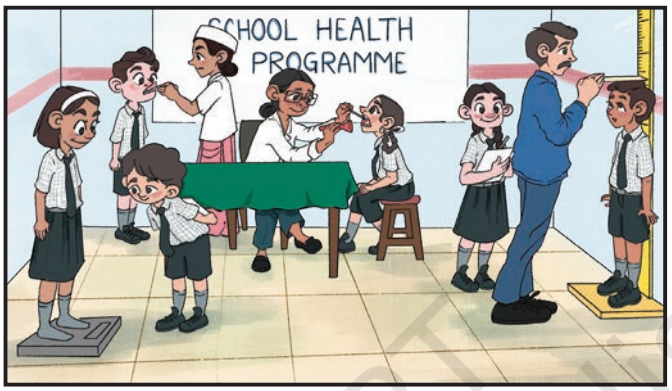
Let Us Observe



1. Look at the picture. What are the students measuring? Put a tick mark (✓) if you find it being measured.

   a) Length ☐ c) Weight ☐ e) Breadth ☐

   b) Height ☐ d) Depth ☐ f) Temperature ☐

2. What is being used to measure the height? What other tools can be used to measure height?

3. Recall in Grade 3 you studied that lengths are measured in metres. Check and fill in the blanks whether the following are correct/incorrect for your classroom.

   a) The height of most of the students in my grade is more than a metre. _____

   b) The length of my arm is less than a metre. _____

   c) The height of the door of the grade is less than a metre. _____

   d) The breadth of the blackboard is more than a metre._____

Note for Teachers: The words tall, wide, short and long are used in daily life. Discuss with students that height, width, depth, breadth all refer to length measurement. These words are used depending on different situations and orientation. At this point students only need to understand that all these words denote length.

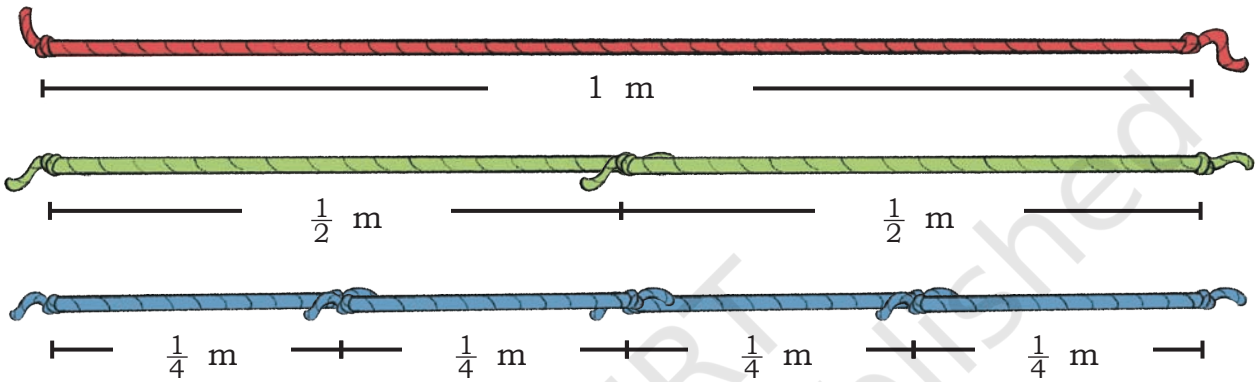
Measuring is Fun

Remember we made,

1 metre (m),

half metre ($\frac{1}{2}$ m), and

quarter metre ($\frac{1}{4}$ m) ropes. Let us make them again.



Do you notice 1 m = $\frac{1}{2}$ m + $\frac{1}{2}$ m and 1 m = $\frac{1}{4}$ m + $\frac{1}{4}$ + $\frac{1}{4}$ m + $\frac{1}{4}$ m

and $\frac{1}{2}$ m = $\frac{1}{4}$ m + $\frac{1}{4}$ m.

Let Us Do

Use your ropes to carry out the following activities. You can use a combination of ropes, if needed.

1. Walk, Jump, and Crawl on 1, 5 and 10 m line

Draw lines of 1 m, 5 m, and 10 m on the floor of the classroom or outside in the playground.

How will you make these lines? Think and share with your friends. Walk, jump, and crawl on the lines.

Note for Teachers: Making the lines by repeatedly using *metre* rope and walking, jumping and crawling on the lines will help students develop an estimate of how big 5 m and 10 m is. They will be able to use this experience to estimate and compare other lengths in their surroundings.

2. Long Jump

Each child can participate in a long jump competition. How far have your friends jumped? Measure as accurately as possible using a combination of ropes. Who jumped the longest distance?

Fill the following table.

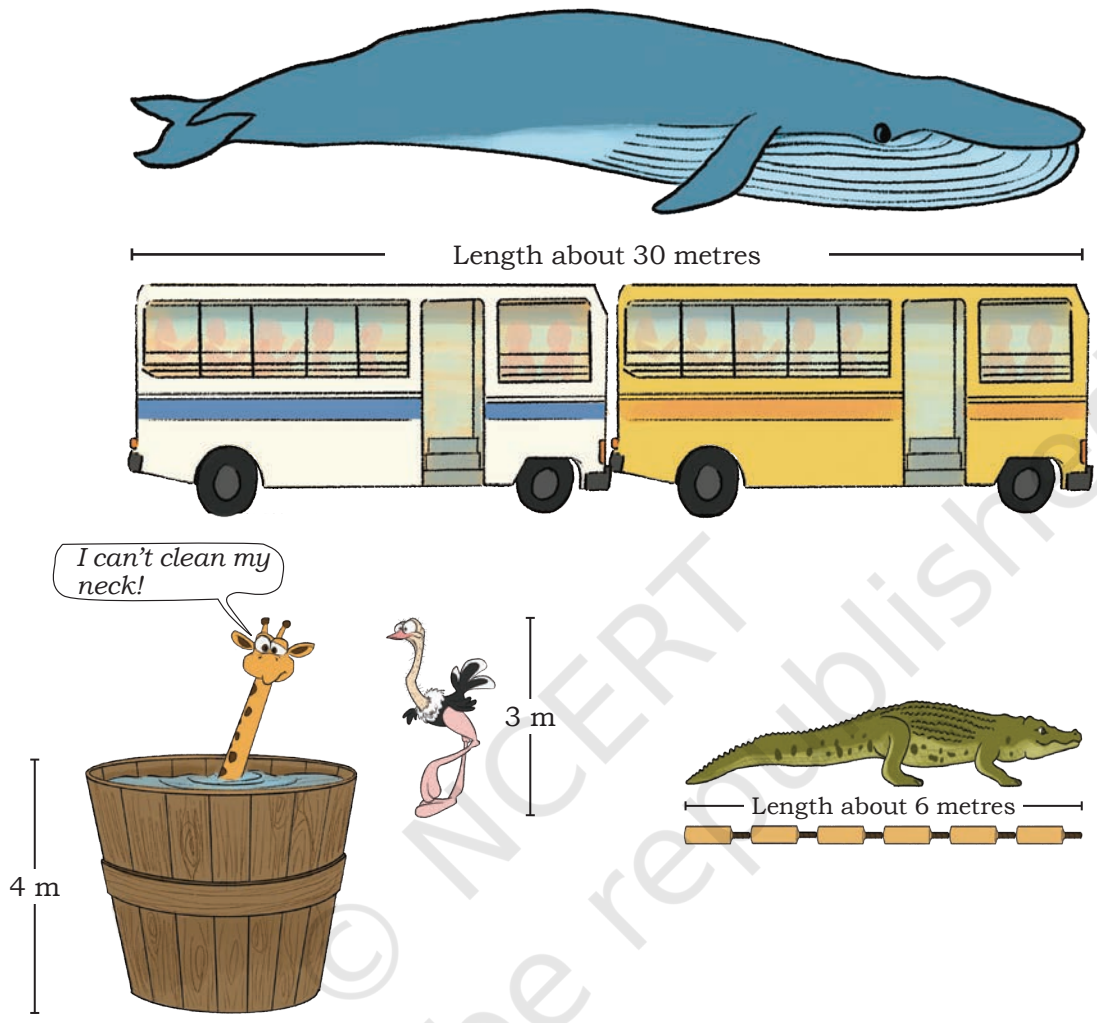
Who has jumped the shortest?

Name of the student	Estimated length of the jump			Actual measurement
	Less than 1 m	1 m	More than 1 m	

3. Estimate how long and broad is your classroom. Measure and check.

Note for Teachers: Allow children to measure 100 m using their footstpes and note how many footsteps fit in 100 m. This can be used for further estimations.

Let Us Think: Guess the Length



Look at the pictures carefully and answer the questions.

1. What is the length of one bus in metres? What is the length of one cricket bat in metres?
2. How many buses would be equal to the length of two blue whales?
3. How many cricket bats will be needed to measure one whale?
4. If two ostriches stand one above another, their height will be equal to the height of _____.
5. How many crocodiles will be equal to the length of a blue whale?

Measuring Small Things

Can you think how to measure a small thing like an eraser or a rice grain?

We need a smaller unit to measure such small items. Observe a standard metre scale. You can see the scale is divided into 100 equal parts.

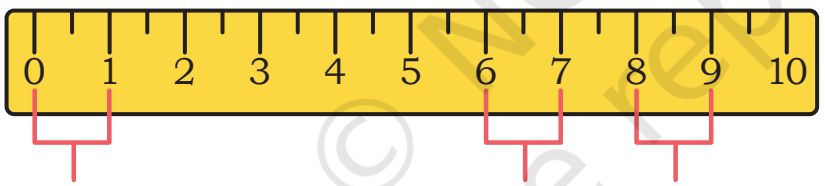
The length of each one of these parts has a special name called **Centimetre (cm).**

Let Us Observe

Chutki wants to keep track of the increase in height of her plant.

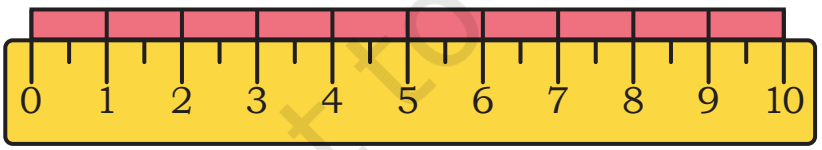
Compare the metre rope with the measuring tape used by a tailor. Is the length of both the same or different?

Observe the measuring tape carefully. What do you notice?



This is one centimetre. 1 cm 1 cm

Discuss how these marks help us measure clearly.



The length of each red bar  is 1 cm.

The red bar is repeated 10 times to make 10 cm. When we repeat the length of the red bar 100 times, we will get 1 metre scale/tape.

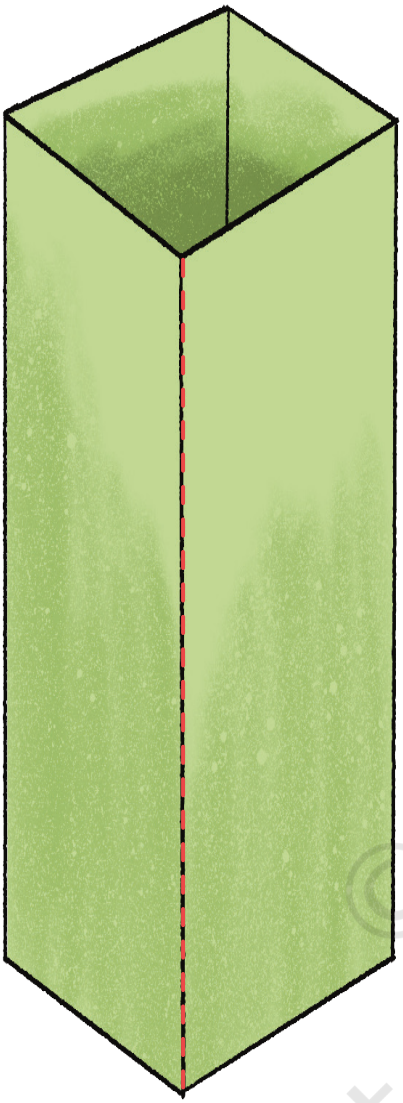
1 metre (m) = 100 centimetre (cm)

$\frac{1}{2}$ m = _____ cm, $\frac{1}{4}$ m = _____ cm

Now use the measuring tape/scale to see how tall your plants grow every week.

Let Us Do

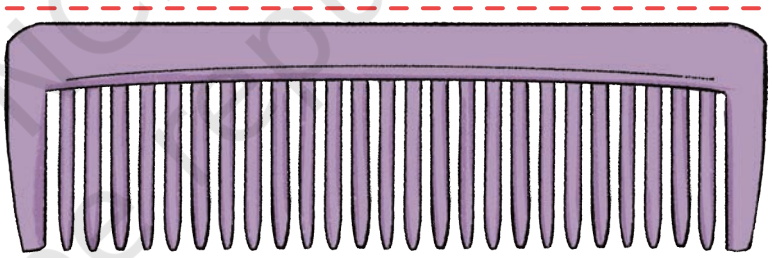
1. Measure each object using a scale.



_____ cm

_____ cm

_____ cm



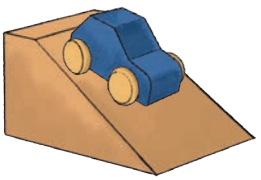
_____ cm

Write the names of the objects in increasing order of length.

2. Estimate the lengths of the following and compare your responses with your friends, in the grade . Write some examples of things that can be lesser than or equal to 1 cm in length. Verify by measuring.

Length of items	Equal to 1 cm	More than 1 cm	Less than 1 cm	Actual measurement
A fingernail				
An eraser				
An ant				
A grain of wheat				
A rajma seed				

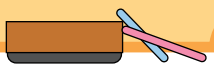
3. Take three toy cars and find out how far each one can go. You can use a small wooden ramp, or you might like to make a ramp using any material that you have.



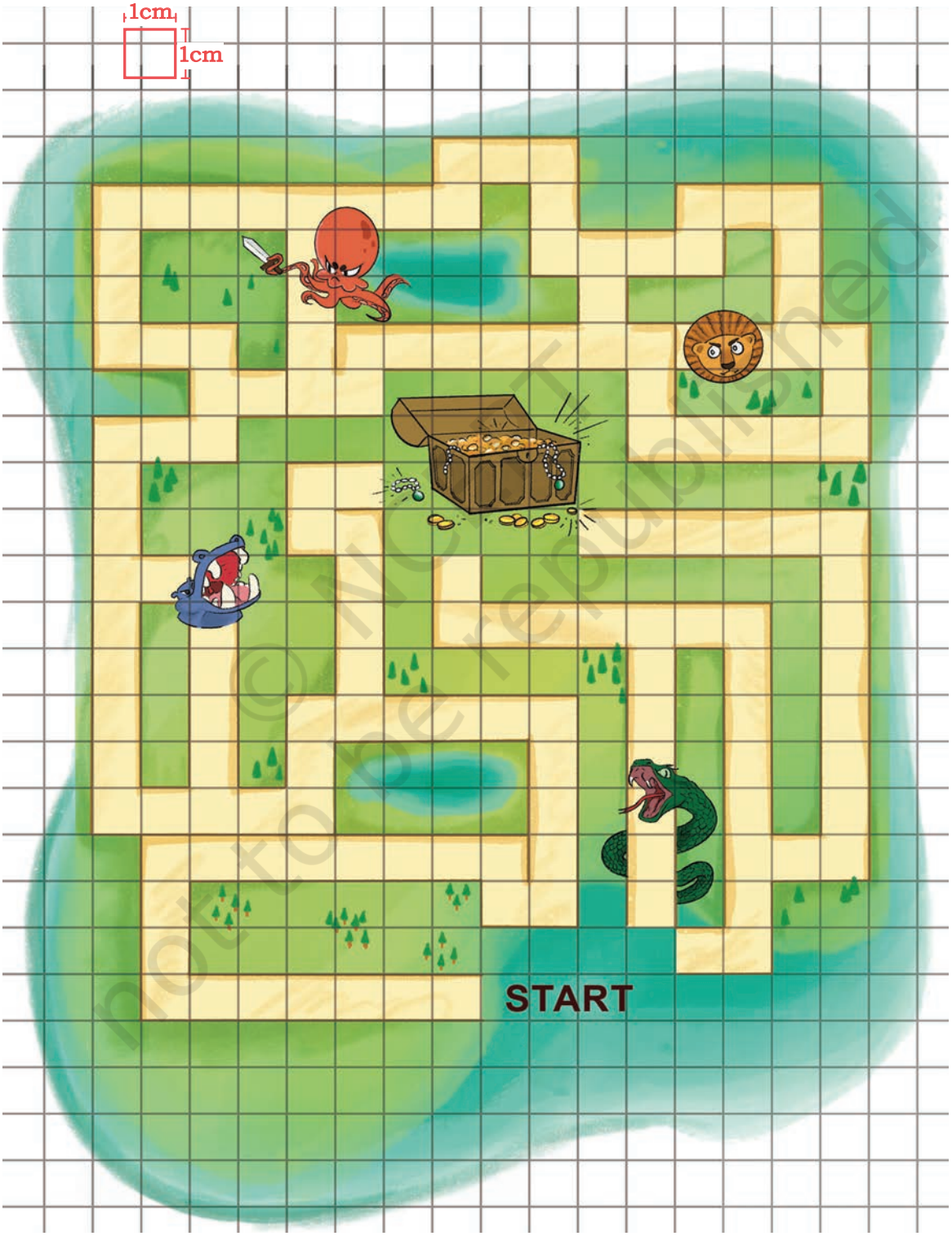
Measure the distance each of your cars travels using measuring tape and write the answers in cm.

Car	Distance from the ramp	Rank
Car 1	_____ cm	
Car 2	_____ cm	
Car 3	_____ cm	

Note for Teachers: Get a one metre measuring scale or measuring tape for the students to observe. Make students observe the marks and the numbers written on the tape. Discuss what 100 denotes on the tape. Students often assume it is the number of marks on the tape. Highlight that the distance between two marks is one centimetre (1 cm) and one metre is divided into 100 such 1 cm distances. After students have made such observations, children can use the measuring tape/scale to measure small lengths.



4. Find the longest and the shortest route in this treasure hunt. You can go around the obstacles but cannot jump over them. You can only walk on the yellow tiles and not on the grass. Can you find the length of your route in centimetres? Look for the 1 cm clue in the map.



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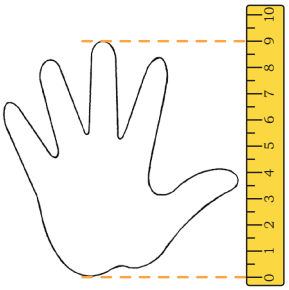
5. Trace your hand on a piece of paper. Measure it using the scale.

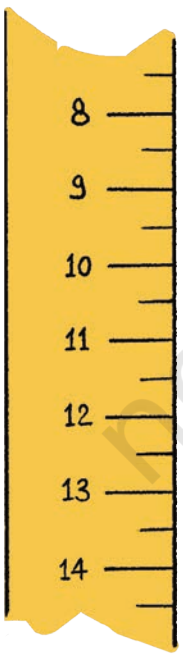
Length of my hand = _____ cm



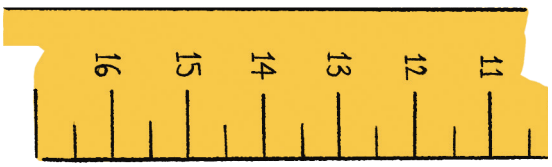
6. Use your hand to estimate the measurement of any object. Convert into centimetres. Verify using the scale.

Object	Number of hands	Estimate using hand	Actual measure using the cm scale
1. Length of my textbook		_____ cm	_____ cm
2. Height of my chair		_____ cm	_____ cm
3. Width of my desk		_____ cm	_____ cm
4. Height of a flowerpot		_____ cm	_____ cm

7. Ashwin's scale is broken. Can you help him to measure using this scale?

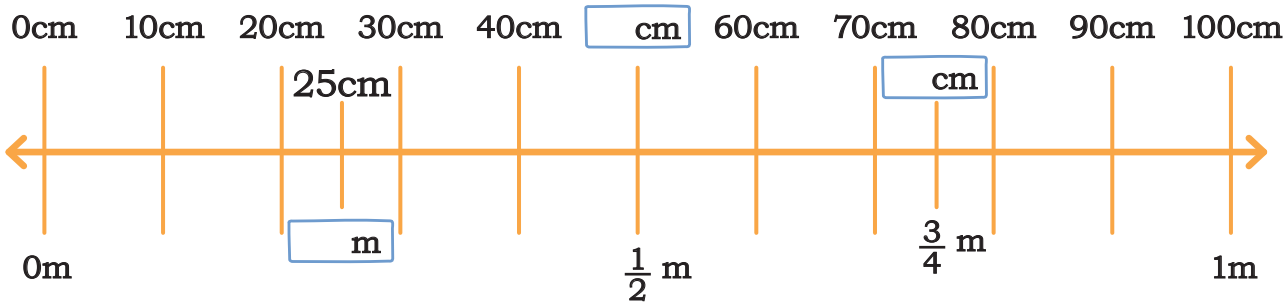


_____ cm

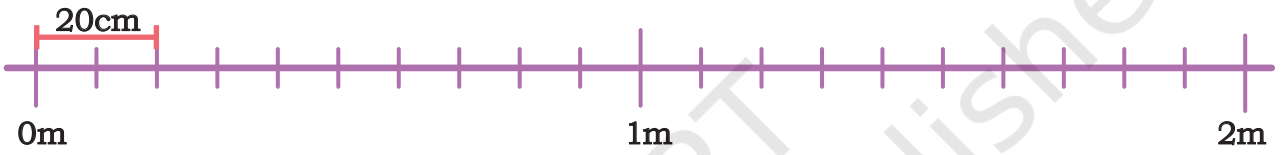


_____ cm

8. Fill the blanks on the number line below appropriately.



9. The length of a board is 2 metres. Sonu has a decorative border sticker which is 20 cm long. How many such stickers are needed to cover the length of the board completely?



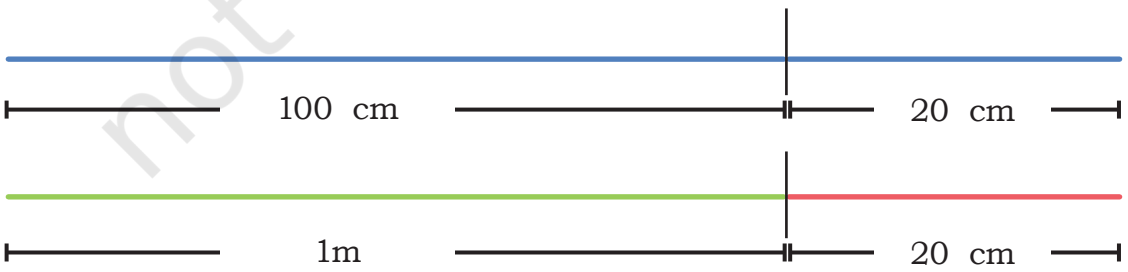
Metre and Centimetres

Ramu and Shamu are using a measuring tape to measure their own height.

Ramu reads his height from the tape as 120 cm and Shamu reads it as 1 m 20 cm.

Who is correct?

Pinki says both are correct and draws this.



Let Us Do

1. The Village Sarpanch got the depth of some wells in his village measured by two different people.

   a) Fill the blanks such that the depths are the same.

   i) 2 m = 200 cm

   ii) _ m = 400 cm

   iii) 6 m = ____cm

   iv) _ m = 800m

   b) Identify the wells with the same depth and match them.

1 m 40 cm	550 cm
4 m 60 cm	140 cm
2 m 30 cm	460 cm
5 m 50 cm	230 cm

Let Us Explore

Activity: Students will measure their height using a measuring tape. Make a table in your notebook and complete it.

Name of the Student	Height in cm	Height in m

Answer the following questions.

1. Height of the tallest child is _____.
2. Height of the shortest child is _____.
3. Number of children who are more than 1 m tall _____.
4. Number of children who are shorter than 1 m _____.

Fencing and Lacing

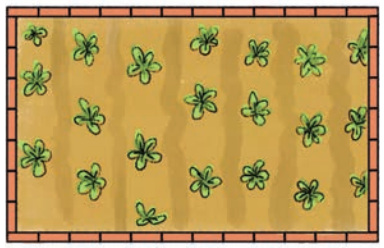
The length of the boundary of an object or shape is called perimeter.

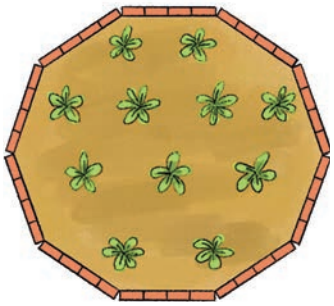
Bhola is making a boundary with bricks for his vegetable garden. Colour the bricks on the boundary. How many bricks will he need to make the boundary?

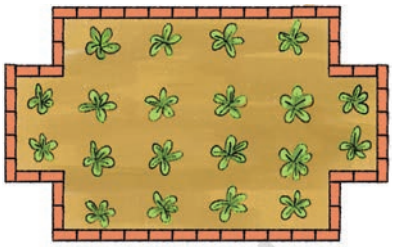
Note for Teachers: Help children understand that perimeter is the length of the boundary of a closed figure that can be measured using various non-formal units, such as footsteps, thumbprints, and block printing. Such measures are generally approximate but measuring using formal units with a scale or measuring tape would be more accurate.

Let Us Do

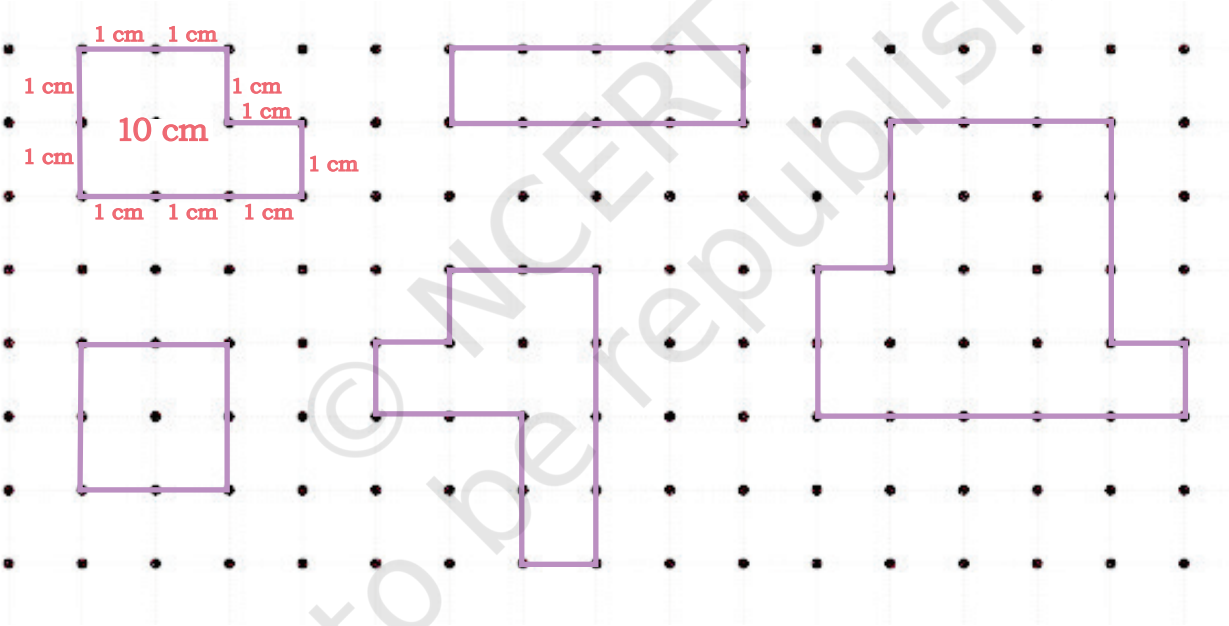
1. Bhola made the boundary of his gardens in the following ways. Circle the boundary that is longest.







2. Let us find the perimeter of some shapes using the dot grid. One is done for you.



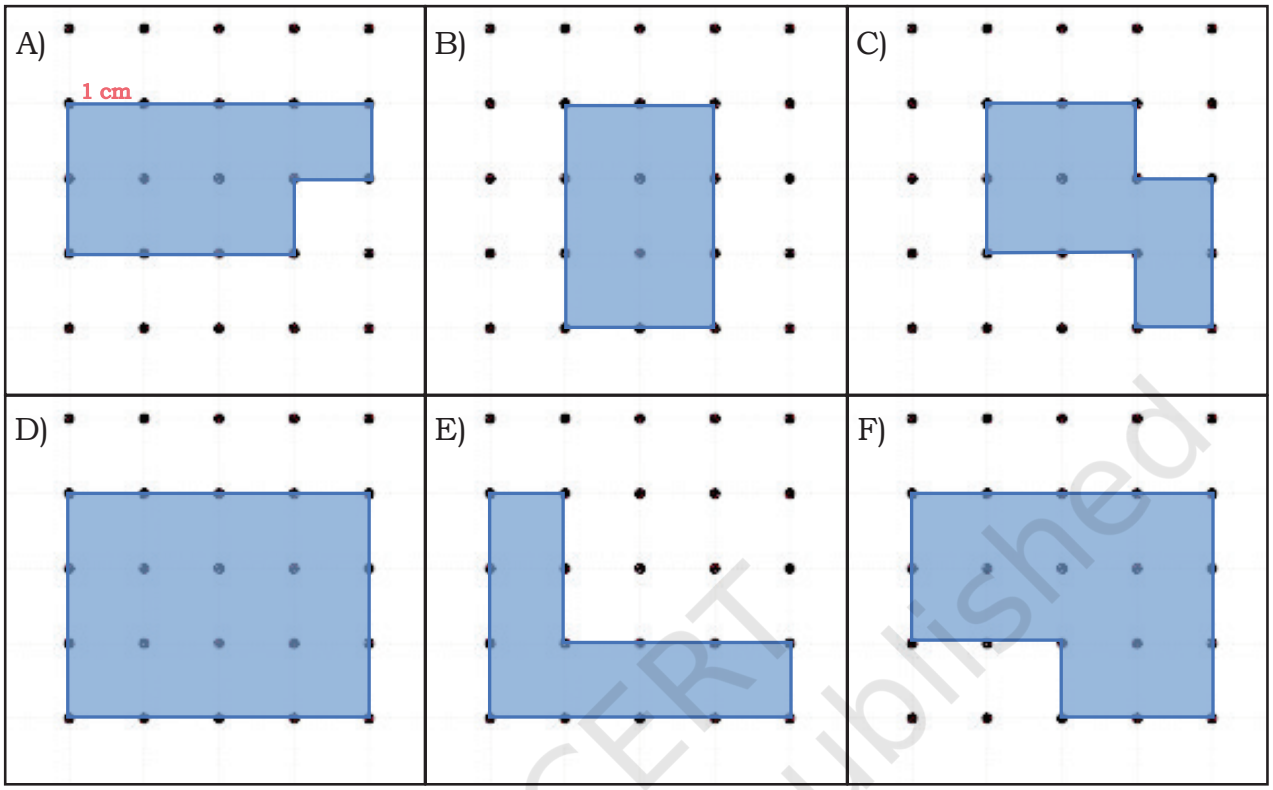
a) Colour the boundary with the longest length in blue.

b) Colour the boundary with the shortest length in green.

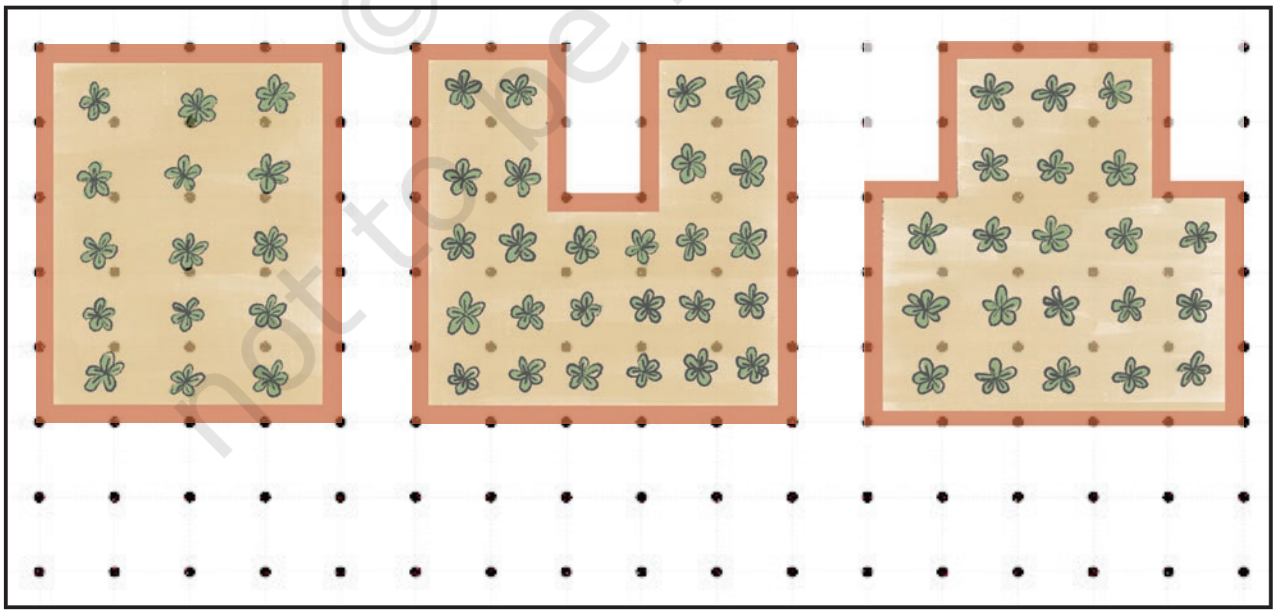
c) Tick the shapes with the same length.

Note for Teachers: Help children see the perimeter as length or distance around a shape. Let them understand how dot grids of 1 cm help measure perimeter.

3. Do any of the following shapes have the same perimeter? Tick them.



4. Tick the garden with the minimum perimeter.



5. Estimate and measure the perimeters of shapes around you using a scale and write them in the space given below.

S. No.	Object	Estimated perimeter in cm/m	Actual measure in cm/m
1.	Desk		
2.	Blackboard		
3.	Classroom floor		
4.			
5.			
6.			

6. Draw three different shapes with perimeter of 20 cm.