CHAPTER - 5

MEASUREMENT

OBJECTIVES :- To enable the students :

- 1. To compare length, weight and capacity of the things.
- 2. To make them measure length ,weight and capacity in units.
- 3. To find relation of meter and centimetre.
- To solve problems in daily life related to length, weight and capacity.
- 5. To get ready for competitive exams.

Revision

- 1. The length of pencil is 19
- 2. Weight of a brick is 3......
- 3. There is 2.....water in the jug.
- 4. Draw a picture on weighing scale.



 Colour the given container having capacity upto 2 litre

(centimetre, kilogram, meter) (litre, kilogram, meter)

(litre, kilogram, meter)





5.1 Length







Lets do some examples.

Example 1: Measure the length of sharpener and line segment in centimetres :



Length distance two points = 4 cm



MATHEMATICS-4



1. Complete the table

Item	Estimate length in cm	Actual length in cm
		cm

2. Find the distance between given dots and give the following answers :



- (a) Distance from point A to B = cm
- (b) Distance from point B to D = cm
- (c) Distance from point A to E = cm
- (d) Distance from point C to D = cm
- (e) Distance from point B to E = cm
- (f) Distance from point A to D = cm

MEASUREMENT



5.1.2 Measure length in Centimetres and Millimetres



Upgrade to PRO to remove watermark.

(a)	(b)	
cm mm	cm	
(c)	(d)	
+		
DURACELL		
cm mm	cm	mm
Measure the length of line se	ments in cm and n	nm :
(a)	(b)	
(u)	сп	i mm
	50451035456570	
	000 000 000 000 000 000 000 000 000 00	
cm mm	(d)	ı mm

MEASUREMENT





Measure the length and breadth of given currency notes :

A meter rod is divided into 100 equal parts Every part shows 1cm. A meter has 10, 20, 30 ... marked on it instead of 1, 2, 3



With the help of teacher, prepare your own meter by marking a rod or string like a meter rod and measure the length of following things (Ignore less than one meter and consider more than half meter as a meter) :



This PDF document was edited with **Icecream PDF Editor** Upgrade to PRO to remove watermark.

116

3.

Items	Length in meters
I. Blackboard	
2. Classroom window	
3. Table	
4. Almirah (Length)	
5. Mat	



Measure the height of the students of the class with height measurement tool available in your school and complete the table given below:





Serial no.	Name of the student	Height (in metres)
1.		
2.		
3.		
4.		
5.		





5.2.1. Relationship of meter and centimetre



This PDF document was edited with **Icecream PDF Editor** Upgrade to PRO to remove watermark.

118



1 meter = 100 cm

1. Convert into metre :

- (a) $400 \text{ cm} = \dots \text{ m}$ (b) $700 \text{ cm} = \dots \text{ m}$
- (c) $200 \text{ cm} = \dots \text{ m}$ (d) $800 \text{ cm} = \dots \text{ m}$
- (e) $500 \text{ cm} = \dots \text{ m}$ (f) $900 \text{ cm} = \dots \text{ m}$

2. Convert into centimetres:

(a) 3 m = cm(b) 6 m = cm(c) 4 m = cm(d) 9 m = cm(e) 2 m = cm(f) 5 m = cm

Mohit measures length of given items with help of 30 cm scale. Show this length in meter and centimetres.

Items	Length in cm	Length in meter and cm.
1. Length of table	108 cm	mcm
2. Height of a child	132 cm	mcm
3. Length of blackboard	305 cm	mcm
4. Breadth of a room	450 cm	mcm

4. Estimate the distance in metres and also find the actual distance with the help of meter rod or measurement tape.

Place	Estimated distance	Actual distance
1. Classroom to library		
2. Classroom to main gate		
3. Classroom to water tap		

MEASUREMENT



5.3 Draw a line segment of given length

To draw a line segment of given length (suppose 7 cm) we follow the steps as below :

- 1. Take a point A.
- 2. Place the scale in such a way the '0' is on point A as shown in figure.



3. Mark a point B at 7cm.

A B minimum minim minimum min

4. Join A and B moving the pencil along the edge of the scale.

A B minimized and a state of the state of t

5. AB is required line segment 7cm.



1. Draw a line segment by joining the given points and measure their lengths :

(a) A•	•B	(b)	۰Q	(c)	М•	
		р.				•N

- 2. Draw line segments of given lengths :
 - (a) 5 cm (b) 8 cm (c) 6 cm
 - (d) 2 cm (e) 7 cm (f) 9 cm

MATHEMATICS-4

This PDF document was edited with locaream PDF Editor Upgrade to PRO to remove watermark.

120



Maths in Daily Life

Manjot's father was reading a newspaper. He told Manjot that 38 mm rain was recorded in Punjab yesterday. Manjot asked with curiosity how we measure rain in mm. Father answered that it was very simple technique.

It was Sunday .It might rain. Father asked Manjot to put a tub on the roof of their house .It kept raining the whole day . Manjot measured the water filled in the tub with the help of a scale. The water level reached upto mark 3 and 5 small marks above 3. Manjot put a mark with the help of marker.

3 cm 5 mm = 30 + 5 = 35 mm

Punjab recorded 35 mm rain on Sunday.



MEASUREMENT



5.3.1. Addition and Subtraction of units of length

Addition and subtraction can be done by same units of length. i.e., meter will be added or subtracted from metre and centimeter will be added or subtracted from centimeter. Addition and subtraction is done as usual

Example 1: Add the following :

(a) 7	7 m 30 c	m+2 m 15 cm	(b)	6 m 49 ci	m + 7 m 05 c
	m	cm		m	cm
	7	3 0		6	49
1	+ 2	15		+ 7	0 5
	9	4 5		13	5 4
Exan	nple 2 :	Subtract :		-	
			(b)	8 cm 40	cm – 1m 35
		Subtract :	(b)	8 cm 40 m	cm – 1m 35 cm
) m 64 (Subtract : cm – 5 m 35 cm	(b)		
	0 m 64 o m	Subtract : cm – 5 m 35 cm cm	(b)	m	cm

Example 3 : Distance of Preet's school from her house is 320 metre whereas her Farm is 500 metre. Which distance is farther and by how much?

Solution :	Distance of farm from house	=:	500 m
	Distance of school from house	=	320 m
	Difference	=	180 m

Distance from Preets house to field is 180 m more then his school.



122



1. Solve:

- (a) 8 m 40 cm + 4 m 35 cm
- (c) 5 m 37 cm + 7 m 20 cm
- (e) 1 m 50 cm + 2 m 25 cm
- 2. Solve:
 - (a) 9 m 70 cm 7 m 35 cm
 - (c) 5 m 72 cm 3 m 60 cm
 - (e) 9 m 50 cm 4 m 25 cm

- (b) 2 m 62 cm + 6 m 25 cm
- (d) 3 m 45 cm + 6 m 15 cm
- (f) 9 m 44 cm + 5 m 35 cm
- (b) 6 m 84 cm 1 m 35 cm
- (d) 4 m 18 cm 3 m 12 cm
- (f) 5 m 81 cm 5 m 75 cm
- Maya uses 1m50cm red ribbon and 2m25cm green ribbon to make a flower. How much total ribbon did she use?
- 4. Saroj bought 5m50cm cloth for herself and 3m25cm for her daughter. Find the total length of cloth did she buy?
- 5. Distance of Sourav's school from his house is 275 metre and distance of Gourav's house from his school is 310 m. How much more distance is covered by Gourav than that of Sourav?

5.4. Weight

For measuring weight, we put goods on one side and standard weights on the other side of the weighing scale.





MEASUREMENT

Generally following standard weights are used





3. Take some items. Estimate the weight of of such items and also measure the actual weight by using standard weights and weighing balance and fill up in the table :

Items	Estimated weight	Actual weight
1. Maths book		
2.		
3.		
4.		
5.		
6.		
7.		

4. Complete the table :

Upgrade to PRO to remove watermark.

	Weight	Kg and gm	In grams
	(a) 1kg 500g 200g	1kg 700gm	1700gm
	(b) 1kg 500g 200g 100g 100g		
	(c) 2kg 200g 200g 100g		
	(d) 2kg 1kg 200g 100g 50g		
	(e) 1kg 500g 100g 100g		
	(f) 500g 500g 200g 100g 50g		
	Hint For Teacher a vagetable ve	ke measuring scale from	m shopkeeper or
	126		MATHEMATICS-4
cume	nt was edited with Icecream PDF Editor.		



5. To measure 1kg, how many standard weighing units are missing in the following and draw them :

5.4.1 Addition and subtraction of weight in units

Like units of the units of weight can be added and subtracted. We add and subtract like length, the units.

MEASUREMENT



1.

2.

3.

4.

5.



٠

	(a) 9 kg 654 gm	+ 1 kg138 gm	(b) 7 kg 670 gm -	+ 2 kg 288 gm
	kg	gm	kg	gm
	9	654	7	670
	+ 1	138	+ 2	288
1	10	792	9	958
1	Example 2 : Subt	ract :		
1	(a) 8 kg 704 gr	n – 5 kg 510 gm	(b) 7 kg 972 gr	n – 5 kg 104 gm
	kg	gm	kg	gm
	8	704	7	972
	- 5	510	- 5	104
	3	194	2	868
	500g Solution : Harj	jeet's mother bough	much vegetables d kg t onions = 25	id she buy? gm 250
	500g Solution :	m of potatoes. How	much vegetables d kg	id she buy? gm
	500g Solution : Harj	m of potatoes. How	much vegetables d kg t onions = 25	id she buy? gm
	500g Solution : Harj	m of potatoes. How jeet's mother bough eet's mother bought	much vegetables d kg t onions = 25	id she buy? gm 250
	500g Solution : Harje	m of potatoes. How jeet's mother bough eet's mother bought Tota	much vegetables d kg t onions = 25 potatoes = 30	id she buy? gm 250 500
	500g Solution : Harje	m of potatoes. How jeet's mother bough eet's mother bought Tota	r much vegetables d kg t onions = 25 potatoes = 30 l weight = 55	id she buy? gm 250 500
	500g Solution : Harje	m of potatoes. How jeet's mother bough eet's mother bought Tota al weight of vegetal	r much vegetables d kg t onions = 25 potatoes = 30 l weight = 55	id she buy? gm 250 500
	500g Solution : Harje	m of potatoes. How jeet's mother bough eet's mother bought Tota al weight of vegetal	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500
	500g Solution : Harje Tot	m of potatoes. How jeet's mother bough eet's mother bought Tota al weight of vegetal	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500
	500g Solution : Harje Harje Tot 1. Add : (a) 8 kg 450 gr	m of potatoes. How jeet's mother bought eet's mother bought Tota al weight of vegetat	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500
	500g Solution : Harje Harje Tot 1. Add : (a) 8 kg 450 gr (b) 5 kg 675 gr	m of potatoes. How jeet's mother bough eet's mother bought Tota al weight of vegetat Exercis m + 1 kg 210 gm	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500
	500g Solution : Harje Harje Tot 1. Add : (a) 8 kg 450 gr (b) 5 kg 675 gr (c) 3 kg 225 gr	m of potatoes. How jeet's mother bought eet's mother bought Tota al weight of vegetat Exercis m + 1 kg 210 gm m + 2 kg 205 gm	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500
	500g Solution : Harje Harje Tot 1. Add : (a) 8 kg 450 gr (b) 5 kg 675 gr (c) 3 kg 225 gr (d) 3 kg 050 gr	m of potatoes. How jeet's mother bought eet's mother bought Tota al weight of vegetat Exercis m + 1 kg 210 gm m + 2 kg 205 gm m + 7 kg 527 gm	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500
	500g Solution : Harj Harje Tot (a) 8 kg 450 gr (b) 5 kg 675 gr (c) 3 kg 225 gr (d) 3 kg 050 gr (e) 9 kg 100 gr	m of potatoes. How jeet's mother bought eet's mother bought Tota al weight of vegetat Exercis m + 1 kg 210 gm m + 2 kg 205 gm m + 7 kg 527 gm m + 1 kg 400 gm	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500
	500g Solution : Harj Harje Tot (a) 8 kg 450 gr (b) 5 kg 675 gr (c) 3 kg 225 gr (d) 3 kg 050 gr (e) 9 kg 100 gr	m of potatoes. How jeet's mother bought eet's mother bought Tota al weight of vegetat Exercis m + 1 kg 210 gm m + 2 kg 205 gm m + 7 kg 527 gm m + 1 kg 400 gm m + 5 kg 075 gm	v much vegetables d kg t onions = 25 potatoes = 30 l weight = 55 oles = 55 kg 750 gm	id she buy? gm 250 500

2. Subtract :

- (a) 5 kg 845 gm 2 kg 525 gm
- (b) 9 kg 605 gm 6 kg 275 gm
- (c) 8 kg 360 gm 3 kg 150 gm
- (d) 6 kg 320 gm 4 kg 175 gm
- (e) 4 kg 500 gm 1 kg 250 gm
- (f) 7 kg 425 gm 6 kg 280 gm
- Dilpreet bought 5kg 500gm of potatoes and 2kg 250gm cauliflower. How much vegetables did he buy?
- Harjot's weight is 20kg 500gm less than that of his brother. If his brother's weight is 62kg 750gm. Find the weight of Harjot.
- 5. A dealer bought 80kg 500gm apples. He sold 4kg 400gm. What is the weight of remaining apples?
- 6. An NGO distributed roasted gram (chana) packets in flood affected area. The weight of every packet is 2kg. NGO distributed 450 packets. How many kgs of packets they distributed?

5.5. Capacity (Volume)

You must have often seen around you water bottle, packet of milk, cold drink bottle, juice bottle etc. The quantity of liquid in these containers is called their capacity of bottle, packet and container.



Dear students! we often buy milk in the morning. Some households take milk from milkman, others bring milk from dairy. Do you know how milk is measured?



Yes sir, milk is measured with the help of special container.



MEASUREMENT



Litre is standard unit for measuring the liquids like water, milk etc. Larger quantity is measured in litres and smaller quantity in millilitres.

1 litre = 1000 millilitre

We use different measures (scales) to measure liquids .Some of these are as follows:



Hint For Teacher - Teacher can show containers with help of milkman.



130



Material : A bucket and bottle having 1 litre capacity

Activity : Fill your bathing bucket using 1 litre bottle.Note down how many bottles did you use to fill the bucket. You will come to know



the capacity of your bucket in litres.

((Note : This activity is to be done under guidance of elder members of the family)

Related to daily life:

Rajji got ill. The doctor gave her 2 vials of medicine and asked her to take 5ml medicine from each vial. But her mother was unable to find exact quantity of 5ml. So she gave medicine on estimated basis. Rajji could not get well inspite of taking medicine because medicine was not given in proper quantity.

From the above examples we know how important the smaller standard units of measuring are!

Remember 1 litre – 1000 ml

131

MEASUREMENT

 In which unit we shall measure the capacity of given things millilitre or litre ? Tick the millilitre or litre :



2. Write litre or millilitre according to capacity of given things :



3. Find out the quantity of liquid in both containers and also find the sum and write in millilitres :



MEASUREMENT







5.5.1 Addition and Subtraction of capacity units

Only like units of capacity can be added and subtracted as we do in the case of length and weight. We add and subtract like numbers.



Example 1 :

l+6 litre 053 ml	(b) 5 litre 795 m	l + 1 litre 106 ml
ml	litre	ml
870	5	795
053	+ 1	106
923	6	901
2 litro 100 ml	(h) 2 litro 020 m	1 1 litro 084 ml
ml	litre	ml
305	3	920
190	-1	084
115	2	836
	$ml \\ 8 7 0 \\ 0 5 3 \\ \hline 9 2 3 \\ l - 3 litre 190 ml \\ ml \\ 3 0 5$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

Exmpale 3: Raju washes his car with pipe fixed to tap and uses 65 litre 850ml of water whereas Manjit washes his car and uses 20 litre water .Who uses lesser water to wash his car and by how much?

Solution :			litre	ml	Use water
	Raju uses water	=	65	850	Wisely!
	Manjit uses water		20	000	
	Difference	:=:	45	850	

Manjit used 45 litre 850 ml less water than that of Raju.

Exercise 5.9



- (a) 8 litre 675 ml + 1 litre 210 ml
- (b) 3 litre 225 ml + 2 litre 205 ml
- (c) 2 litre 605 ml + 7 litre 327 ml

MEASUREMENT



- (d) 4 litre 175 ml + 2 litre 290 ml
- (e) 9 litre 220 ml + 2 litre 735 ml
- (f) 5 litre 125 ml + 8 litre 425 ml

2. Substract :

Upgrade to

- (a) 5 litre 470 ml 3 litre 315 ml
- (b) 6 litre 705 ml 5 litre 550 ml
- (c) 4 litre 970 ml 1 litre 237 ml
- (d) 6 litre 500 ml 2 litre 370 ml
- (e) 7 litre 075 ml 2 litre 025 ml
- (f) 9 litre 700 ml 7 litre 425 ml
- 3. A confectioner required 75 litre milk for making condensed milk (khoya), 40 litre milk for cheese and 8 litre milk for tea. How many litres of milk does he require in all?
- Sunita's mom bought 5litre 500ml milk. She used 2 litre milk for Rice pudding (kheer). How much milk was left?
- 5. The capacity of a water tank is 750 litre. There is 475 litre water in it. How much more water is required to fill the tank?



Collect bottles, medicine vials, empty boxes, and packets from your surrounding. Note down the capacity of each. Cut the wrapper and Paste them on the given places.

Mililitre
MATHEMATICS-4

	Liu			Mi	llilitre	8	
	1.		CI : (00	
	Y-Mu	ltiple	Choice (Juest	tions (M	CQ)-
Fie	k (✓) on the ri	aht ar	swer .				
	What is the sta	· · · · · · · · · · · · · · · · · · ·		h?			
	(a) litre		meter		gm	(d)	kilogm
2.	What is the sta	6000		1912	973N		9
	(a) gm				meter	(d)	litre
3.	35 meter =			0.20280			
	(a) 350 centin	neter		(b)	3500 cm		
	(c) 35000 cm			(d)	none of the	ese	
4.	40 mm=cm	1					
	(a) 400 cm	(b)	4000 cm	(c)	4 cm	(d)	none of these
5.	Ikilogram=	ę	gram				
	(a) 10 gm	(b)	1000 gm	(c)	100 gm	(d)	none of these
6.	6000 gm =	kg					
	(a) 5	(b)	8	(c)	7	(d)	6
	22.11	Inil					
7.	22 litre =						

8. Capacity of 1 glass is 250 ml. How many such glasses will be filled from the bottle of 2 litres ?

(c) 4

(d) 8

- (a) 10 (b) 6
- MEASUREMENT

137



2.	(a)	3 cm 7 mm				(b)	4 cm 6 m	n		
	(c)	5 cm 2 mm				(d)	6 cm 8 n	nm		
	(e)	8 cm 3 mm				(f)	12 cm 5 n	ım		
3.	(a)	16 cm 8 mm				(b)	6 cm 6 m	m		
	(c)	14 cm 6 mm				(d)	6 cm 6 m	m		
				Ex	ercis	e 5.3				
1.	(a)	4 m (b) 7	m	(c) 2	m	(d) 8	m (e)	5 m	(f) 9 m	1
2.	(a)	300 cm	(b)	600 cr	n	(c)	400 cm			:
	(d)	900 cm	(e)	200 cr	n	(f)	500 cm			-
3.	1.	1 m 8 cm	2.	1 m 32	2 cm	3.	3 m 5 cm			
	4.	4 m 50 cm								
				Ex	ercis	e 5.5				
1.	(a)	12 m 75 cm		(b)	8 m	87 cm	(c)	12 m 5	57 cm	
	(d)	9 m 60 cm		(e)	3 m	75 cm	(f)	14 m 7	79 cm	
2.	(a)	2 m 35 cm		(b)	5 m	49 cm	(c)	2 m 12	2 cm	
	(d)	1 m 06 cm		(e)	5 m	25 cm	(f)	3 m 06	5 cm	
3.	3 m	n 75 cm		4.	8 m	75 cm	5.	35 me	ter	
				Ex	ercis	e 5.6				
1.	(a)	kg	(b)	gm		(c)	gm	((d) kg	
	(e)	gm	(f)	gm		(g)	kg	()	n) kg	
	(i)	kg	(j)	kg		(k)	gm	(l) gm	
	(m)	kg	(n)	gm		(0)	gm	(1	p) kg	
2.	(a)	1 kg 500 gm		(b)	1 kg	200 gm				
	(c)	2 kg 100 gm		(d)	2 kg	300 gm				
4.	(b)	1 kg 900 gm ,	1900	gm		(c)	2 kg 500 g	gm , 250	00 gm	
	(d)	3 kg 350 gm,	3350	gm		(e)	l kg 700 j	gm , 170	00 gm	1
	(f)	1 kg 350 gm ,	1350	gm						
		500g		-					500g	
5.	(a)	Jung	(b)	100g		(c)	200g	((d) 500g	1
	(e)	200g + 500	y							
-									120	
MEAS	UREN	AENT							139	6
		edited with locorea	m PDF	Editor						
- W PNU I	e neano	ive watermark								

This PDF **Upgrade**



This PDF document was edited with Icecream PDF Editor Upgrade to PRO to remove watermark