MATHS.....
I FEEL IT !

Activity Book 1

GRADE-6

THE KAIZEN PILOT PROJECT FOR THE MASTER PLAN STUDY FOR THE DEVELOPMENT OF SCIENCE AND MATHS EDUCATION IN THE JUNIOR SECONDARY LEVEL

VEMBADI GIRLS' HIGH SCHOOL
JAFFNA
SRILANKA

Maths . . .

I feel it !

ACTIVITY BOOK - 1
GRADE 6

The kaizen Pilot Project
For
the master plan study
For
the development of Science and Maths Education
in
the junior secondary level

Vembadi Girls' High School
Jaffna
SriLanka

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Author : Mrs. R. Muthukumaran, B.Sc (Hons) Dip in Ed.
QE Circle 4
JICA Project.

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Preface

With avowed objective of accelerating the process of improvement in the study of Science and Mathematics, JICA pilot project is being implement in the full swing in 25 schools, selected for this purpose under the direction and supervision of the ministry of Human Resource with the sanguine expectation that the success of this project will yield positive result by ameliorating the standard of our children in Mathematics which is of monumental importance for the furtherance of Science Education.

I feel that the book which has been written in crisp and lucid English language makes a simplified approach to the study of Mathematics by the children studying in grade 6. It is my fervent hope that the students will be able to have a self-study as the subject is presented to them in such a manner that they will have no difficulty in understanding the subject which would facilitate their comprehensive grasp.

Publishers

Message from the Principal

The English medium classes have been started and progressing since 2003 in our institution. Though our teachers conduct these classes efficiently the serious problem the students face is insufficiency of activity books and Teachers` guides in English.

During the part of the JICA Project, the QE circle-4 members haven taken a great initiative to upgrade the Mathematics Activity Book I and to produce a new edition.

This has been made possible through the JICA project fund, and we are very thankful to the JICA organization.

Hope the students will benefit greatly through this activity Book.

Mrs. K. Ponnampalam,
Principal,
J /Vembadi Girls' High School.

Acknowledgement

I am effusively grateful to all the people who helped us to make the activity book – part I available in time.

First of all I wish to thank profusely our Principal Mrs. K. Ponnampalam who offered us an opportunity to publish this book for the benefit of the students.

It is also incumbent on me to thank Mrs. A. Thambiah the Co- ordinator of JICA Project who took the initiative to profound the proposals necessary for this project.

It behaves me to thank with gratitude the JICA Project Team for encouraging us in the accomplishment of this arduous task by providing to us the requisite funds and facilities.

I awe a deep sense of gratitude to Professor K. Sinnathamby, Department of Education, University of Jaffna, who offered me valuable suggestions and salutary guidance from the time of my writing the book, the publication of Part I is now a success.

My thanks are also due to Dr.S. Srisatkunarajah, Senior Lecture, Dept. of Mathematics and Statistics, University of Jaffna, who offered worthy suggestions, the QE circle 4 members who from time to time helped me in various activities, neighbouring school teache4rs for their valuable comments and those who carried out the tickling task of typing my manuscript and book binding.

My profuse thanks are due to Mr. Rajasegaram I.S.A whose valuable suggestions and enlightened guidance before a work of this magnitude was undertaken immensely helpful me to make it success.

I would like to express my indebtedness to Mr. K. P. Kannan Mr. K. Jeyaeswaran for their having shouldered the responsibility of having this work printed well leaving no room for error and for their attention to ensure that the publication of the book has a perfect finish.

Mrs. R. Muthukumaran.

CONTENTS

Unit 1

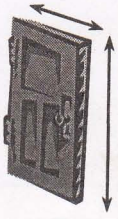
MEASUREMENTS RELATED TO HOUSE

Explore yourselves

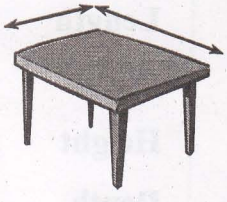
Think about the terms - **length, width, height, distance, depth, thickness.**

Fit them in the blanks in the suitable places of the following sentences.

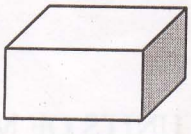
1) You want to buy a curtain cloth for a door of your house. So, you have to measure the ..... and the ..... of the door.



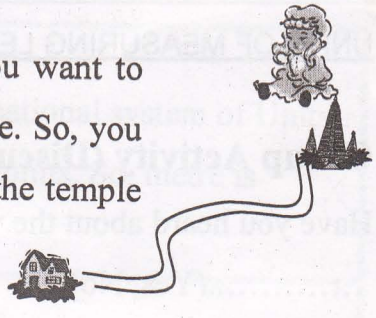
2) You have a plan to buy a table-cloth for your dining table.
To do this you must know the ..... and the ..... of your dining table.



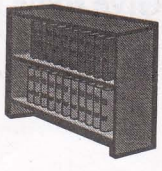
3) To pack a gift in a box, you have to check the gift with the length ....., and ..... of the box.



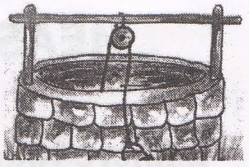
4) Before you start a journey to a temple, you want to estimate the time that will take to reach there. So, you need to know the ..... between the temple and your home along the road.



5) You are arranging some books of same size on a shelf. So you have to know the ..... of a book.



6) A bucket has fallen in the well. It is at the bottom of the well. The ..... of the well is about 7 m. I got a stick of 6 metres length, but I could not reach the bucket.



7) The ..... of the glass is less than the length of the pen.

Distance
Length
Width
Height
Depth
Thickness

are all related to some length measurements.

UNITS OF MEASUREMENT

UNITS OF MEASURING LENGTH

Group Activity (Discuss - collect and Display)

Have you heard about the ways our elders used to measure length?

.....(Yes, No)

Give some units used by our elders to measure lengths.

1)..... 2) ..... 3) ..... 4) .....

Why do we need some other units of measuring length? (Discuss)

Give some examples for units of measuring length, which we found then.

1) ..... 2) ..... 3) .....

Why do we use SI units nowadays. (Discuss)

Give some examples of SI units.

1) ..... 2) ..... 3) .....

Prepare a chart to display your answers like this.

In ancient days	In between	Now

Do you know?

SI Units

SI :- **S**ystem **I**nternational d'units (The international system of Units)

metre is the **unit of measuring length in** SI units. So, metre is referred as a base unit.

metre (m), centimetre (cm), millimetre (mm) and kilometre (km) are also units of measurement used as SI units.

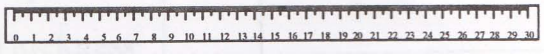
Just think about it – Fill in the empty boxes

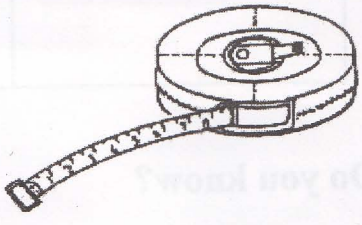
1) We may use a | T | H | E | R | M | O | M | E | T | | | to measure the temperature.

2) We may use a | M | E | T | | | | S | T | I | C | K | to measure length.

Name the measuring devices

(ruler, tailors' measuring tape, carpenters folding ruler, surveyors' tape measure)





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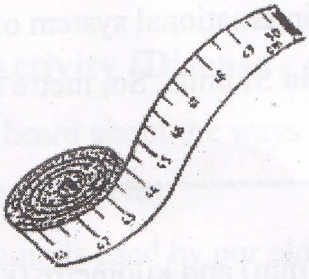
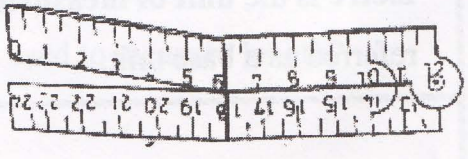




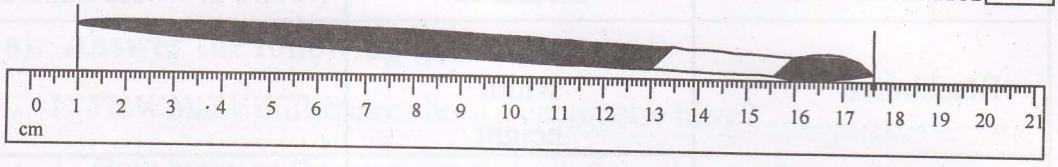
.....

.....

Write the suitable units usually used to measure these things

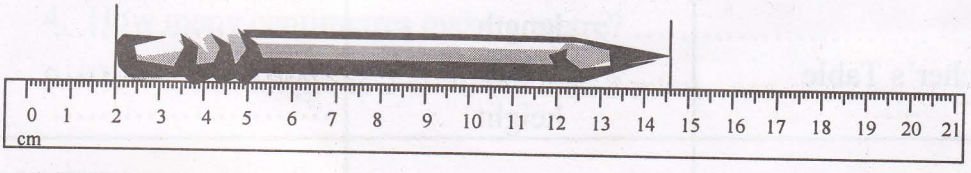
(mm, cm, m, km)

1. length of a car ☐
2. length of a pencil ☐
3. height of a building ☐
4. width of a doorway ☐
5. thickness of a coin ☐
6. distance between two countries ☐

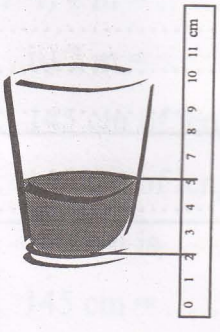


The length of the brush shown in the figure is about ..... cm.

The length of the brush is about ..... cm ..... mm.

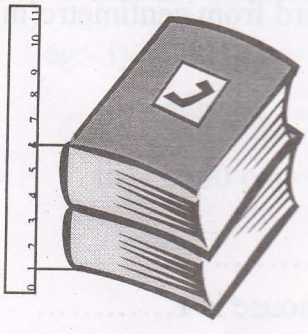


The sharpened pencil shown in the picture is about ..... cm long.



The height of the vessel is about..... cm.

The depth of the water is about..... cm



The height of the 2 books is about..... cm.

Thickness of a book is about..... cm.

Activity 1

Measure the length of each object with appropriate measuring devices, and enter the measurements here.

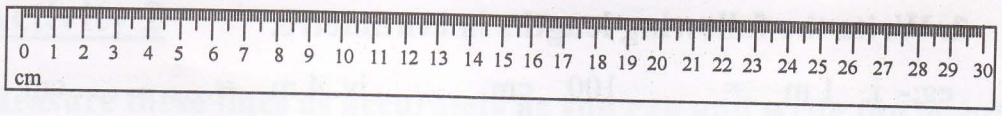
You may use the units **m** or **cm** or **mm** or **m** and **cm** or **cm** and **mm**.

Object	Lengths to be measured	measurement (round in whole number)
Blackboard	width height	....
Class room	length width	....
Teacher's Table	length width height	....
Drawer	depth	.....
Book	length width thickness	....
Pencil	length	.....

Do it yourselves.

Complete each sentence with the more suitable word from centimetre(m) or metre(m) or kilometre(km).

1. Your pencil is about 15 ..... long.
2. Rama is about 1 ..... tall
3. The height of the coconut tree is 7.....
4. The height of the mountain is about 2000 .....
5. The depth of the small pond in front of our house is 1.....
6. He walks about 3 ..... in one hour.



Observe a ruler you have and fill in the blanks.

In a ruler, each centimetre is divided into .....equal points.

Each point is called as a ..... .

a). Answer the following questions.

1. How many millimetres does a centimetre have? .....
2. How many millimetres are there in 3 centimetres? .....
3. How many millimetres do 3 centimetres and 5 millimetres have? .....
4. How many centimetres make a metre? .....
5. How much longer is 2 m 20 cm than 2 m? .....

b) Fill in the blanks with suitable numbers or with the words from the brackets

1. i) 1 m = ...cm .

   ii) 2 m = ...cm.
2. 145 cm of length is .....(more, less) than 1 m.
3. 145 cm of length is .....(more, less) than 2 m.
4. 145 cm is .....cm more than 1 m.
6. 145 cm = ... m .....cm

c) 1. Write the following lengths in metre

eg:- i). 300 cm = ...3.....m

ii) 700 cm = ...m

iii) 2500 cm = ...m

iv) 2700 cm =.....m

v) 3200 cm =.....m

vi) 3700 cm = ...m

2. Write the following lengths in centimetre.

eg:- i. 1 m = 100 cm iv. 4 m =.....cm

ii. 8 m = ...cm v. 70 m =.....cm

iii. 1/2 m = ...cm vi. 72 m = ...cm

3. Express these lengths in metre and centimetre

eg:- i. 325 cm = 3 m 25cm iii. 875 cm = ...

ii. 174 cm= ..... iv. 950 cm = ...

4. Convert into centimetre

eg:- i. 1 m 25 cm = 125cm iv. 2 m 45 cm =.....

ii.7 m 00 cm = ... v. 21 m 40cm=.....

iii. 5m 85 cm= ..... vi. 8 m 9cm=.....

5. Convert into millimetre

eg:- i. 12cm = 120 mm

ii. 8cm = ...

iii. 8cm 5mm = ...

6. Convert into centimetre

eg:- i. 110 mm = 11cm

ii. 70 mm = ...

iii. 200 mm = ...

d). Write the following lengths using mixed units.

eg:- i. 174 cm = 1 m 74cm iv. 101 mm = ...

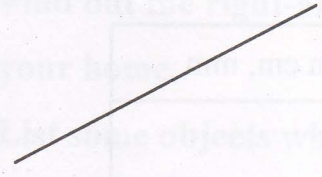
ii. 785 cm = ... v. 375 mm = ...

iii. 36 mm = ...

Activity 2

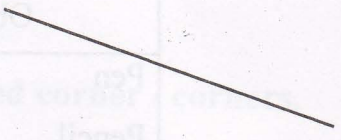
Measure these lines as accurately as you can and write the lengths in the blanks

a)



.....

b)

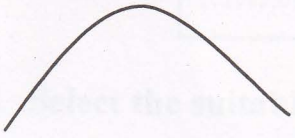


.....

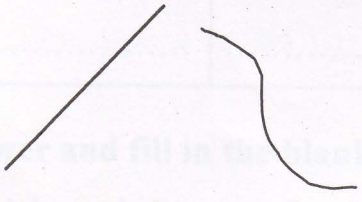
c)

.....

Explore yourselves

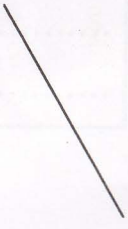


a)



b)

c)



(d)

Look at (a) , (b) , (c) , (d)

1) a) , c) are .....(straight, curved) lines.

2) b) , d) are ..... (straight, curved) lines.

Activity 3

1) Prepare yourselves with a ruler, pen, pencil, blade, white chalk, eraser and an envelope to do this activity.

2) Use the ruler to measure the things you have and complete the table.

Object	Length in cm, mm
Pen	.....
Pencil	.....
Blade	.....
White chalk	.....
Envelope	.....
Eraser	.....

3) Draw lines to each measures you got using ruler.

4) Check, by placing the objects on them.

Unit 2

ANGLES THROUGH THE OBJECTS IN A HOME

1. **Find out the right-angled corners in your classroom and at your home.**

   List some objects which have right-angled corner / corners.

Objects having right angled corner / corners	
In the classroom	At home
.....Table.....	.....Saucer.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

2. **Select the suitable answer and fill in the blanks.**

   I. Could all the right angled corners fit one another when one placed over another?

   ..... (Yes , No)

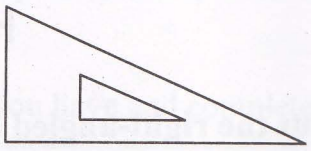
   (Try to check your answer using some right angled objects)

   II. Two right angled corners can be placed side by side along a

   ..... (straight line, curved line)

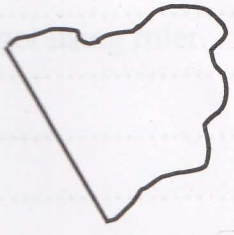
   (Try to check your answer using right angled objects)

III. The set-square in your instrument box ..... (has a, hasn't any) right angle.

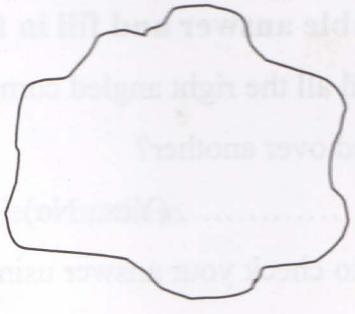


IV. All the angles on a set-square ..... (are, aren't) right angles. Only one angle is ..... (not right angle, right angle).

V. Can you obtain a right angle by folding once a piece of paper, which has only one straight edge?
..... (Yes, No)



VI. Can you obtain a right angle by folding once a piece of paper, which has no straight edges? .....
(Yes. No)



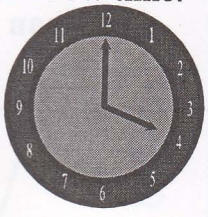
VII. Can you obtain a right angle by folding twice a piece of paper, which has no straight edges? .....
(Yes, No).

Group-Activity: Understand while doing.

Complete the table below using given instructions in steps 1 to 5.

One example has been done for you.

Step – 1) **Make a clock – face** such that both the clock-hands can be moved to show time.



Step – 2) **Set the time** given in the 1st column of the table one by one, and **draw the clock hands** to show the 'angle between two hands' in the 2nd column of the table.

Step – 3) **Use a right angled corner to decide the angles between the clock-hands** are whether right angles or greater than a right angle or less than a right angle, and **fill the 3rd column** of the table.

Step – 4) **Cut the angles** between the clock-hands **in colour papers** and **paste them** into 3 groups according to the angle types such as right angles, less than a right angle, greater than a right angle.

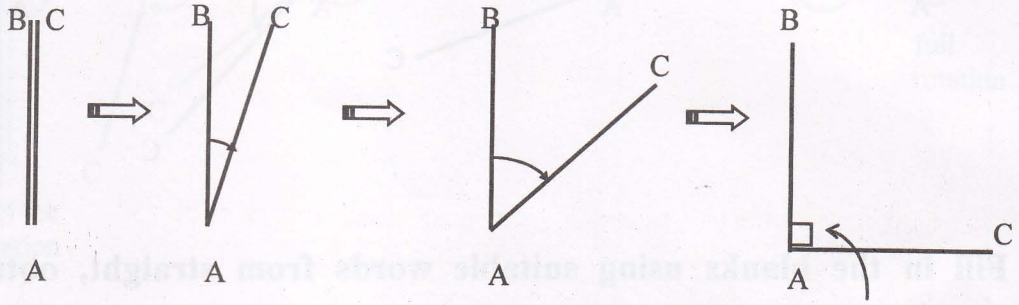
Step - 5) **Discuss and name the groups** suitably as acute angle, obtuse angle and right angle.

Table for the above activity

Time	Angle between the clock hands	Right angle / greater than a right angle / less than a right angle
01:00		**Less than a right angle.**
02:00		
03:00		
04:00		
05:00		
02:30		
09:00		

Activity:- (do your own)

Step - I) **Lay two sticks (AB and AC) together with a common end point 'A'**

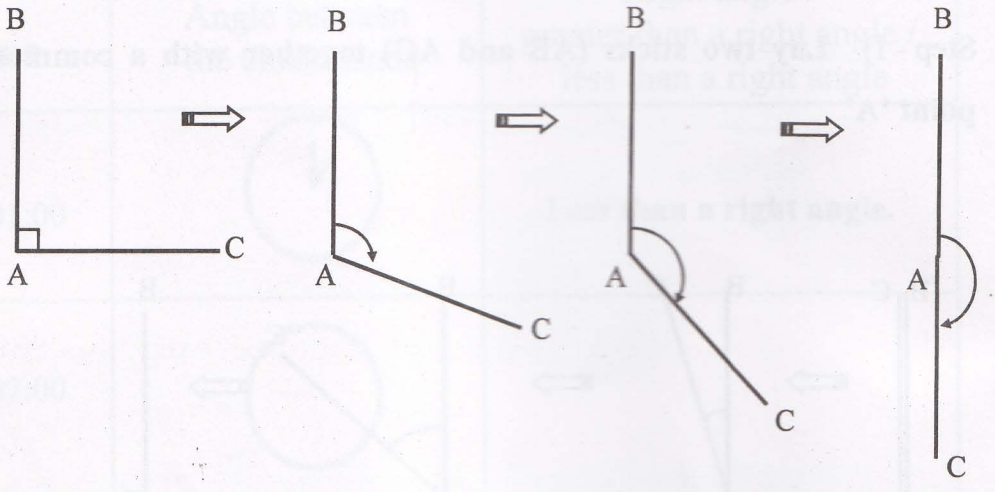


(we can mark the..... angle like this)

Step - II) **Rotate one stick about the point ' A ' little by little.**

- You can observe that the rotation makes ..... (an angle, a space) between the two sticks.
- By rotating continuously, the angle will .....(increase, decrease) continuously.
- Till the angle becomes right angle, the angles you got are ..... (right, acute, obtuse) angles.

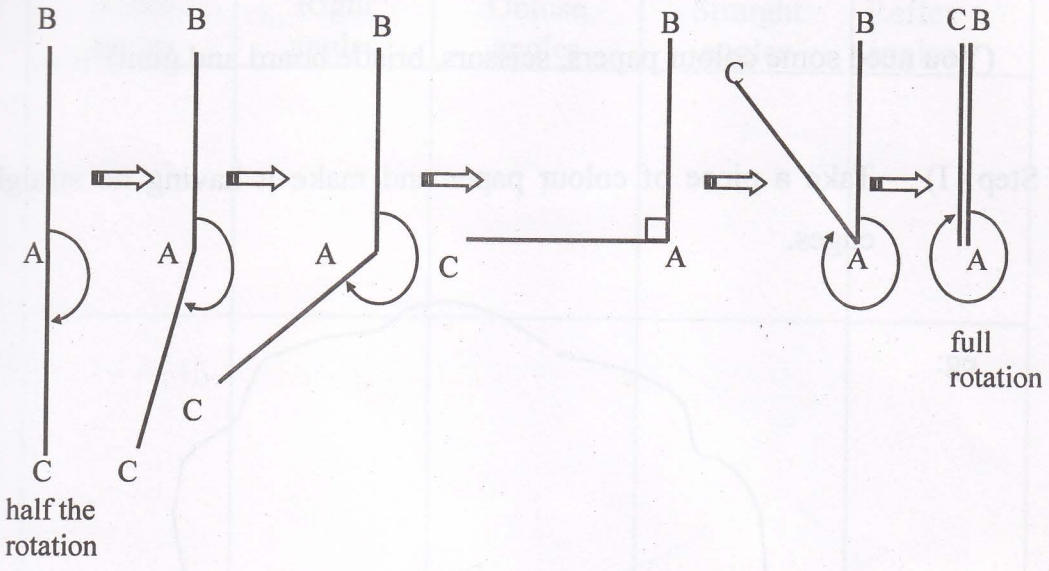
Step III) **Again continue the process of rotating.**



Fill in the blanks using suitable words from straight, obtuse, acute, right. You may use one word more than once.

- After rotating another right angle, you will get a ..... line.
- Then the angle made by the two sticks through the rotation is called as ..... angle.
- So, to get a .....angle by rotation, you have to rotate the sticks through **two right angles** from initial stage.
- And any angle increasing from a right angle to a straight angle is called as an ..... angle.

Step IV) Further, continue the rotation



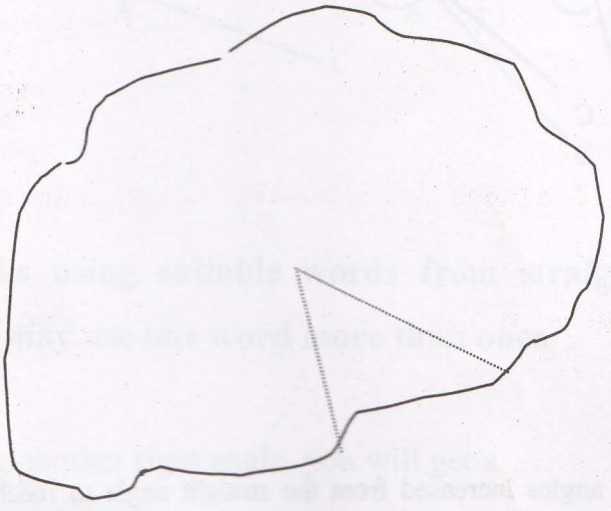
➢ All the angles increased from the straight angle to reach the initial stage, are called .....(acute, obtuse, reflex) angles.

Group Activity

(You need some colour papers, scissors, bristle board and gum)

Step - I) Take a piece of colour paper and make it having no straight edges.

eg:



Step - II) Cut some pieces to make acute angles, right angles, obtuse angles, straight angles and reflex angles.
Try to get atleast two distinct angles of each type

(You may use more than one colour paper)

Step - III) Paste them into groups as shown in the table below , on a bristle board.

Step - IV) After discussion, do the same activity at home and paste the cut pieces in this table.

Different Types of angles				
Acute angles	Right angles	Obtuse angles	Straight angles	Reflex angles

Think about it

Do you know why you have been advised to make the paper having no straight sides?

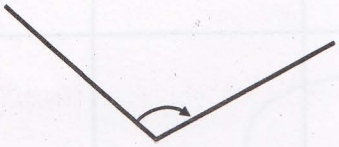
If you ignore that advice, what will be the difficulties you may face?

Can you suggest any other ways to overcome this problem?

Write down the kind of angle marked on each figure.

(right angle, obtuse angle, acute angle, reflex angle, straight angle)

.....



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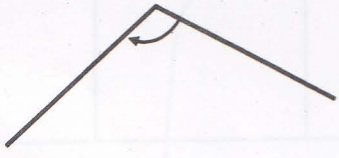

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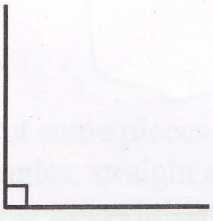

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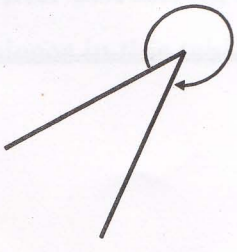

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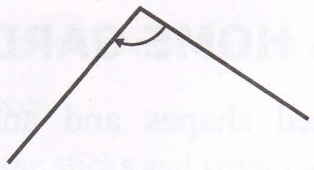


Draw and mark an acute angle at a point O , given below.

O.

Draw and mark an obtuse angle at a point A , given below.

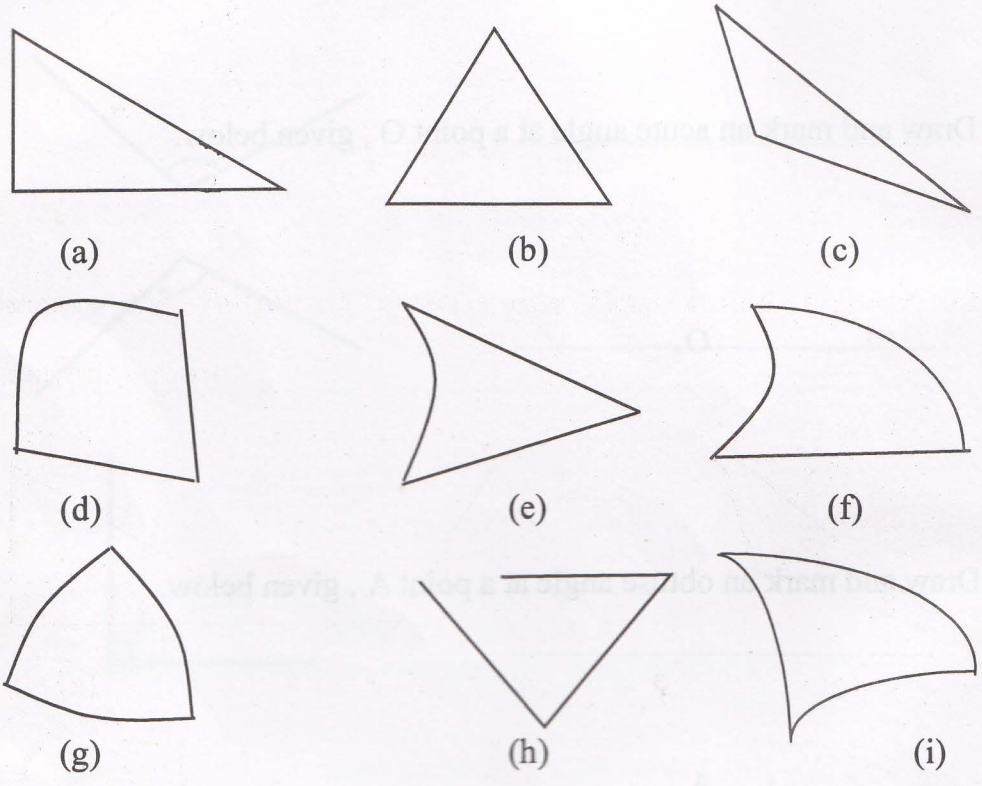
A.

Draw and mark a reflex angle at a point B , given below.

Unit 3

MEASUREMENTS OF A HOME GARDEN

1. Observe the following three sided shapes and answer the questions below.



a) Which of these shapes have one curved side and 2 straight sides?

.....

b) Which shapes have two curved edges and one straight edge?

.....

c) Which shapes have three curved sides?.....

d) Which shapes have three straight sides? .....

e) Which shapes are closed shapes? .....

f) Which closed shapes have three straight sides? .....

g) Which of these shapes are triangles? .....

Group activity

You are given some straight sticks of several lengths and some curved string pieces.

Try with the sticks and strings and answer the following.

i) Can you make a three sided closed – shape, which is not in a plane?
..... (Yes, No)

ii) Can you make a closed – shape having three straight edges, which is not in a plane? ..... (Yes, No)

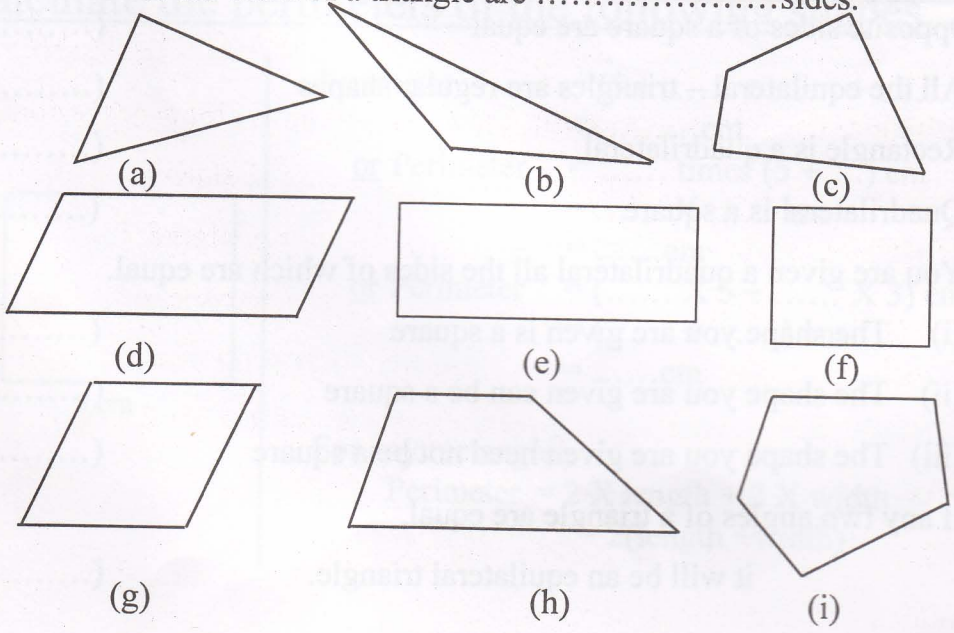
iii) Can you make a triangle using any three straight sides?
..... (Yes, No)

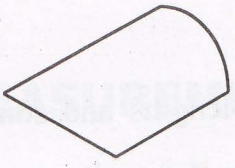
2. Fill in the blanks.

Choose the words from (three, closed, plane, straight)

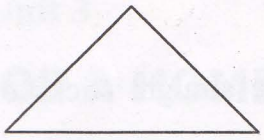
1. Triangle is a ..... figure.
   Triangle is a ..... figure.
   So, triangle is a ....., ... Figure.
2. A triangle has ..... sides.
3. All the sides of a triangle are .....sides.

3.

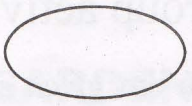




(j)



(k)



(l)

Observe the given plane shapes and answer the following questions.

Which of these shapes are

(i) Triangles .....

(ii) Quadrilaterals .....

(iii) Rectangles .....

(iv) Squares .....

(v) Equilaterals .....

(vi) Eqiulateral Triangles .....

(vii) Equilateral quadrilaterals .....

(viii) Regular shapes .....

(ix) Neither triangles nor quadrilaterals .....

Put right (✓) or wrong (X) in the brackets for the following sentences.

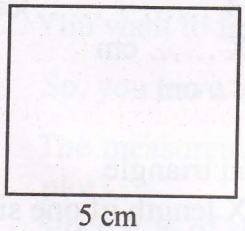
1. Opposite sides of a square are equal (.....)
2. All the equilateral – triangles are regular shapes (.....)
3. Rectangle is a quadrilateral (.....)
4. Quadrilateral is a square (.....)
5. You are given a quadrilateral all the sides of which are equal.
   (i) The shape you are given is a square (.....)
   (ii) The shape you are given can be a square (.....)
   (iii) The shape you are given need not be a square (.....)
6. If any two angles of a triangle are equal,
   it will be an equilateral triangle. (.....)

Complete the sentences using suitable numbers or using words given in brackets

1. A rectangle has ..... corners.
2. A rectangle has ..... pairs of equal sides and ..... equal angles.
3. All the angles of a rectangle are .....(right, acute) angles.
4. Rectangle is a special .....(quadrilateral, square).
5. A square has ..... corners.
6. A square has .....equal sides and .....equal angles.
7. All the angles of a square are .....(right, acute) angles.
8. A .....(square, quadrilateral) is a special rectangle.
9. A quadrilateral need not have .....(some, any) equal sides, but it can have equal sides.
10. A regular quadrilateral is called as a .....(rectangle, square).
11. A triangle has .....corners and .....sides.
12. All the triangles having equal sides must have .....(equal, no equal) angles. So, it is a regular shape.

Calculate the perimeters of the following shapes.

I .



Perimeter = (5 + ... + ... + ...) cm
= .....cm.

or Perimeter = ... times (5 +....) cm
= ..... X ..... cm
= .....cm

or Perimeter = (..... X 5 + ... X 3) cm
= (..... + ...) cm
= .....cm

For any rectangle ,
Perimeter = 2 X length + 2 X width
= 2(length +width)

II.

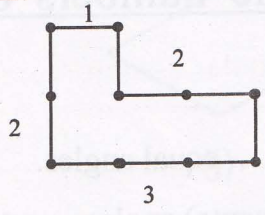


Figure1

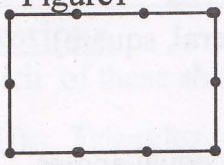


Figure2

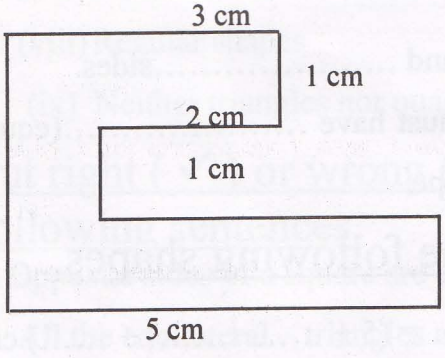
Perimeter of Figure1= (1 + 2 + ...+ .....+.....)
= (.....)

Perimeter of Figure2 = (2 X ..... + 2 X .....)
= ..... + ...
=

Could you understand that how the perimeters of figure1& figure2 are equal?

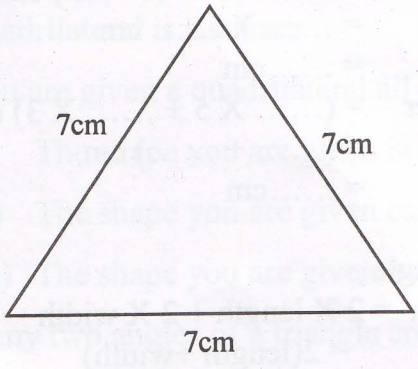
Try to explain using 10 sticks of equal length.

III.



Perimeter = 5 + ...
= ..... cm

IV.

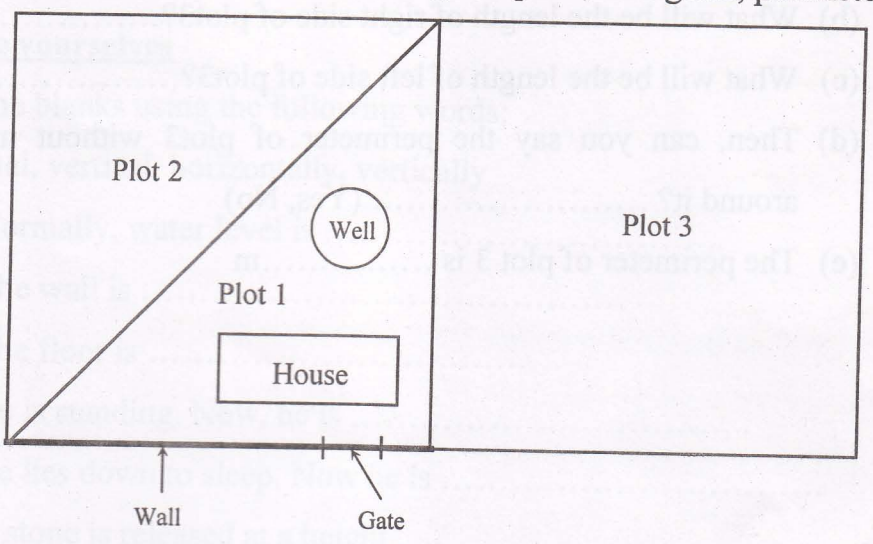


Perimeter = (7 + ... + ...)cm
= 3 X ..... cm
= ..... cm

For any equilateral triangle
Perimeter = 3 X length of one side

This picture shows the shape of your home garden and how it was divided into plots.

Select the words from (triangle, rectangle, square, triangular, perimeter)



a) 1. The shape of your land is a .....

2. The shape of plot 2 is a..... .

3. Plot 1 is also of ..... shape.

4. Plot 3 is a .....

b) 1. You want to make a fence around plot2.

So, you have to measure around the plot2.

The measurement around the plot2 is called as the ..... of plot2.

Since plot2 is of ..... shape, perimeter of plot2 is the perimeter of that triangle.

2. You want to fence around plot 3.

So, you have to measure around it.

The measurement around plot 3 is called as the.....of the plot3.

Since it is of square shape, ... of plot3 is the perimeter of that square.

3. The length of the front portion of plot 3 is 8m.

(a) What will be the length of the back portion of plot 3?.....

(b) What will be the length of right side of plot3?.....

(c) What will be the length of left side of plot3?.....

(d) Then, can you say the perimeter of plot3 without measuring around it? ..... (Yes, No)

(e) The perimeter of plot 3 is .....m

Unit 4

POSITION OF A HOME GARDEN

Explore yourselves

Fill in the blanks using the following words:

horizontal, vertical, horizontally, vertically

1. Normally, water level is .....
2. The wall is .....
3. The floor is .....
4. He is standing. Now, he is .....
5. He lies down to sleep. Now he is .....
6. A stone is released at a height.
   It will drop .....
7. A car is moving along a ..... road.
   It moves .....
8. A stone is hanged by a thread.
   It is hanged .....

Activity:

List some objects /things in your classroom, which are horizontal and vertical.

Horizontal	Vertical

Group Activity:

I. Place a cardboard box on a floor.

II. Observe it and complete the following sentences.

1. It has ☐ horizontal faces and ☐ vertical faces.
2. There are ☐ horizontal edges and ☐ vertical edges in the cardboard box.

III. Place a tetrahedron on the table.

Number of faces ☐

Number of horizontal faces ☐

Number of vertical faces ☐

Number of faces, which are neither horizontal nor vertical ☐

Activity:

I. Discuss about the instruments used to check the horizontal and vertical directions while building a house.

II. Try to make those instruments with easily available things.

III. Check the horizontal and vertical things with the help of the instruments you made.

Activity:

Discuss about some information, which could be used to find directions.

- To find North
- To find East
- To find North – South direction

Clues :- Compass, magnet, temples, shadow, sun

Activity:

I. Stand facing the sun in the morning.

II. Stretch your arms out.

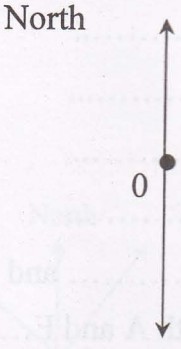
- The direction you are facing is .....
- The direction behind you is .....
- The direction pointed by your left arm is .....
- The direction pointed by your right arm is..... ...

III. Make four friends stand in each four directions, at a distance from you.

IV. Draw lines with arrow marks from your position to their positions.

V. Copy the lines here by completing the given figure.

O- denotes your position.



Note :- On a paper, we usually denote North towards the top edge of the paper.

Exercise

1) Write down the four main directions.

a) ----------, ----------, ----------, ----------

b) Show them on a map.

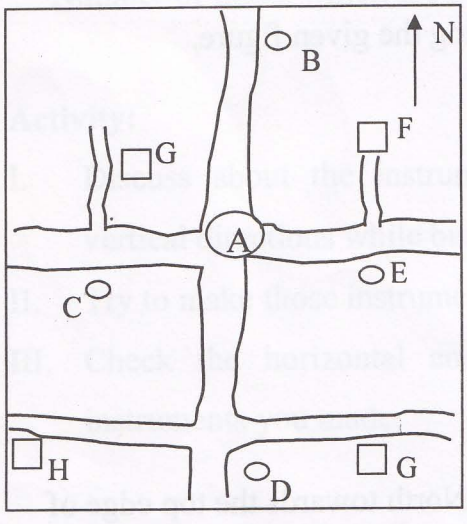
2) Normally we use lines with arrow marks to denote directions from a position.

↑ is towards North

→ is towards .....

← is towards .....

↓ is towards .....



A to B is North

A to C is .....

A to D is .....

A to E is .....

G to D is .....

E to G is .....

B is North of both ..... and .....

C is ..... of both A and E.....

F is situated in a direction from A between the North direction of A and the East direction of A .

So, F is in the ..... direction from A

H is in the ..... direction from A

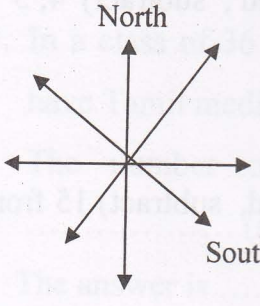
G is ..... of A

D is ..... of G.

E is ..... of D.

4) Give eight directions----------, ----------, ----------, ----------, ----------, ----------, ----------, ----------

5)



Label the unmarked directions.

UNIT 5

BASIC OPERATIONS THROUGH OUR NEEDS

Explore Yourselves

1. Ravi, Balan, Kumar are three neighbours. They arranged a family trip and hired a van.
   The number of seats in the van is 20

	Number of family members
Ravi	4
Balan	6
Kumar	5

Some more people in their neighborhood also wish to join them.

a. How many people from the three families have planned to go on the trip?
   To find the answer we have to ..... (add , subtract) 4, 5 and 6.
   The answer is 15.

b. How many more people could join them?

   To find the answer we have to ..... (add, subtract) 15 from 20.
   The answer is 5.

2. Jega bought a fridge, a radio and a fan.

   The amount she had to pay was the .....(sum, difference) of the prices.

   To find that amount, we have to ..... (add, subtract) these three prices.
   The ..... (sum, total) cost is Rs 16500/-.
   The ..... (addition, subtraction) of the three prices is the total cost.

Fridge	Rs 9000
Radio	Rs 4000
Fan	Rs 3500

3. The population of a village is 8365.

The number of males in that village is 5000.

To find the number of females in that village, we have to ..... (add, subtract) 5000 from 8365.

The number of females is the ..... (subtraction, difference) between the two numbers 8365 and 5000.

8365 ..... (plus, minus) 5000 is equal to 3365.

So, the number of females is 3365.

4. Mala has 10 marbles.

   Dinesh has 23 marbles .

   10..... (plus, minus) 23 is equal to 33.

   They ..... (altogether, each) have 33 marbles.

   23 .....(plus, minus) 10 is equal to 13.

   Dinesh has 13 marbles ..... (more, less) than Mala.

   Mala has 13 marbles ..... (more, less) than Dinesh.

5. In a class of 36 students, 20 have English Medium books and the rest have Tamil medium books.

   The number of students having Tamil medium books is the ..... (subtraction, addition) of 20 from 36.

   The answer is .....

6. There are six divisions in Grade 6 in your school. 3 students from each division are selected for a competition.

   How many students are selected in Grade 6?

   To find the answer, we have to .....(multiply, add) the numbers 6 and 3.

   The answer is .....

7. In a certain situation, the co-operative shop delivered 3 soaps to each family card.

   120 soaps were delivered on a day.

   How many families could have bought soap on that day?

   To find the answer, we have to .....(multiply, divide) 120 by 3.

   The answer is.....

Addition: Complete the table quickly

+	7	5	4	6	3	2	8	9	1
5									
7									
6					9				
4								13	
2									
8		13							
9									
1				7					
3									

Exercise

1. $9 + 9 = \square$
2. $6 + \square = 10$
3. $7 + 5 = 5 + \square = \square$
4. $7 + 0 = \square + 7 = \square$

Activity

You have 30 marbles and your friend has 20 marbles. Both of you heap the marbles 10 by 10 individually.

i. How many heaps of 10 marbles do you have?

ii. How many heaps of 10 marbles does your friend have?

Now, you give your marbles to your friend.

She .....(adds, removes) them with her marbles.

Now, she would have ☐ heaps of 10 marbles.

She would have ☐ marbles.

When we add 30 marbles to 20 marbles we will get ☐ marbles.

=> 30 + 20 = 3 tens +2 tens = ☐ tens = ☐

Now try to fill this table

Number of marbles		**Number of heaps of 10 marbles**		**After giving yours to your friend**	
You have	Your friend has	You have	Your friend has	Number of heaps your friend has	Number of marbles your friend has
50	70	5	7	12	120
90	80				
60	70				
30	80				
40	30				
70	40				

Exercise:-

1. 80 + 60 = 8 tens + ☐ tens = ☐ tens = ☐
2. 70 + 30 = ☐ tens + ☐ tens = ☐ tens = ☐
3. 800 + 200 = ☐ hundreds + 2 hundreds = ☐ hundreds = ☐
4. 7000 + 5000 = ☐ thousands+ ☐ thousands = ☐ thousands = ☐
5. 70 + 60 = (7 + ☐) tens = ☐ tens = ☐

Exercise : Complete the table quickly

+	10	50	80	90	70
40					
80					
60					
70					
30					

1. 7 + 5 = 12 => 70 + 50 =..............., 700 +500 =...................
2. 6 + 7 = 13 => 60 + 70 =................, 6000 +7000 =..................
3. 7 + 5 + 3 = 15 => 70 + 50 + 30 =..........,7000 +5000+ 3000 =...........................
4.

```
  7          7 0 0
  4    =>    4 0 0
  2 +        2 0 0 +
 ----       ------
 13         ☐☐0 0
```

To add 35 with 43

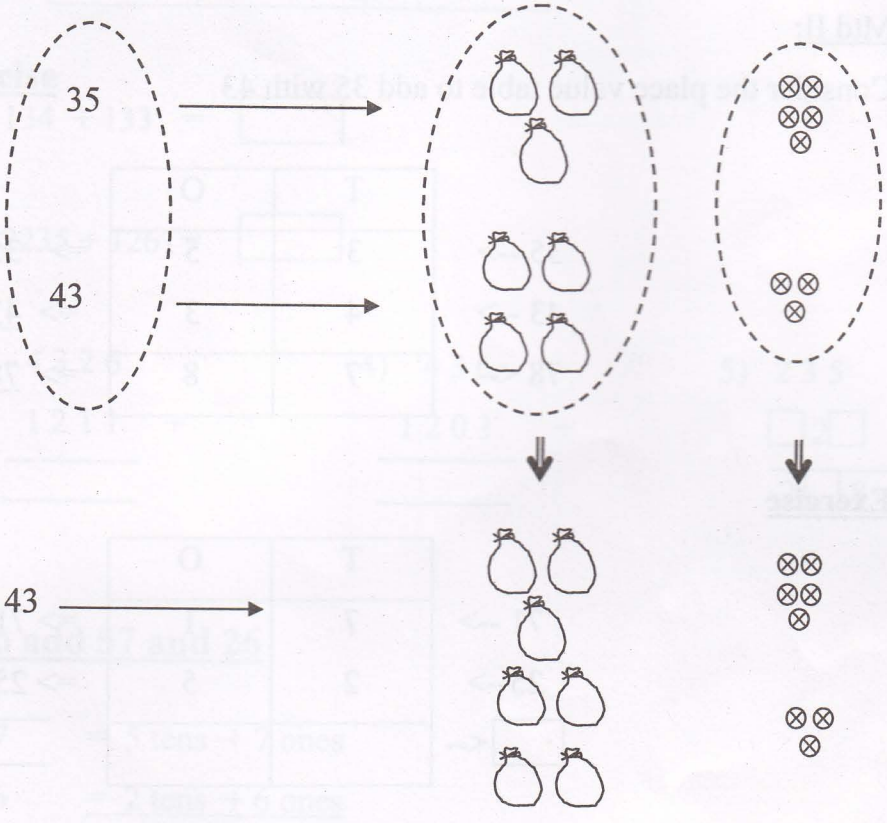
Mtd I

35 = 30 + 5

= 3 tens + 5 ones => 35 = 3 tens and 5 ones

43 = 40 + 3

= 4 tens + 3 ones => 43 = 4 tens and 3 ones



=> 35 + 43 = ☐ tens + ☐ ones

= ☐

Exercise

1. 36 + 52 = (3+5) tens + (6 +2) ones = ☐ tens + ☐ ones = ☐
2. 71 +25 = (☐ + ☐) tens +(☐ + ☐)ones= ☐ tens + ☐ ones = ☐
3. 54 + 32 = ☐ tens + ☐ ones = ☐
4. 27 + 11 = ☐ tens + ☐ ones = ☐
5. 35 + 44 = ☐ tens + ☐ ones = ☐

Mtd II:

Consider the place value table to add 35 with 43

	T	O	
35 -->	3	5	=> 35
43 -->	4	3	=> 43 +
78 <--	7	8	=> 78

Exercise

	T	O	
71 -->	7	1	=> 71
25-->	2	5	=> 25 +
☐ <--			

Add: 346+ 231

Mtd I

346 + 231 = (3+2) hundreds + (☐ + ☐)tens + (☐ + ☐) ones

= ☐ hundreds + ☐ tens + ☐ ones

= ☐

Mtd II

	H	T	O
346-->	3	4	6
231-->	2	3	1
	☐	☐	☐

==> 346 + 231 = ☐

Exercise

1) 134 + 133 = ☐

2) 2235 + 1261 = ☐

3) 4326 + 1211 = ☐

4) 436 + 1203 = ☐

5) 235 + ☐2☐ = 2☐8

Try to add 57 and 26

57 = 5 tens + 7 ones

26 = 2 tens + 6 ones

=> 57 + 26 = 7 tens + 13 ones

= 7 tens + ☐ ten + 3 ones (13 ones can be renamed by ☐ tens and ☐ ones)

= .....tens + 3 ones

= .....

Set these ideas in a place value table

Tens (T)	Ones (O)
Carry ☐	
5	7
2	6
☐	☐

(Follow these steps)

Step I: add ones

7 + 6 = 13

= 1 ten + 3 ones

put ☐ in ones place

carry ☐ to the tens place

Step II: add tens

☐ + 5 + 2 = ☐

==> 57

26 +

Add : 37+ 86

H	T	O
☐	☐	
	3	7
	8	6
☐	☐	☐

Step I : Add ones

7+ 6= 13 = 1 ten + 3 ones

Put 3 in ones place

Carry 1 to the tens place

Step II: Add tens :

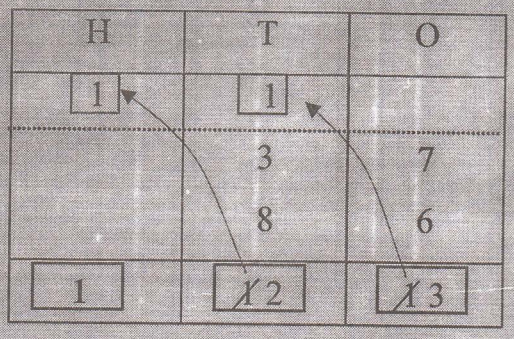
1+3+8 =12 tens =1 hundred +2 tens

Put 2 in tens place

Carry 1 to the hundreds place

Step III: Add hundreds

Think like this



Add using place value table

1) 77 + 45 =

H	T	O

2) 124 + 39 =

H	T	O

3) 96 + 35 =

H	T	O

4) 7435 + 647 =

T	H	T	O

5) 1237 + 2987

T	H	T	O

6) 1275 + 735 + 2364

T	H	T	O

Do it yourselves

1. 7 + ☐ = 10 => 10 - ☐ = 7
2. 15 + ☐ = 25 => 25 - 15 = ☐
3. 70 + ☐ = 90 => 90 - 70 = ☐
4. 7 – 2 = ☐ => 70 - 20 = ☐
5. 15 – 7 = ☐ => 1500 - 700 = ☐

Activity

To subtract: 45-23

We have 45 marbles. We have to take away 23 marbles.

Group 45 marbles ten by ten . Put them in small bags .

Then we have ☐ bags of 10 marbles and ☐ single marbles.

To take away 23 marbles, we can select ☐ bags of 10 marbles and ☐ single marbles easily.

Take away the selected marbles.

Now we have ☐ bags of ten marbles and ☐ single marbles

That is ☐ tens and ☐ ones.

The balance number of marbles is ☐

=> 45 –23 = ☐

Follow the same procedure ina place value table.

	T	O
45 →	4	5
23 →	2	3
	☐	☐

Step I: Subtract ones

5 –3 = 2 (5 ones – 3 ones)

4 –2 = 2 (4 tens – 2 tens)

Step II: Subtract tens

We have 45 = 4 tens + 5 0nes

Take away 23 = 2 tens + 3 ones

The balance 45-23 = ☐ tens+ ☐ ones

=> 45 – 23 = ☐

Activity

To subtract: 43 – 25

We have 43 marbles. We have to take away 25 marbles

Group 43 marbles 10 by 10

Put each 10 marbles in small bags.

Then you have ☐ bags of 10 marbles and ☐ single marbles

To take away 25 marbles you have to take ☐ bags of 10 marbles and ☐ single marbles

But, you can't take ☐ single marbles from ☐ single marbles.

Take 10 marbles out from one bag. Add them with the single marbles.

Now, you have ☐ tens and ☐ ones.

Now, take away 25 (2 bags and 5 single)marbles.

The balance is ☐ bags of 10 marbles and ☐ single marbles.

The balance number of marbles is ☐

=> 43 –25 = ☐

Follow the same idea using place value table

T	O
$^{3}\not{4}$ 2	$^{13}\not{3}$ 5
☐	☐

We can't find 3 - 5

Take 1 ten from 4 tens.

Then there will be..... tens.

Bring that 1 to the ones place.

Then there will be ☐ ones, (1 tens = 10 ones)

Now subtract ones.

Then, subtract tens.

=> 43 - 25 = ☐

Subtract 185 from 262 using place value table.

H	T	O
	5	12
2 1	$\not{6}$ 2	$\not{2}$ 5
		☐

Step I: Subtract ones

We can't find 2-5

Take 1 ten to ones place

1 ten = 10 ones

=>6 Tens + 2 ones = 5 tens + 12 ones

12 – 5 = ☐

H	T	O
1	15	12
2 1	$\not{6}$ 8	$\not{2}$ 5
	☐	☐

Step II: Subtract tens

We can't find 5 – 8

Take 1 hundred to tens place

I H = 10 T

=> 2H, 5T = 1H, 15 T

Now subtract tens

15 – 8 = ☐

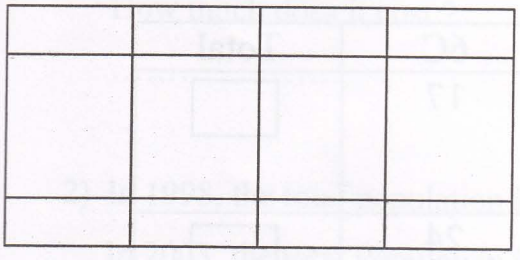
H	T	O
1	5	12
2 1	6 8	2 5
☐	☐	☐

Step III: Subtract Hundreds

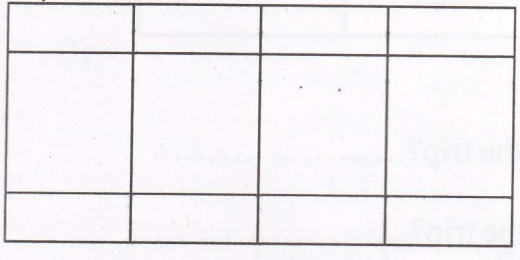
1- 1 = ☐

Subtract using place value tables

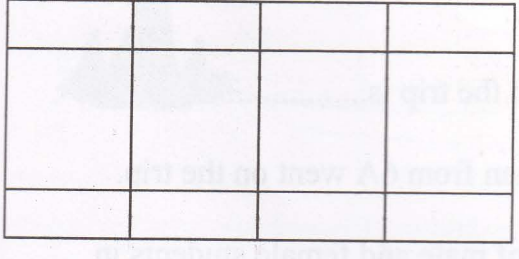
1) 2743 – 1375



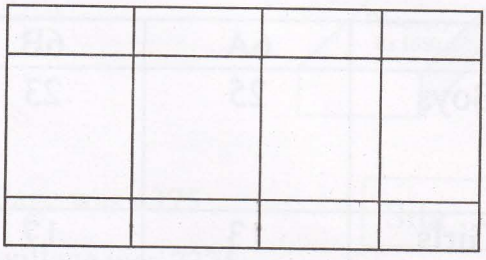
2) 5842 – 2465



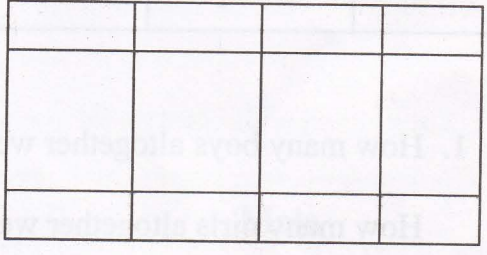
3) 7472 – 385



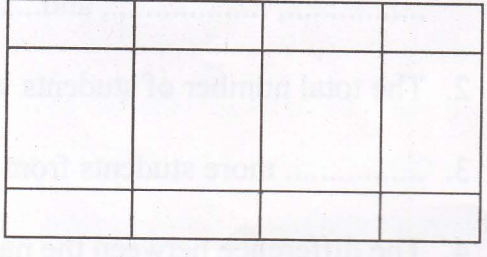
4) 2787 - 364



5) 4984 – 3943



6) 6900 – 208



Activity

Three divisions of Grade 6 went on a trip together. Details about the number of students are given in the table below.

	6A	6B	6C	Total
Boys	25	23	17	☐
Girls	13	17	24	☐
Total	☐	☐	☐	

1. How many boys altogether went on the trip?.....

   How many girls altogether went on the trip?.....

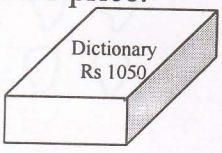
   The number of students went on the trip from 6A, 6B and 6C are

   ....., ..., and.....

2. The total number of students went on the trip is.....
3. ..... more students from 6B than from 6A went on the trip.
4. The difference between the number of male and female students in 6A, 6B and 6C are ....,..... and.....
5. The highest difference between the number of male and female students is in grade 6 ..... (A,B,C)
6. In grade 6A and 6B the number of boys is greater than the number of girls, but not in .....(6A,6B,6C)

Explore yourselves

1) A book shop sells a dictionary for Rs 50 less than its marked price.
How much does it cost.?

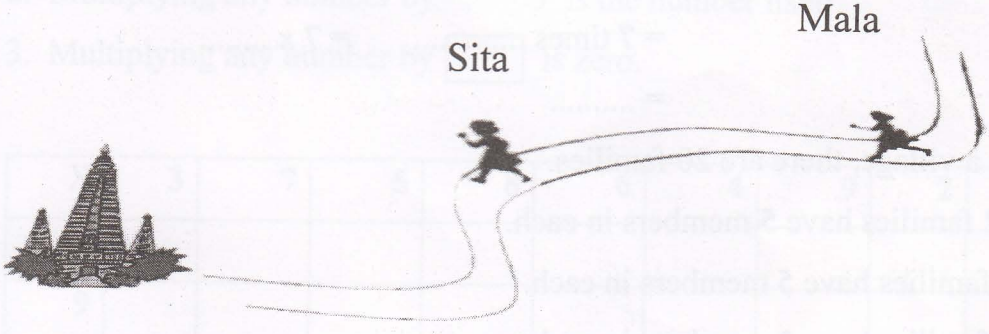


.....

2) In 1998, the total population in a village was 4375 .
In 2003 the total Population in that village was 7375.
The ..... (increase, decrease) in population is ..... during 5 years.

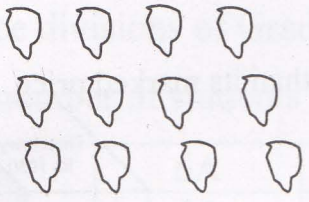
Sita

3)



Mala has to travel 18 km to reach the temple .
She has to travel 8 km to meet Sita .
If Sita wants to go to the temple, how far does she have to travel?
.....km

Explore yourselves

1. 

How many mangoes are there in all? .....

3 + 3 + ... + ... = ...

We have to add ☐ times 3

So, there are ..... mangoes in all

2. There are 7 rows, each having 8 seats.

To find the total number of seats, we have to .....8 by 7.

Total number of seats is the ....of 8 and 7.

Total number of seats = 8 times ..... = 8 x .....

= 7 times ..... = 7 x .....

= .....

3. In a village, there are 20 families.

12 families have 5 members in each.

5 families have 5 members in each.

3 families have 3 members in each.

The total number of people in the 12 families having 5 members

= 12 times ☐ = ☐

The number of people in the 5 families having 4 members

= 5 times ☐ = ☐

The number of people in the 3 families having 3 members

= ..... ☐ = ☐

The total number of people in that village = ...

Various expressions of 4x3

- 4 threes are
- 4 times 3 is
- Multiply 3 by 4. The answer is
- Multiplication of 3 and 4 is
- Product of 3 and 4 is

Exercise

1. 3+3+3+3=12

   4 Times 3 = 12

   3+3+3+3+3 = 15

   5 Times 3 =15

   So, multiplication is a repeated .....(addition, subtraction)

2. Multiplying any number by 5 is the number itself.
3. Multiplying any number by is zero.

X	3	7	5	8	6	4	9	2	1
7									
9									
6									
5									
4									
8									
3									
1									
2									

Exercises

1. $5 \times 1 = 1 \times \square = \square$

2. $7 \times 0 = \square \times 7 = \square$

3. $3 \times 7 = 7 \times \square = \square$

4. $12 \times 5 = \square$

5. $2 \times (3 \times 5) = (2 \times 3) \times \square$

Do it yourselves

1) Follow the pattern to fill the empty boxes

$1 \times 10 = 10$ $\quad$ $1 \times 100 = 100$

$2 \times 10 = 20$ $\quad$ $2 \times 100 = 200$

$3 \times 10 = 30$ $\quad$ $3 \times 100 = 300$

$12 \times 10 = \square$ $\quad$ $27 \times 100 = \square$

$273 \times 10 = \square$ $\quad$ $365 \times 100 = \square$

2). $12 \times 80 =$ 12 times 8 tens

$= 96$ times tens

$= 96 \times 10$

$= \square$

3. $15 \times 70 = 15 \times \square \times 10$

$= \square \times 10$

$= \square$

4. $8 \times 700 =$ 8 times 7 hundreds

$= 8 \times 7$ hundreds $= \square$ hundreds $= \square$

Exercise

1. 7 x 10 = ☐

2. 136 x 10 = ☐

3. 16 x 100 = ☐

4) 8 X 700 = ☐ X ☐ X 100 = ☐

5) 11 X 900 = ☐ X ☐ X 100 = ☐

6) 11X 2000 = ☐ X ☐ X 1000 = ☐

Activity

To find 3X 245

3 X 245 = 3 times 245

245 = 200 + 40 + 5

245 = 200 + 40 + 5

245 = 200 + 40 + 5

3 times 245 = 3 times ☐ + 3 times ☐ + 3 times ☐

3 X 245 = 3 X ☐ + 3X ☐ + 3X ☐

= ☐ + ☐ + ☐

= ☐

Exercise

1. 5 x 846 = 5x ☐ + 5 x ☐ +5 x 6

= ☐ + ☐ + ☐

= ☐

2. 8x 474 = ☐ x 400 + ☐ x 70 + ☐ x 4

= ☐ + ☐ + ☐

= ☐

Set these ideas in a place value table.

To Find 245 x 3

245 = 200 + 40 + 5

3 x 245 = 3 x 200 + 3 x 40 + 3 x 5

Th	H	T	O
	2	4	5
			3
		1	5
	1	2	0

To Find 967 x 8

967 = 900 + ☐ + ☐

967 x 8 = 8 x ☐ + 8 x ☐ + ☐

Th	H	T	O
	9	6	7
			8

We can also set it out like this

(We can follow these steps mentally)

step I

Th	H	T	O
	2	4	5
			3 x
			5

Multiply ones

3 x 5 ones = 15 ones

= 1 tens + 5 ones

Put 5 in ones place

Carry 1 to the tens place.

Step II

Th	H	T	O
	2	4	5
			3
	3	5	

Step II

Multiply tens

3 x 4 tens = tens

add the carried 1 tens

12 + 1 = 13 tens

= 1 hundred + 3 tens

Put 3 in tens place

carry 1 to hundred place

Step III

Th	H	T	O
	2	4	5
			3
7	3	5	

Step III

Multiply hundreds

3x2 hundreds = 6 hundreds

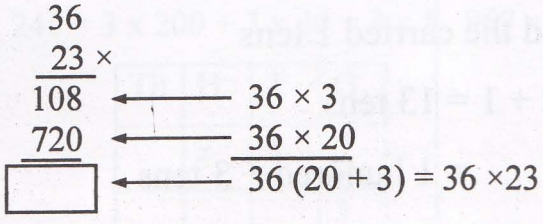
6+1= 7 hundreds

put 7 in hundred place

To find 36 x 23

$36 \times 23 = 36 \times (20 + 3)$

$= 36 \times 20 + 36 \times 3$



Activity

1. Kala's stamp album is filled with stamps. The album has 28 pages.
   Each page has 45 stamps on it.
   She has ..... stamps in her stamp album.

2. I bought 2 dozen exercise books, which cost Rs.27 each.
   The amount I had paid was Rs. .....

3. A lorry was loaded with 145 baskets of fruit. Each basket had 32 fruits.
   Number of fruits loaded was .....

4. A book has 225 sheets. 45 such books have..... sheets.

5. A cardboard box has 25 packets of chocolates.
   Each packet has 100 chocolates.
   Three such cardboard boxes have .....packets of chocolates.
   They have.....chocolates.

Division

1) 2 x ☐ = 10 ⟶ 10 ÷ 2= ☐

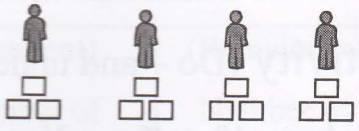
2) 9 x ☐ = 72 ⟶ 72 ÷ 9= ☐

3) 6 x ☐ = 60 ⟶ 60 ÷ 6= ☐

4) ☐ x 8 = 48 ⟶ 48 ÷ 8= ☐

Explore Yourselves

1) Latha has 12 pieces of cakes.



She gives 3 pieces to each child.

How many children could be given 3 pieces of cakes?

To find the answer, we have to find how many 3'S are there in 12.

3 x ☐ = 12 or 12 ÷ 3 = ☐ or $3\overline{)12}$ (☐ above the 12)

The answer is 12..... (multiplied, divided) by 3.

The answer is ☐

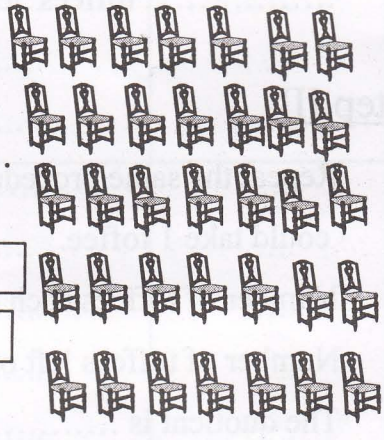
2) We have 35 chairs to be arranged in 5 rows.

Each row will have ..... chairs.

To find the answer we have to .....

....(divide, multiply) 35 by 5

The answer is the number of 5's in 35 .



5 X ☐ = 35 => 35 ÷ 5 = ☐

So, the number of 5's in 35 = ☐

The answer is ☐

Exercise:

1) $27 \div 3$ = 3's in 27 = ☐

2) $81 \div 9$ = 9's in 81 = ☐

3) $12 \div 2 = 6$,

2 is called the ..... (quotient,dividend, divisor)

12 is called the .....(quotient, dividend, divisor)

6 is called the .....(quotient, dividend, divisor)

Activity (Do – and understand on your own)

You have 10 toffees. You and your two friends try to take equal number of toffees.

Step I

Every one of you takes one toffee.

..... toffees left over.

Could you all take toffee again? ..... (Yes, No)

Step II

Every one of you takes one toffee again?

..... toffees left over.

Step III

Repeat the same procedure till every one of you could take 1 toffee.

Number of toffees each one of you have is .....

Number of toffees left over is .....

The quotient is .....

The remainder is .....

Step IV

Do the same activity with 15, 16, 17, 18 toffees among three friends.

Step V

Fill the results in the table.

Imagine the same activity with 10,15,16,17,18 toffees - 4 friends

Imagine the same activity with 10,15,16,17,18 toffees - 5 friends.

Number of Friends	Number of Toffees	(Quotient) Number of Toffees everyone have	(Remainder) Number of Toffees left over
03	10	03	1
03	15	....	....
03	16	.....	.....
03	17	.....	.....
03	18	.....	.....
04	10	....	....
04	15	.....	.....
04	16	.....	.....
04	17	.....	.....
04	18	.....	.....
05	10	....	....
05	15	.....	.....
05	16	.....	.....
05	17	.....	.....
05	18	.....	.....

While filling the table we can observe.

```
                                              3 ← Quotient
3 X 3  = 9,        9 + 1  = 10  =>         3|1 0
                                              9
                                              1 ← Remainder

                                              5 ← Quotient
3 X 5  = 15,                    =>         3|1 5
                                            1 5
                                              0

                                              5 ← Quotient
3 X 5  = 15,       15 + 1 = 16  =>         3|1 6
                                            1 5
                                              1 ← Remainder
```

Exercise:-

1)

1) $8\overline{)37}$ 2) $6\overline{)49}$ 3) $4\overline{)59}$

4) $7\overline{)65}$ 5) $9\overline{)72}$ 6) $4\overline{)37}$

2)

1) 20 has 2 tens => 20 ÷ 10 = 2
2) 300 has 30 tens => 300 ÷ 10 = ☐
3) 5700 has ☐ tens => 5700 ÷ 10 = ☐
4) 700 has ☐ hundreds => 700 ÷ 100 = ☐
5) 8 has four 2's => 80 has ☐ 20's
6) 16 ÷ 4 = ☐ => 1600 ÷ 400 = ☐
7) 5500÷ 500 = 550 ÷ 50 = 55 ÷ 5 = ☐
8) 36 ÷ 12 = 36 ÷ ☐ = ☐

Exercises

1) 9) 85 → quotient 9; 85 − 81 = 4   => 85 = 9 x □ + □

2) 8) 51 → quotient 6; 51 − 48 = 3   => 51 = 8 x □ + □

3) 7 tens ÷ 7 = □ ten => 70 ÷ 7 = □ => 7) 70 (quotient □)

4) 12 tens ÷ 4 = □ tens => 120 ÷ 4 = □ => 4) 120 (quotient □)

5) 25 hundreds ÷ 5 = □ hundreds => 2500 ÷ 5 = □ => 5) 2500

To divide 85 by 4

Long form

	T	O
quotient	2	1
4)	8	5
	8	
	0	5
		4
		1

85 = 8 tens + 5 ones

Divide the tens first

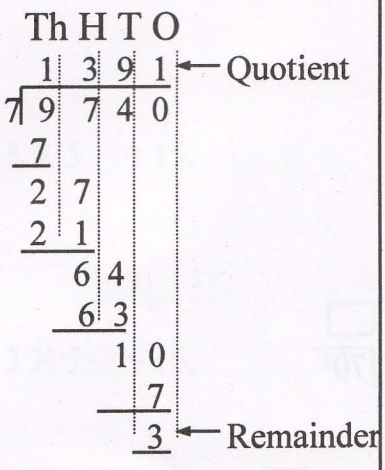
8 tens ÷ 4 = 2 tens

Divide the ones

5 ÷ 4 = 1, Remainder = 1

To divide 9740 by 7

Long form



Divide Thousands First

9 thousands ÷ 7 = 1 thousand, 2 thousands left

ousands together with 7 hundreds make 27 hundreds

Then divide hundreds

27 hundreds ÷ 7 = 3, 6 hundreds left
6 hundreds together with 4 tens makes 64 tens

Then divide tens

64 tens ÷ 7 = 9, 1 ten left
1 ten together with 0 make 10 ones

Lastly divide ones

10 ones ÷ 7 = 1, 3 ones left

The quotient = 1391,

Remainder = 3

Short form

You may divide mentally

1 3 9 1 Remainder - 3
7| 9 7 4 0

Think like this

Consider 9 => 7 X 1 = 7, 2 balance
Place 2 before 7
Consider 27 => 7 X 3 = 21, 6 balance
Place 6 before 4
Consider 64 => 7 X 9 = 63, 1 balance
Place 1 before 0
Consider 10=> 7 X 1 = 7, 3 balance

Exercise:-

I) Divide in Long form

1) $5\overline{)764}$ 2) $7\overline{)8009}$ 3) $8\overline{)587}$

II Divide in short form

1) $6\overline{)96}$ 2) $9\overline{)793}$ 3) $6\overline{)912}$ 4) $4\overline{)9750}$

5) $7\overline{)3078}$ 6) $3\overline{)6310}$ 7) $4\overline{)6615}$ 8) $5\overline{)7303}$

Activity

To divide 85 by 30

$$30\overline{)85}$$

☐ ← quotient

☐ ← 30 x quotient

☐ ← Remainder

85 ÷ 30 = ☐, remainder ☐

Think

- 3 goes into 8 two times
- So, 30 goes into 80 ..... times
- => 30 goes into 85 ..... times
- The quotient is ☐
- Write the quotient at the top
- Multiply 30 by the quotient

  30 x ☐ = ☐
- Subtract it from 85

  85 - ☐ = ☐
- Remainder is ☐

Exercise: -

Divide

1) $40\overline{)95}$ 2) $30\overline{)74}$ 3) $50\overline{)87}$ 4) $70\overline{)97}$ 5) $20\overline{)97}$

Activity

To Divide 857 by 30

Step I

H T O

□ ← Quotient in tens place

$30\overline{)857}$

□ ← 30 X quotient in tens place

□ ← remainder

Think

We can not divide 8 by 30 .

Step I First consider 85 ÷ 30

(85 tens ÷ 30)

85 ÷ 30 = □, remainder □

Quotient in tens place is □

The remainder should be .....

(less, greater) than 30.

Step II

H T O

□□ ← Quotient in ones place

$30\overline{)857}$

□

7

□ ← 30 X quotient in ones place

□ ← remainder

Step II Bring down 7

Consider □ 7 ÷ 30

(□ 7 ones÷ 30)

□ 7 ÷ 30 = □ ,remainder □

Quotient in ones place is □

=> 857 ÷ 30 = □, remainder □

Exercise:-

1) $20\overline{)402}$ 2) $40\overline{)877}$ 3) $30\overline{)987}$ 4) $60\overline{)846}$

To divide 98 by 18

```
     5
18 | 9 8
     9 0  ← 5 X 18
       8
```

Step I: Try 5

18 X 5 = 90 is less than 98.

18 X 6 = 108 is greater than 98.

=> 18 goes into 98, 5 times.

write 5 at the top of the division

Step II: Subtract 5 X 18 = 90 from 98

Remainder 8

98 ÷ 18 = 5, remainder 8.

To divide 274 by 14

```
      1 9
14 | 2 7 4
     1 4 ↓ ←........ 14 X 1
     1 3 4
     1 2 6 ←    9 X 14
       0 8
```

Step I Consider 27 ÷ 14

14 X 1 = 14 is less than 27

14 X 2 = 28 greater than 27

=> 14 goes into 27, '1' time

write '1' at the top of the division

Step II Subtract 14 X 1 = 14 from 27

Step III Bring down '4'

Step IV Now consider

134÷ 4

14 X 9 = 126

14 X 9 = 126 , This is less than 134

So, 14 goes into 134 nine times

write 9 at the top of the division

Step V: Subtract 14x9 =126 from 134 .

So , 274 ÷ 14 = 19, remainder 8.

Divide

1) 34 | 8 2 3   2) 18 | 9 3 6   3) 86 | 7 8 9

4) 74 | 8 1 7   5) 92 | 8 3 1 5   6) 23 | 8 2 4 5

Exercise:-

1) 144 items = 1 gross

12 items = 1 dozen

How many dozens are there in a gross? .....

2) Mohan drove his car 1746 kilometers

He can drive 22 kilometers in an hour.

He took ..... hours to travel.

3) Kandan has a coconut estate.

He buys 1235 coconut plants.

He plans to plant 34 plants in a row.

How many complete rows could he plant? .....

How many plants will be left unplanted? .....

Explore yourselves

1. 2, 4, 6, 8, 10 ..... 48, 50 .....are multiples of 2.

There will be no remainder when divided by 2.

They are ..... (divisible, not divisible) by 2.

These numbers are called ..... (even, odd) numbers.

2) 1, 3, 5, 7, 9, 11, 13, ... are ..... (multiples, not multiples) of 2.

There will be a remainder 1, when divided by☐ .

They are ..... (divisible, not divisible) by 2.

These numbers are called ..... (odd, even) numbers.

3) The even numbers end in 0, 2, 4, 6, and ☐

4) The odd numbers end in ☐ , ☐, 5, 7 and 9.

5) 5, 10, 15, 20, 25, ... are multiples of 5.

There will be .....(a , no) remainder when divided by 5.

So, they are ..... by 5.

The last digit of a multiple of 5 must be ☐ or ☐ .

6) 10, 20, 30, 40, 50, ... are multiples of 10.

There will be ..... when divided by 10.

So, they are ..... by 10.

The last digit of a multiple of 10 must be ☐

7) All the multiples of 10 are also multiples of 2 or ☐

8) A multiple of 2 .....(never, sometimes) be a multiple of 5.

Explore yourselves

1) If we want to divide the class into two equal groups, the number of students in the class must be a ..... of 2.

2) He has sold some raffle tickets each cost Rs10.

The collection he has must be a ..... of .....

3) Rama's uncle gives her Rs5 to put in her till box whenever he comes, otherwise she does not put any money in it.

When she breaks it, the amount she will find must be a .....

Unit 6

Sharing Food Items

Activity

- You are given 4 apples 
- You can take all the 4 apples for you.

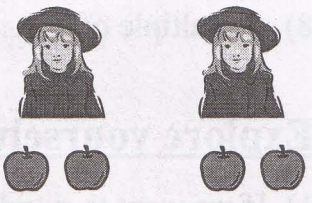
  N umber of persons shared it = ☐

  Number of apples one person has = ☐

- You and your friend share them completely such that each one of you has equal number of apples.

  Number of persons shared it = ☐

  Number of apples one person has = ☐

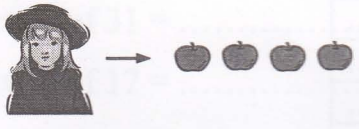


- Can you share them completely among 3 Children such that each one gets equal number of apples. ..... (Yes, No)
- Can you share them completely among 4 Children such that each one gets equal number of apples ..... (Yes, No)
- Try the similar activity with 12 apples and 18 apples
- Increase one by one the number of children up to the number of apples and try to share the apples among them.

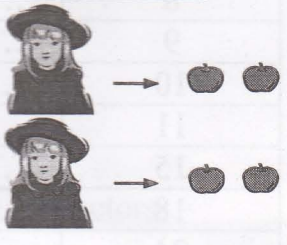
➢ Complete the following table.

Number of apples to be shared	Number of people could share equal	Number of apples each gets
04	01 02 04	04 02 01
12	....	....
18	....	....

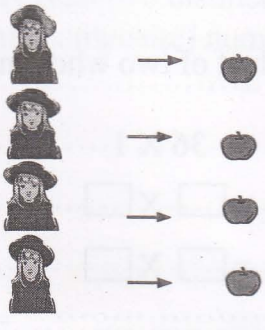
From the result of the activity, we can observe



4 = 1 X 4



4 = 2 X 2



4 = 4 X 1

Explore yourselves

1. The numbers 1, 2, ☐ can divide 4 without remainder.
   So 1, 2, ☐ are called as ..... (factors, multiples) of 4.
2. The numbers, which can divide 12 without remainder are
   ☐, ☐, ☐, ☐, ☐, ☐
   Give all the factors of 12 ☐, ☐, ☐, ☐, ☐, ☐
3. Give all the factors of 18 .....
4. Complete the table

Numbers	Factors
1	.....
2	.....
3	.....
4	1 , 2 , 4
5	.....
6	.....
7	.....
8	.....
9	.....
10	.....
11	.....
15	.....
18	.....
24	.....
35	.....

Exercise.

1) I. Write 36 as a product of two whole numbers in all the possible ways

36 = 1 X 36 = 36 X 1

36 = ☐ X ☐ = ☐ X ☐

36 = ☐ X ☐ = ☐ X ☐

.....

.....

II. Write down all the factors of 36.: .....

2. Write 48 as a product of two whole numbers is all the possible ways.

48 = ...= .....

= .....=.....

= .....=.....

= .....=.....

= .....=.....

Write down all the factors of 48.....

Exercise.

1) Which number has only one factor? .....

2) Write down the numbers between 1 and 15 having only two factors

.....

3) A number having exactly two factors is called a .....(prime, composite) number.
The two factors of that number are ☐ and the number itself.

Factors of 23 = ...

Factors of 19 = ...

Factors of 31 = ...

Factors of 17 = ...

The numbers 23,19,31,17 have exactly ☐ factors

So, they are ..... (prime, composite) numbers.

4) A number having more than two distinct factors is called a ..... (prime, composite) numbers.

a) Factors of 4 = ...

Factors of 6 = ...

Factors of 8 = ...

Factors of 9 = ...

Factors of 10 = ...

Factors of 12 = ...

Factors of 14 = ...

b) The numbers 4, 6, 8, 9, 10, 12, 14 have more than ☐ factors

So they are ..... (prime, composite) numbers.

c) 2 is a factor of both 4 and 6.

The factor 2 is ..... (common, same) for both 4 and 6.

So, 2 is called a ..... (common, same) factor of 4 and 6.

d) Write down the common factors of 8 and 16.

e) Write down the common factors of 4and 6.

Think Critically

1. The number ☐ is a factor of every number.
3. Multiple of 'O' is only ☐
4. Zero is a multiple of..... (some, every) number.
5. Zero has so many..... (factors, multiples)
6. We ..... (can, can't) divide any number by zero.
7. The number 'O'..... (can, can't) be a factor of any number.
8. Every number other than zero is a ..... (factor, multiple) of zero.
9. The number '1' has only ☐ (factor, factors).
10. Every whole number has atleast ☐ (factor, factors).
11. Every whole number other than '1' has at least ☐ (factor, factors).

Activity:

Pattern related to factors.

1) 2 X 6 = 12 = 6 X2

=> 2 is a factor of 12, 6 is also a factor of 12.

=>We can arrange 12 objects in a rectangular pattern having

(☐ rows and ☐ columns) or (☐ rows and ☐ columns).

The corresponding patterns are

Or

2 X 6 = 12

(2 rows and 6 columns)

.....

6 X 2 = 12

(6 rows and 2 columns)

2) 3 x 4 = 12 = 4 X 3

=> 3, 4 are ..... of 12.

=>We can arrange 12 objects in a .....pattern having

(☐ rows and ☐ columns) or (☐ rows and ☐ columns).

The corresponding patterns are

or

.....

3 X 4 = 12

(3 rows and 4 columns)

.....

4 X 3 = 12

(4 rows and 3columns)

3) 1 x 12 = 12 = 12 X 1

=> 1, 12 are factors of 12.

The corresponding patterns are

or

1 X 12 = 12

(1 rows and 12 columns)

12 X 1 = 12

(12 rows and 1 columns)

Explore yourselves

Fill in the blanks using (factors, multiple)

1) Mathy, Siva, Ranji are three friends.

They were given some biscuits by their teacher.

They shared them equally among them.

They had no need to break them to share.

The number of biscuits given by the teacher was a ..... of 4.

'4' must be a ..... of the number of biscuits.

2) A well-wisher wishes to present uniform material for some poor children.

He has decided to give 3 metres of uniform material for each.

But he has only a limited fund to do this.

The length of the material he has to buy must be a ..... of 3 within the money.

3 must be a ..... of the length of the material.

Exercise:

1. Zero (can, cannot) be a multiple of ..... (any, every) number
   1) Any whole number is a multiple of ☐
   2) 5 is a multiple of ☐ or ☐
2. 1) Write down first 10 multiples of 3
   .....
   2) Write down first 5 multiples of 5
   .....
   3) Which numbers are common in questions 2.1) and 2.2)?
   .....
   4) Give some common multiples of 3 and 5.
   .....
   5) Give the least common multiple of 3 and 5.
   .....

3. Give seven multiples of 2: ☐, ☐, ☐, ☐, ☐, ☐, ☐ .

4. Give seven multiples of 3: ☐, ☐, ☐, ☐, ☐, ☐, ☐ .

   So, common multiples of 2 and 3: ☐ , ☐

   Give some other common multiples of 2 and 3: .....

   Least common multiple of 2 and 3 is ☐

5. There are 72 books in each of the 8 cases. How many books are there in all? .....

6. A patient should intake a tablet 6 hourly.

   He should intake a capsule every 4 hours.

   He starts both at 12 noon.

   At what time he takes both the medicine next? .....

UNIT 7

ESTIMATION FOR CONSUMING

Group Activity

(Ask your parents – Discuss with your teacher and your friends)

- Collect the following details.
- Estimate the minimum expenditure for a cup of tea.

Step I

What are the things we usually have to buy to prepare tea?

....., ..., and .....

Step II

Estimate the amounts of the things for a cup of tea

Sugar - ☐ teaspoons

Milk powder - ☐ teaspoons

Tea leaves - ☐ teaspoons

Step III

Prepare a Price list

	Rs.
1 kg Sugar	☐
400 g packet of Milk powder	☐
1 kg tea leaves	☐

Step IV

Estimate the number of teaspoons in certain amounts of things

1 kg sugar = ☐ teaspoon/s.

400 g Milk powder = ☐ tea spoon/s

1 kg tea leaves = ☐ teaspoon/s

Step V:

Estimate the expenditure for each thing for a cup of tea.

Price of 1 kg sugar is Rs. ☐

⇨ Price of ☐ teaspoonfuls of sugar is Rs. ☐

⇨ Price of 1 teaspoonful of sugar is about Rs. ☐

⇨ Estimation of expense for sugar for a cup of tea is Rs. ☐

Milk powder

Price of 400g packet of milk powder is Rs. ☐

⇨ Price of ☐ teaspoonfuls of milk powder is Rs. ☐

⇨ Price of 1 teaspoonful of milk powder is Rs. ☐

⇨ Estimation of expense for milk powder for a cup of tea is Rs. ☐

Tea dust

Price of 1kg tea leave is Rs. ☐

⇨ Price of ☐ teaspoonfuls of tea leaves is Rs. ☐

⇨ Price of 1 teaspoonful of tea leaves is Rs. ☐

⇨ Estimation of expense for tea leaves for a cup of tea Rs. ☐

Step VI

For a cup of tea

Sugar costs Rs. ☐

Milk powder cost Rs. ☐

Tea leaves costs Rs. ☐

Total Cost is Rs. ☐

Step VII

Answer the following questions

You take 2 cups of tea daily.

Estimate your tea expenditure for a month

The estimation is Rs. ☐

There are 4 members in your family.

Estimate the expenditure for tea for your family for a month.

The estimation is Rs. ☐

Activity

A school has grades 6 – 11, Each grade has five parallel classes. The number of students in each class is about 30.

Estimate the number of students in that school.

Number of Grades = ☐

Number of parallel classes = ☐

Number of classes = ☐

Number of students in one class = ☐

Number of students the school = ☐

Group Activity

Bring some objects / things of known weights.

Read the labels.

Lift them / Take them on your palm

Feel the various weights.

Now take some objects / things of unknown weights.

Lift them or Take them on your palm

Estimate the weights.

Check them by measuring them

Thing / objects	Estimated weight in kg or grams	Measured weight in kg or grams
Brick		
Dictionary		
School bag with books		
Chair		
Cricket bat		

Group Activity

Measure the heights of your group members in cm.

Estimate the heights of the following things in the table, After estimation, try to measure them (if possible).

Check them

Things / objects	Estimated heights(m, cm)	Measured height (m, cm)
Teachers table		
Door way		
Class room wall		
Telephone booth		
Net ball post		
Mike stand		

Always explain how you made your estimates.

Unit 8

ESTIMATING LARGE SCALE NEEDS

Activity

A workshop was conducted for students selected from 25 schools for ten days.

200 students participated from each school.

During daytime, they were distributed tea and lunch.

Detail of the distributed items is shown below.

10 a.m.	-	1 vadai
	-	1 Tea
	-	
12 p.m.	-	1 Lunch packet
4 p.m.	-	1 Roll
	-	1 Tea

Price List				
Vadai	-	5.00		
		Roll	-	6.00
Tea	-	5.00		
Lunch	-	40.00		

Prepare a chart using the following table to find the amount of each item needed for the 10 days.

I. For a child

II. For a school

III. For all the participants

Find the expenditure for these items for 10 days.

I. For a child

II. For a school

III. For the 25 schools

Distributed Items	For a child / 1 day		For a child / 10 days		For a school (200students/10days)		For all the participants (200X25 students/ 10 days)	
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Vadai	1	5.00	10	50.00	2,000	10,000.00	50,000	250,000.00
Tea	2							
Roll	1							
Lunch	1							

For Large-scale estimations, we need to know about writing and reading large numbers

Do it yourselves

1). Consider the numbers 45 and 54.

I. Both have..... (same, different) digits.

II. Both are ..... (two, three) digit numbers.

III. But, they have ..... (same, different) values.

2) Consider the numbers 45 and 455

I. 45 is a ☐ - digit number and the digits used are 4 and ☐

II. 455 is a ☐ - digit number and the digits used are 4 and ☐

In 45,

I. The place value of 4 is ☐

II. The value of 4 is ☐

In 455,

I. The place value of 4 is ☐

II. The value of 4 is ☐

3) I. Show 4025 in a place value table

II. Show 4025 on an abacus.

4) Write these numbers using digits.

I. 4 hundreds, 2 tens and 3 ones - ☐

II. 3 thousands, 3 tens and 2 units - ☐

III. Five thousands (and) three - ☐

IV. Seven thousand three hundred (and) twenty - ☐

5) I . 1 Ten = ☐ ones

II. 1 Hundred = 10 Tens = ☐ ones.

III. 4 Tens and 7 ones = 40 ones + ☐ ones

= ☐ ones = ☐

IV. 3 Hundreds, 8 Tens and 30 ones = 300 ones + ☐ ones + ☐ ones

= ☐ ones

= ☐

6) Write the expanded form of the numbers.

I. 4365 = ☐ + ☐ + 60 + ☐

II. 9217 = ☐ x 1000 + ☐ x ☐ + ☐ x ☐ + ☐ x ☐

III. 1013 = ☐ + ☐ + ☐ + ☐

7) Write the numbers in expanded form

Number (Standard form)	Expanded form
4365	4000 + 300+ ☐ + ☐ .....
9217	.....
1013	.....

8) Write the numbers in words

Number (Standard form)	Number in words
7405	
9007	
4236	
5025	

9) Write in numbers

Number in words	Number using digits
1) Seven thousand five hundred five	.....
2) Twenty thousand one	.....
3) Nine thousand twenty one	.....

Activity

I. Observe the numbers put in the following place value table.

Ten million (TM)	Million (M)	Hundred Thousand (H.Th)	Ten Thousand (T.Th)	Thousand (Th)	Hundred (H)	Ten (T)	One (O)	Number Words
							1	One
						1	0	Ten
					1	0	0	Hundred
				1	0	0	0	Thousand
			1	0	0	0	0	Ten Thousand
		1	0	0	0	0	0	Hundred Thousand
	1	0	0	0	0	0	0	Million
1	0	0	0	0	0	0	0	Ten Million

II. Try to express these in other ways

1 Ten = ☐ ones = ☐

1 Hundred = ☐ tens = ☐ ones

1 Ten Thousand = ☐ Thousands

1 Hundred Thousand = ☐ Thousands

Activity

To read and write large numbers into words

Step I: Consider the number 1247348

Step II: Write it in the place value table

M	HTH	---	---	H	T	O
1	2	4	7	3	4	8

Step III: Fill in the blanks

1 Stands for 1 Million = 1 Million

2 Stands for 2 Hundred Thousands = ☐ Thousands

4 Stands for 4 ..... = ☐ Thousands

7 Stands for 7 ..... = ☐ Thousands

3 Stands for 3 ..... = ☐ ones = ☐

4 Stands for 4 ..... = ☐ ones = ☐

8 Stands for 8 ..... = ☐ ones = ☐

So the number has ☐ million, (☐ + ☐ + ☐) thousands and (☐ + ☐ + ☐) ones

=> 124738 = ☐ Million + ☐ Thousands + ☐ Ones

= ☐ Million + ☐ Thousands + ☐

Step IV: Complete the blanks using suitable words from millions, thousands, ones.

We can observe that

I. The digits in the places HTh, TTh, Th together gives a 3 digit number refers to the number of ..... of that number

II. The digits in the place H, T, O together gives a 3 digits number refers to the number of ..... of that number.

Complete the table - Use the knowledge gained from the activity

Number	Millions	Thousands			Ones			Million	Thousand	Ones
	M	HTh	TTh	Th	H	T	O			
1274634	1	2	7	4	6	3	4	1	274	634
2734505										
5036421										
4003001										

Use the above table to write the numbers in words.

1274634 = One million two hundred (and) seventy four thousand six hundred (and) thirty four.

2734505=.....millions.....thousand.....

.....

5036421=.....

.....

4003001=.....

.....

Activity

To make it easy to read a large number

I. Start from the right side of the number.

II. Separate the digits into periods consisting 3 digits.
The first period from right is called as ..... period.

III. Leave space or put comma between different.....
(periods, digits) to read easily.

Exercise:

1) Write the numbers by separating into periods and write in words

	Separating into periods	In words
12347401	12 347 401	Twelve million three hundred forty seven thousand four hundred one.
10703410	.....	....
57630300	.....	....

2) Write the number using digits by separating into periods.

Number in words	Number using digits
Two millions, three hundred twenty three thousand, four hundred seven	2 323 407
Twenty three million thirty seven thousand one	.....
Three million seven	.....
Four million eighteen	.....

Glossary

Abacus	-	எண் சட்டம்
Acute angle	-	கூர்ங்கோணம்
Add	-	கூட்டுக
Addition	-	கூட்டல்
Altogether	-	எல்லாமாக
Angle	-	கோணம்
Appropriate	-	பொருத்தமான
Arrange	-	ஒழுங்குப்படுத்தல்
Balance	-	மிகுதி
Base unit	-	அடிப்படை அலகு
Chart	-	வரைபு
Closed shape	-	மூடிய உரு
Collect	-	சேர்த்தல்
Column	-	நிரல்
Common factor	-	பொதுக்காரணி
Composite number	-	சேர்த்தி எண்
Convert	-	மாற்றுதல்
Corner	-	மூலை, உச்சி
Corresponding	-	தொடர்பான
Curved line	-	வளைகோடு
Depth	-	ஆழம்
Difference	-	வித்தியாசம்
Digit	-	இலக்கம்
Display	-	(குறித்துக்) காட்டுதல்
Distance	-	இடைத்தூரம்
Divide	-	பிரித்தல்
Dividend	-	வகுத்தி
Divisible	-	வகுபடத்தக்கது
Divisor	-	வகுப்பான்
Equilateral	-	சமபக்க உரு
Estimate	-	மதிப்பிடுதல்
Estimation	-	மதிப்பீடு

Explore	-	தேடுதல்
Exprcss	-	வெளிப்படுத்துதல்
Factor	-	காரணி
Height	-	உயரம்
Horizontal	-	கிடையான, கிடை
Horizontally	-	கிடையாக
Instruction	-	அறிவுறுத்தல்கள்
Instruments box	-	உபகரணப்பெட்டி
Length	-	நீளம்
Long term	-	நெடிய உரு
Magnet	-	காந்தம்
Measurement	-	அளவீடு
Million	-	மில்லியன்
Minus	-	கழித்தல் அடையாளம், குறைதல்
Multiple	-	பெருக்கம், மடங்கு
Multiplication	-	பெருக்கல்
Multiply	-	பெருக்குதல்
North	-	வடக்கு
North East	-	வடகிழக்கு
North West	-	வடமேற்கு
Object	-	பொருள்
Obtuse angle	-	விரிகோணம்
Once	-	ஒருதடவை
Pattern	-	கோலம்
Perimeter	-	சுற்றளவு
Place value	-	இடப்பெறுமானம்
Plot	-	பாகம், துண்டு
Plus	-	கூட்டல் அடையாளம், கூடுதல்
Portion	-	பகுதி
Prime number	-	முதண்மை எண்
Procedure	-	படிமுறை

Quadrilateral	-	நாற்பக்கல்
Quotient	-	ஈவு
Rectangle	-	செவ்வகம்
Reflex angle	-	பின்வளைகோணம்
Regular shape	-	ஒழுங்கான உரு
Remainder	-	மீதி
Right angle	-	செங்கோணம்
Row	-	நிரை
Set square	-	மூலைவிட்டம்
Shadow	-	நிழல்
Share	-	பங்கிடுதல், பங்கு
South	-	தெற்கு
South East	-	தென்கிழக்கு
South West	-	தென்மேற்கு
Straight edge	-	நேர்விளிம்பு
Straight line	-	நேர்கோடு
Straight side	-	நேரானபக்கம்
Subtract	-	கழிக்குக
Subtraction	-	கழித்தல்
Sum	-	கூட்டுத்தொடை
Thickness	-	தடிப்பு
Triangle	-	முக்கோணி
Twice	-	இருதடவை
Units	-	அலகுகள்
Vertical	-	நிலைக்குத்து, நிலைக்குத்தான
Vertically	-	நிலைக்குத்தாக
West	-	மேற்கு
Whole number	-	முழு எண்
Width	-	அகலம்

CLASS NUMBER	ACCESSION NUMBER

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