

Government of Tamilnadu

STANDARD FIVE

TERM III

VOLUME 2



SCIENCE



NOT FOR SALE

Untouchability is inhuman and a crime

A Publication Under Free Textbook programme of Government of Tamilnadu

Department of School Education

© Government of Tamilnadu First Edition - 2012 Revised Edition - 2013 Reprint - 2014

(Published under Uniform System of School Education Scheme in Trimester Pattern)

Textbook Prepared and Compiled By

State Council of Educational Research and Training

College Road, Chennai - 600 006.

Textbook Printing

Tamil Nadu Textbook and Educational Services Corporation College Road, Chennai - 600 006.

This book has been printed on 80 G.S.M. Maplitho Paper

Price : Rs.

Printed by Web Offset at :

Textbook available at

www.textbooksonline.tn.nic.in

Angles

Tracing the way

John went to the post office to post letters. He traced his way back home. The red line on the street map shows the path John took. When we draw the path, we get a shape like this.





Activity

Trace two other ways to reach the post office from any of the two houses. You may get closed shapes again. Mark the angles.



Activity Make your own angle tester.

Cut two strips from a chart paper. Keep one strip over the other and fix a drawing pin in one corner so that both the strips can move around easily. Now, angle tester is ready to use.



Keep the two strips as shown like the English alphabet "L".

Can you see the angle formed between the two strips? It is a **right angle**.

Fix the two strips as shown in the figure.

We see that one strip is bent towards the other. The angle so formed is less than a right angle. It si called an **acute angle**.





What do you observe?

One strip is bent away from the other. The angle so formed is more than a right angle. It is called an **obtuse angle**.

2

Activity



By using angle tester go around your class room and look for right angle, acute angle and obtuse angle.

Two positions are shown for you. Find the other positions and fill the table.



Position Placed	Angle Tester	Type of Angle
Corner of the Black Board	•	Right Angle
Hands of the clock		Obtuse Angle

Paper Folding Activity

Step : 1 Take a square sheet of paper.	Step : 2 Fold it in half.	
Step : 3 Fold it once more	Step : 4 Open the last fold so that	
and press it.	the sheet is folded in half.	

Step:5

Take one corner and fold it to meet the dotted line.

On the paper you will find lines making a right angle, an angle less than a right angle and an angle more than a right angle. Look for each of the angles and mark them with different colours.





She calls one student to move to the centre.

The shape changes like this.

She calls for another student to move to the centre. Another new shape is formed.

When the angle changes, the shape also changes.



1. Look at the shape and answer.

The angles marked in colour are all obtuse angles.



3. Are the angles marked in pink colour equal? (Yes / No) Are the angles marked in brown colour equal? (Yes / No)

Are the two angles given in the diagrams equal?

Say Yes / No? and discuss.

Group Activity



Using the bunches containing 3, 4, 5, 6, 7 & 8 sticks of same length, try to form different shapes by changing angle between the sticks in each of the closed shapes.

Angle and time

In the clocks draw the hands of the clock and that they make a right angle. Write the time they show.









In the clocks draw the hands of the clock and that they make an acute angle. Write the time they show.



In the clocks draw the hands of the clock and that they make an obtuse angle. Write the time they show.



10:30







In the pictures given below, write the kind of angle the hands of the clock show. Also write the time shown by the hands of the clock.



Angle and posture

Observe the angles in the following stick figures and form these angles:

- ✤ A right angle with your leg
- An angle less than a right angle with your hand
- An angle more than a right angle with your leg
- An angle more than a right angle using both the hands
- Try all possible postures draw them using stick figures and enjoy.







12 right angles, 13 acute angles and 5 obtuse angles are shown to you.



1. Write your name, father's name and mother's name using straight line and count the angles.

Name	Number of Right Angles	Number of Acute Angles	Number of Obtuse Angles



2. In the picture of the park, there are many angles.



Use colour pencils to mark

- (i) Right angles with red colour.
- (ii) Angles which are more than a right angle with blue.
- (iii) Angles which are less than a right angle with green.

3. Look at the angles in the picture and put a tick (✓) mark in the corresponding column.

Picture	Right Angle	Obtuse Angle	Acute Angle
Cr. A.			
P			

Project work

Collect ten other pictures and stick them in your note book. Mark the angles and write the kind of angles.



MATHEMATICS



Estimation

Mala called, Rani! come here. See this. Our father has brought two bunch of bananas.

Is it? Rani came running.

Mala asked Rani, 'Can you say, how many bananas are there in each bunch'?

Rani observed the bunches keenly and said that approximately in the first bunch there are 80 bananas and in the second there are 90. So, altogether there are 170.

Then they decided to count the number of bananas.

They counted the bananas by putting a mark on the bananas.



- The actual number of bananas in the first *thar* is **75**.
 - The approximated number is **80**.
 - The difference is 5.

The actual number of bananas in the second thar is 92.

- The approximated number is 90.
 - The difference is 2.

The actual total number of bananas in two *thars* is **167**.

The approximated total is 170.

The difference is

3.

Mala appreciated Rani for guessing the total number which is very near to the exact number.

Observe the following number line.



The number line has numbers from 40, 41, 42, 43, 44, 45, 46, 47, 48, 49 and 50.



The numbers 41, 42, 43, 44, are closer to 40. So, they can be rounded off to 40, corrects to its nearest lowest tens.

The numbers 46, 47, 48, 49, are closer to 50. So, they can be rounded off to 50, correct to its nearest highest tens.



Since 45 is in the middle of the number line, it is a common practice to round it off to 50.

12

MATHEMATICS

To round off a number to the nearest ten, we round it off to the multiple of ten nearest to it. A number which is in the midway is always rounded off to the nearest highest tens.



Round off the following numbers to their nearest tens. (i) 22, (ii) 64, (iii) 73, (iv) 86, (v) 35 Solution :

- i) 22 can be rounded off to = 20
- ii) 64 can be rounded off to = 60
- iii) 73 can be rounded off to = 70
- iv) 86 can be rounded off to = 90
- v) 35 can be rounded off to = 40



Round off the following numbers to their nearest tens

- i) 74, ii) 81, iii) 37,
- iv) 26, v) 18, vi) 15.

Activity

- 1. Round off all the two digit numbers to their nearest tens.
- 2. Draw a number line with numbers from 80 to 90. Make 9 students to stand over the number as shown below. The students from 81 to 84 face towards 80 and 85 to 89 towards 90. Observe the round off process and create similar activities in your classroom.



Estimating the sum



Round off the following numbers to their nearest tens. Calculate the actual answer with the two given numbers. Find whether the estimated/actual is more or are they equal.

Numbers	Estimated	Actual	Difference	Which is more
i) 37 + 22	40 + 20 = 60	37 + 22 = 59	1	Estimated / Actual / Equal
ii) 44 + 33				Estimated / Actual / Equal
iii)19 + 54				Estimated / Actual / Equal
lv) 66 + 28				Estimated / Actual / Equal

Estimated	Actual	Difference	Which is more
60 - 30 = 30	62 – 27 = 35	5	Estimated / Actual / Equal
			Estimated / Actual / Equal
			Estimated / Actual / Equal
			Estimated / Actual / Equal
	Estimated 60 – 30 = 30	Estimated Actual 60 - 30 = 30 62 - 27 = 35	EstimatedActualDifference60 - 30 = 3062 - 27 = 355

Numbers	Estimated	Actual	Difference	Which is more
i) 44 × 29	40 × 30 = 1200	44 × 29 = 1276	76	Estimated / Actual / Equal
ii) 26 × 17				Estimated / Actual / Equal
iii) 34 × 43				Estimated / Actual / Equal
iv) 57 × 62				Estimated / Actual / Equal

Numbers	Estimated	Actual	Difference	Which is more
i) 64 ÷ 28	60 ÷ 30 = 2	64 ÷ 28 = 2	0	Estimated / Actual / Equal
ii) 81 ÷ 22				Estimated / Actual / Equal
iii) 93 ÷ 26				Estimated / Actual / Equal
lv) 89 ÷ 36				Estimated / Actual / Equal

MATHEMATICS

Addition



In a school, V standard 'A' section has 44 students, V standard 'B' section has 48 students. Find the estimated number of question papers required for both the sections, the actual number of question papers and also find its

Solution: difference between the estimated value and the actual value.

Estimated number of question paper for V 'A' = 40

(Rounded off to its nearest tens)

- Estimated number of question papers for V 'B' = 50 (Rounded off to its nearest tens)
- Total number of estimated question papers = 40 + 50 = 90
- Actual number of question paper for V 'A' and V 'B' = 44 + 48 = 92
 - Their difference = 92 90 = 2

Which is more = Actual



Estimated number may be less than the actual number in some cases.

Subtraction



Solution :

A students' hostel has 75kg of Dhal in the beginning of the week. It was estimated that 65 kg of dhal would be used in a week. Calculate the difference between the estimated balance and the actual balance of dhal at the end of the week.

Estimated Amount of Dhal in the beginning of the week = 80 kg (Rounded off to its nearest tens)

- Estimated amount of Dhal to be used in the week = 70 kg (Rounded off to its nearest tens)
 - Estimated balance at the end of the week = 80 70

= 10 kg

Actual balance at the end of the week = 75 - 65

= 10 kg

Difference = 0

Estimated = actual value

Multiplication



For a construction work 65 persons were involved in 1 day. The work went on for 44 days. Find the estimated number of persons who might get the wages and also find the actual number of persons employed for the work. Compare both the answers.

Solution :

Estimated number of persons per day	=	70 persons
(Rounded off to its nearest tens)		
Estimated number of days worked	=	40 days
(Rounded off to its nearest tens)		
Estimated number of persons to get the wages	=	70 x 40
	=	2800 persons
Actual number of persons to get the wages	=	65 x 44
	=	2860 persons
Difference	=	2860 - 2800
	=	60 persons
Which is more	=	Actual

Division



In a coconut farm, there are 96 coconut trees. Each day coconuts are plucked from 24 trees. In how many days coconuts can be plucked from all the 96 trees. Find the estimated number of days and the actual number of days and compare the answers.

Solution :		
Estimated num	ber of trees in the farm $)_{-}$	100
(Rour	nded off to its nearest tens) $\int_{-\infty}^{\infty}$	100
Estimated nu	umber of trees in which	
	coconuts are plucked >=	20
(Rour	nded off to its nearest tens)	
Estimated num	ber of days required to $)_{-}$	$100 \div 20 = 5 days$
pluck coc	onuts from all the trees \int_{-}^{-}	100 · 20 – 5 days
Actual n	umber of days requires =	96 ÷ 24 = 4 days
	Difference =	5 – 4 = 1 day
	Which is more =	Estimated

16

MATHEMATICS



- 1) 64 candidates were expected to attend a seminar on the first day and 73 candidates were expected on the second day. Estimate the total number of persons who attended on both days. Calculate the actual number of persons. Is the estimated value greater or lesser than the actual value? Find the difference.
- 2) 84 students took an examination. If 76 students were promoted, find the estimated and the actual number of students who failed. Is the estimated value more or less than the actual value? Find the difference.
- 3) A computer course was conducted for 24 days. Each day 48 persons attended the course. To prepare a day wise work done sheet for all 24 days, find the estimated and the actual number of persons who attended the course. Is the estimated value more or less than the actual value? Find the difference.
- 4) An oil barrel can hold 72 litres of oil. If each tin can hold 24 litres of oil, how many tins will be required? Find the estimated number and the actual number. Is the estimated value more or less than actual value? Find its difference.

FUN TIME

Conti	Continue the pattern and find out the difference between their sums:													
1. 1	+ 2	+ 3	+ 4	+ 5	+	6	+ 7	+	8	+	9	+	10 =	55
2. 11	+ 12	+ 13	+ 14	+ 15	+	16	+ 17	+	18	+	19	+	20 =	155
3. 21	+ 22	+ 23	+ 24	+ 25	+	26	+ 27	+	28	+	29	+	30 =	255
4. 31	+ 32	+ 33	+ 34	+ 35	+	36	+ 37	+	38	+	39	+	40 =	355
5. 41	+ 42	+ 43	+ 44	+ 45	+	46	+ 47	+	48	+	49	+	50 =	455
1													=	:
2													=	:
3. —													=	:
4. —													=	:
5													=	:
5													=	:

Activity



Colour the circles. What do you get?------

Activity

- Pile up any one of the items like tamarind seeds, marbles and beads. Take a small quantity in your hand. Show it to your friend. Ask him to tell the number approximately. Remember the answer given by your friend. Then find the exact number by actually counting it. Approximate the two numbers to the nearest tens. Appreciate your friend if both the numbers are
- 2. Take a small bunch of neem leaves in your hand and ask your friend to estimate the number of neem leaves. Then find the exact number by actually counting it. Approximate both numbers to the nearest tens. Check whether both the numbers are same.

the same. Continue to do this activity.

 In the library find the approximate number of books arranged in a shelf. Then count the actual number of books. Approximate both numbers to the nearest tens. Compare both the numbers.









In the scale given above, we find that each 1cm length is further divided equally into ten parts. The length of each of the smaller division is mm. So,

1 cm = 10 mm

The shopkeeper measures cloth with a metre stick in metres (m) and centimetres (cm).

1 m = 100 cm

Remember



The length of telephone wires, electric wires and cable wires are measured in metres. Railway tracks, roads, rivers, trains etc. are measured in kilometres.

1 km = 1000 m

From the above units of length, let us compare the units.

A kilometre (km) is greater than a metre, a metre (m) is greater than a cm., and a cm is greater than a mm Metre (m) is the standard unit of length.

MATHEMATICS





MATHEMATICS

iv) 500 mm = 500 ÷ ____ = ___ cm





Solution :

Length of cloth bought for father Length of cloth bought for Gopal Total

	m	cm
	1	
=	2	50
= +	1	50
=	4m	00cm

Total length of cloth is 4m.





In a school, the distance between the gate and the Principal's office is 400 m 75 cm. A boy had covered a distance of 200 m 50 cm. What is the distance left to be covered to reach the principal's office?

Solution :				
Distance between the gate		m	cm	
and the Principal's office	=	400	75	
Distance walked by the boy	= -	- 200	50	
Distance still to be covered	=	200m	25c	
Mother bought a roll	of ribb	on meas	suring	10m. If

cuts a piece of ribbon measuring 2m 50cm, what is the

remaining length of the ribbon?

		m	cm	
Solution :		9	100	
Total length of ribbon	=	10	ØÓ	No
The length of ribbon cut	=	- 2	50	To tea
		7 m	50 cm	stater

The remaining length of the ribbon is 7 m 50 cm.

To teacher: Similarly, more statement sums can be assigned to students for practice.

she

Multiplication

Multiply 30m 40cm by 6 Solution :

m	cm
2	
30	40
x	6
182m	40cm

Multiply the centimetre $40 \times 6 = 240 \text{ cm}$ Convert 240 cm into metre $240 \div 100 = 2 \text{ m} 40 \text{ cm}$ Multiply the metres and then add $30 \times 6 = 180$ 180 + 2 = 182 m







If the total length of 8 tracks of equal length is 16km 32m. What is the length of 1 track?

Solution :



Length of 8 tracks = 16 km 32 mLength of 1 track = $16 \text{km} 32 \text{ m} \div 8$

= 2 km 04 m

The length of 1 track is 2 km 04 m



Solution :

Total length of 12 bed sheets = 25m 44cm Length of 1 bed sheet

25m 44cm ÷ 12 = 2m12cm =



The length of 1 bed sheet is 2m 12cm.



To teacher: Similarly, more statement sums can be assigned to students for practice.



Practice Time

- (1) Mother bought 2 sarees and the length of 1 saree was 6m 50cm and the other was 5m 50 cm. What is the total length of both the sarees?





(3) If the length of 2 roads are 25km 500m and 30 km 400m. What is the total length of both the roads?

- (4) A rope is 27m 40 cm long. If 20 m 30cm is cut from it, what is the length of the rope left?
- (5) John is 1m 60 cm tall. James is 1m 40cm tall. How much is John taller than James?
- (6) A fishing boat covered 7km 400m. A motor boat covered 30 km 500m. What is the difference between the distance covered by the two boats?
- (7) Sumanth jogged 8 times around a park that had 500m 10cm long path. What was the total distance jogged by him?
- (8) The length of one measuring tape used by a tailor is 1m 50cm. What will be the length of 10 such tapes?
- (9) The length of a square sports stadium is 1500m, if a sports man runs twice around it, what is the total distance covered by him?
- (10) A roll of wire is 8m 90cm long, If I cut it off into 9 pieces of equal length, what will be the length of each piece?
- (11) John runs along the boundary of ground covering 7 m 42cm in a week. What is the distance he ran in 1 day?

Project Work

Find the heights of your classmates in metres and convert them into cms.

S.No	Name of the student	Height m cm		Height (in cm)







Activity



 Take a Tamil Nadu map which contains all details related to distance. Mark the name of two cities in it. Using the map write the distance between two cities in your note book. Like this write the distances between five important cities in your notebook.



2. Is there any relation

between one's height and weight? Collect the information with the help of teachers and parents and record it in your note book.

- 3. Measure the length and breadth of the rooms in your house using metre scale and write in your notebook.
- 4. Write the measurement needed to stitch a shirt for you, your father and your brothers separately in your notebook.