

# MATHEMATICS

Standard III

Part - 2



Government of Kerala

DEPARTMENT OF EDUCATION

State Council of Educational Research and Training (SCERT), Kerala

2015

## THE NATIONAL ANTHEM

Jana-gana-mana adhinayaka, jaya he  
Bharatha-bhagya-vidhata.  
Punjab-Sindh-Gujarat-Maratha  
Dravida-Utkala-Banga  
Vindhya-Himachala-Yamuna-Ganga  
Uchchala-Jaladhi-taranga  
Tava subha name jage,  
Tava subha asisa mage,  
Gahe tava jaya gatha.  
Jana-gana-mangala-dayaka jaya he  
Bharatha-bhagya-vidhata.  
Jaya he, jaya he, jaya he,  
Jaya jaya jaya, jaya he!

## PLEDGE

India is my country. All Indians are my brothers and sisters.

I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it.

I shall give respect to my parents, teachers and all elders and treat everyone with courtesy.

I pledge my devotion to my country and my people. In their well-being and prosperity alone lies my happiness.

*Prepared by :*

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Dear students,

Numbers, figures, patterns!

We are into a new world of math.

Let's learn math to add, to subtract,  
to multiply.

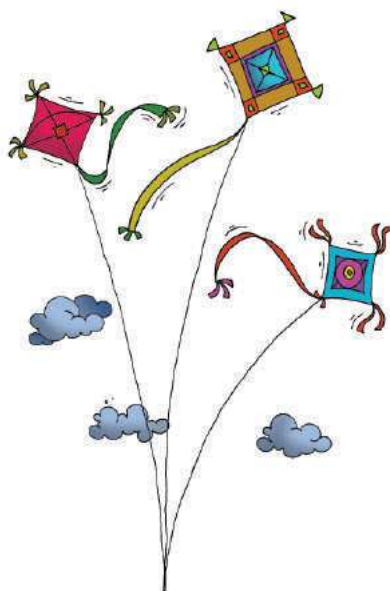
Let's go on, playing with our friends,  
enjoying ourselves, finding out new  
things, correcting mistakes.

Let's move ahead with confidence and  
get ready for more exciting math!

With best wishes,

**Dr. S. Raveendran Nair**

Director  
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**Certain icons are used in this  
textbook for convenience**



**Additional activity/  
Extended activity**



**How I found out**



**How my friends found out**



**Assessment**



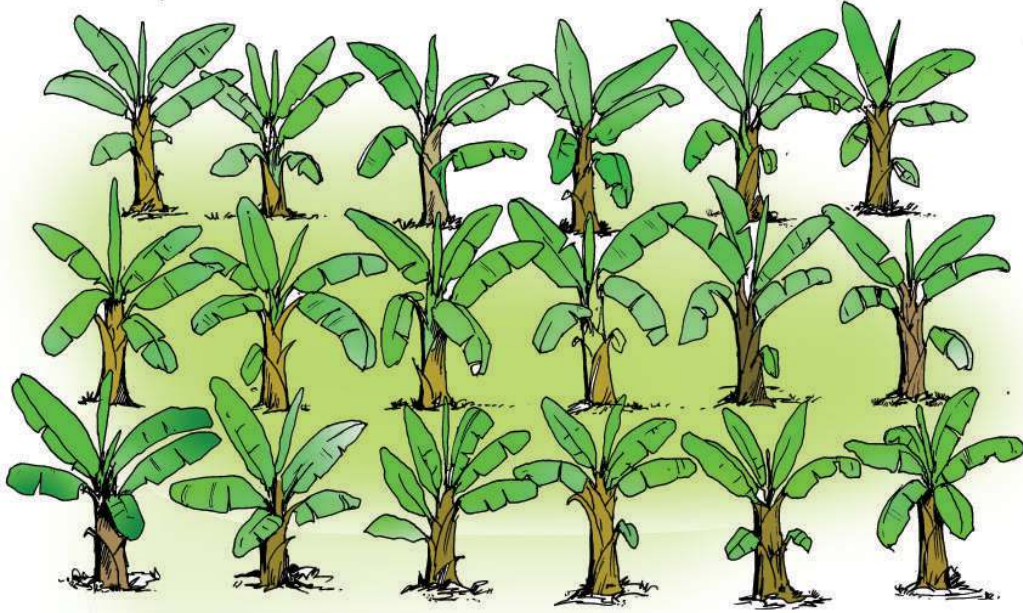
**Computer Activity**

7

## In Rows and columns

### Farm Club

See the banana trees planted by the members of the Farm Club of Minnaramkunnu School.



How many trees are there in one row?

How many rows ?

How many trees in all ?

To make four more rows like this,  
how many trees are needed?

How many rows in all?

How many trees in all?

$$3 \times 6 = \dots\dots$$

$$4 \times 6 = \dots\dots$$

Total  $7 \times 6 = \dots\dots$

### Let's colour

Colour the boxes, same  
colour to same answer.

$$3 \times 2$$

$$2 \times 6$$

$$6 \times 2$$

$$4 \times 3$$

$$4 \times 5$$

$$2 \times 3$$

$$6 \times 3$$

$$5 \times 4$$

$$3 \times 4$$

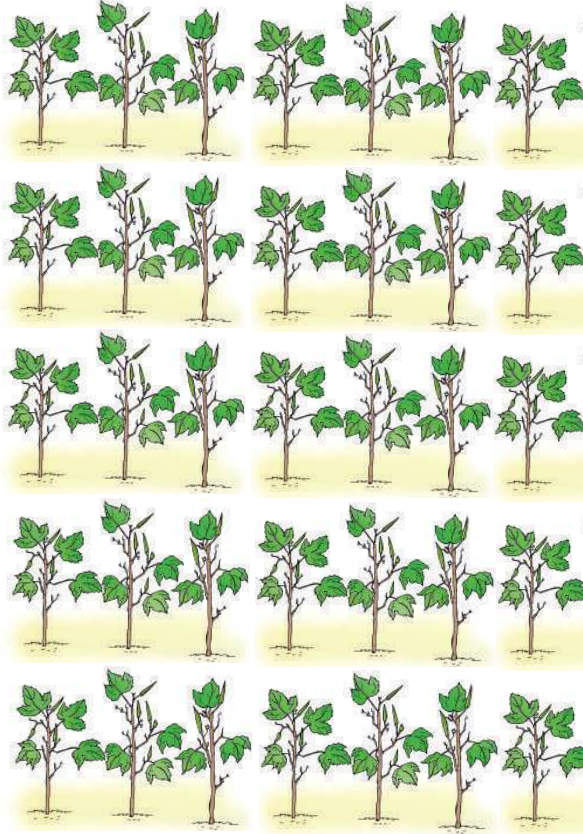
$$3 \times 6$$

## Let's plant

See the okra seedlings planted by the Farm Club on the first day.

How many plants in one row?

How many rows?



How many plants in all?

That is

On the second day, they planted 3 rows with 7 seedlings in each row.

How many seedlings did they plant on the second day?

How many on both days together ?

First day

Second day

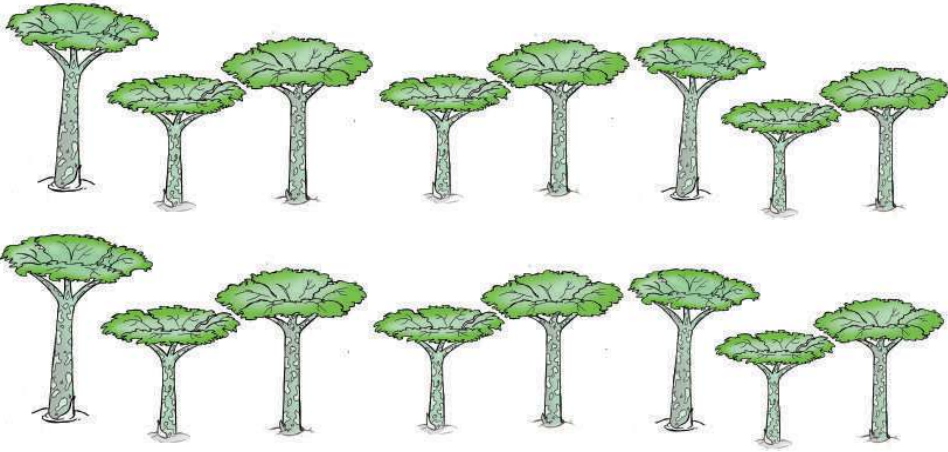
Total

Number of rows  $5 + 3 = 8$   
 Number of plants in one row = 7  
 Total number of plants  $8 \times 7$



## Manuring plants

See the pictures of the yam manured on the first day:



How many plants in one row?

How many rows?

How many plants in all?

On the second day 3 rows were manured and each had 8 plants. How many in all?

On the third day, 8 rows were manured with 4 plants in each. How many plants were manured in all three days together?

First day

Second day

Third day

Total



### Let's multiply

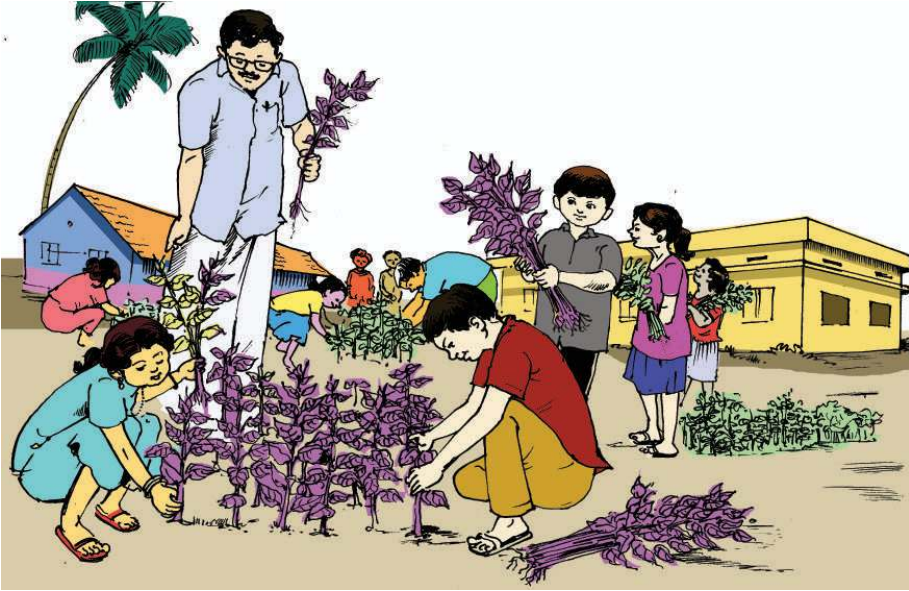
The software to be used : Gcompris of IT @ School Gnu/linux

The way to use the software:

Open Gcompris → Operations → games in Mathematics → Multiplication

## Crop

The farm club had the first crop of spinach. Some of it was used for the noon-meal. 3 kilograms of spinach was left and this was sold to the members at 9 rupees a kilogram. How much money did the club get?



How many kilograms of spinach did they sell?

What is the price of one kilogram of spinach?

How much money did they get?   $\times$   =

On the second day, they sold 6 kilogram of spinach at the same rate. How much money did they get on both days together?

First day   $\times$   =

Second day   $\times$   =

Total

On the third day, they sold 19 kilograms at 10 rupees a kilogram. How much did they get that day?   $\times$   =

How much did they get on all three days together?

If they had sold at 9 rupees a kilogram on all three days. How much money would they have got?

What if they had sold at 10 rupees a kilogram on all three days? What is the difference in the amount they had got?

Fill in the empty cells

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6				
2	2	4	6	8	10	12				
3	3	6	9	12	15	18				
4	4	8	12	16	20	24				
5	5	10	15	20	25	30				
6	6	12	18	24	30	36				
7										
8										
9										
10										

When a number is multiplied by 1, we get the same number



What is the speciality of the numbers in the blue cells?



I can do any multiplication if I have this table

×	1	2	3	4	5	6	7	8	9	10
1										
2		4								
3		6	9							
4		8	12	16						
5		10	15	20	25					
6		12	18	24	30	36				
7		14	21	28	35	42	49			
8		16	24	32	40	48	56	64		
9		18	27	36	45	54	63	72	81	
10										

## Patterns and tables

7	$1 \times 7 = 7$	8	$1 \times 8 = 8$	9	$1 \times 9 = 9$
7+7	$2 \times 7 = 14$	8+8	$2 \times 8 = 16$	9+9	$2 \times 9 = 18$
7+7+7	$3 \times 7 = 21$	8+8+8	$3 \times 8 = 24$	9+9+9	$3 \times 9 = 27$
7+7+7+7	$4 \times 7 = 28$				

## I know

The price of one pen is 7 rupees. What is the price of 8 pens?

$$8 \times 7 = 56$$

7 balls in one packet. How many balls in 9 packets?

$$9 \times 7 =$$

What is the price of 7 notebooks at 7 rupees each?

$$\dots \times \dots =$$

There are 6 buttons in a shirt. How many buttons are there in 9 shirts?

$$\dots \times \dots =$$

9 *unniappams* in one packet. How many *unniappams* in 9 packets?

$$\dots \times \dots =$$

6 seats in a row. How many seats in 8 rows?

$$8 \times 8 =$$

### What is the total?

Find the total of 8 times 8 and 6 times 6

### Times

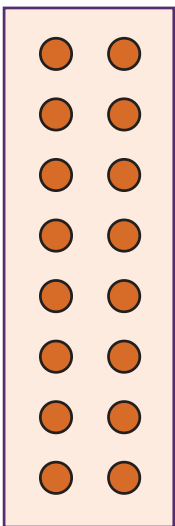
When a number is multiplied by 2, the answer is 28. If the same number is multiplied by 4, what would be the answer? What if it is multiplied by 8?



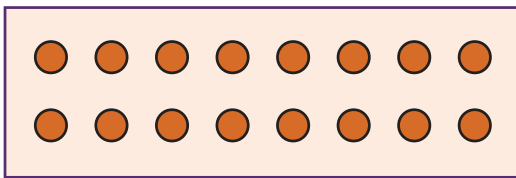
- Ramu's class has a tiled floor. There are 8 tiles in one row. And there are 9 rows. How many tiles are used in the classroom?
- Ramu's father sells 6 litres of milk everyday. How many litres of milk does he sell in one week?
- There are 5 notebooks in one packet. How many notebooks are there in 9 packets?

### Planting tapioca

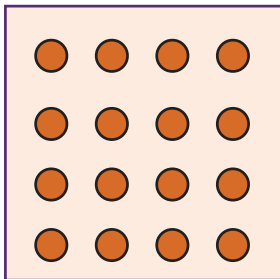
Aneesh brought 16 tapioca plants. In how many different ways can these be planted in rows? The Farm Club members thought about it. Look at the pictures they have drawn:



$$8 \times 2$$

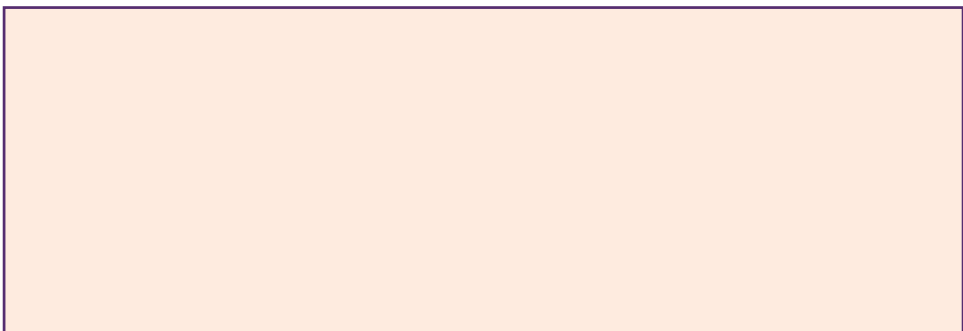


$$2 \times 8$$



$$4 \times 4$$

If there are 24 tapioca plants, in how many different ways can we plant this in rows and columns? Draw pictures.

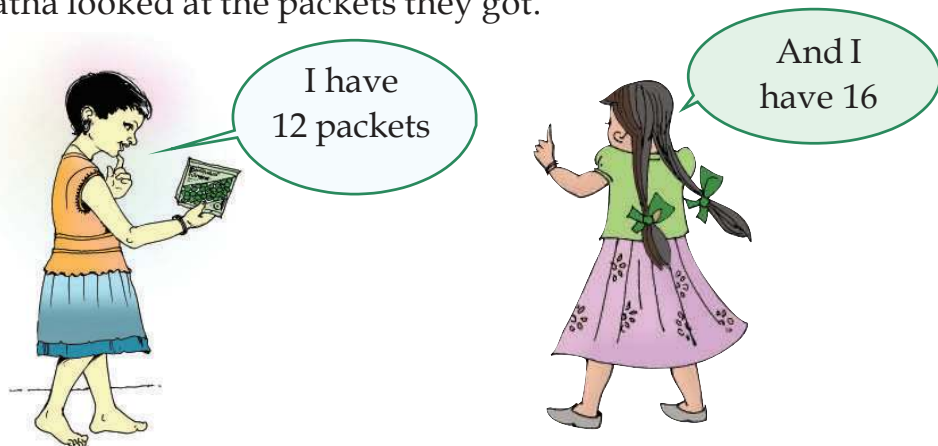


### How many members?

The Farm Club members were divided into 8 groups. In each group there are 3 students from Class IV and 4 students from Class V. How many members are there in the club?

### How many seeds?

The Farm Club got bitter-gourd seeds from the Krishi Bhavan. Sana and Latha looked at the packets they got.



There are 4 seeds in each packet. How many seeds does each girl have?

How do we find it out?

Sana has 12 packets. In each packet there are 4 seeds.

To find the total number of seeds, we have to multiply 4 by 12.

12 fours means 10 fours and 2 fours together.

$$\begin{aligned} \text{That is, } 12 \times 4 &= (10 \times 4) + (2 \times 4) \\ &= 40 + 8 = 48 \end{aligned}$$

$$12 \times 4 = 48$$

$$\text{That is, } \begin{array}{r} 12 \times \\ \underline{4} \end{array}$$

$$\begin{array}{r} 2 \times 4 \rightarrow 8 \\ \hline 10 \times 4 \rightarrow 40 \end{array}$$

That is 48

$$\begin{array}{r} 12 \times \\ \underline{4} \\ 48 \end{array}$$

How many seeds does Latha have?

How many packets?

How many seeds in one packet?

To find the total number of seeds, we need to multiply 4 by 16.

$$16 \times 4 = (10 \times 4) + (6 \times 4)$$

$$= 40 + 24 = 64$$

That is,

$$\begin{array}{r} 16 \times \\ \underline{4} \\ 6 \times 4 \rightarrow 24 \\ 10 \times 4 \rightarrow 40 \\ \hline 64 \end{array}$$

$$\begin{array}{r} 16 \times \\ \underline{4} \\ 24 \\ \underline{40} \\ 64 \end{array}$$

$$\begin{array}{r} 16 \times \\ \underline{4} \\ 64 \end{array}$$

- The price of one packet of seed is 8 rupees. What is the price of 15 packets?

$$\begin{array}{r} 15 \times \\ \underline{8} \\ 40 \\ \underline{80} \\ 120 \end{array}$$

$$\begin{array}{r} 15 \times \\ \underline{8} \\ 120 \end{array}$$



Total price =  $15 \times 8$   
= 120

- One packet of seed contains 7 seeds. How many seeds are there in 14 packets?
- The Farm Club bought 6 notebooks at 13 rupees each. How much money did they spent for this?

### Planting seeds

There are 14 packets of pumpkin seeds, each containing 12 seeds. What is the total number of seeds?

How do we find out? We have to calculate  $14 \times 12$ .



### I did it like this

In 10 packets,  $10 \times 12 = (10 \times 10) + (10 \times 2) = 100 + 20 = 120$

In 4 packets,  $4 \times 12 = (4 \times 10) + (4 \times 2) = 40 + 8 = 48$

In 14 packets,  $14 \times 12 = (14 \times 10) + (14 \times 2) = 140 + 28 = 168$

#### Difference

What is the difference between the products  $16 \times 12$  and  $13 \times 14$ ? Find also the difference between the products  $16 \times 14$  and  $18 \times 13$ .

#### Three and Nine

When one number is multiplied by 3, we get 36. What would we get if the same number is multiplied by 9?



**I did it like this :**

12 each in 14 packets

$$\begin{aligned}
 (10 + 4) \times (10 + 2) &= 10 \times 10 = 100 \\
 &10 \times 2 = 20 \\
 &4 \times 10 = 40 \\
 &4 \times 2 = 8 \\
 &= 168
 \end{aligned}$$

That is  $14 \times 12 = 168$

**Zero of ten**

$3 \times 10 = 30$   
 $5 \times 10 = 50$   
 $7 \times 10 =$   
 $9 \times 10 =$   
 $11 \times 10 = 110$   
 $15 \times 10 =$   
 $20 \times 10 =$

Do you see an easy way to multiply by 10?



**See how I did it :**

	10	4	
10	100	40	$14 \times 12 = 100 + 40 + 20 + 8 = 168$
2	20	8	

$14 \times 12 = 168$

$2 \times 14 \rightarrow$	$\begin{array}{r} 14 \times \\ \underline{12} \\ 28 \end{array}$	$14 \times$
$10 \times 14 \rightarrow$	$\begin{array}{r} \underline{140} \\ 168 \end{array}$	$\begin{array}{r} \underline{12} \\ 28 \\ \underline{140} \\ 168 \end{array}$

**Thirty six**

Fill in the cross below so that the product of numbers in each line is 36.

What are the possibilities if the middle number is 3.

**Difference in prices:**

Part of the okra crop of the farm club was used for noon-meal and the remaining 14 kilograms was sold to the members at 16 rupees a kilogram, which is 4 rupees less than the market rate. How much money did the club get?

How do we calculate this?

How many kilograms were sold?

Price of 1 kilogram

Total price

	10	4	
10	100	40	$14 \times 16 = 100 + 40 + 60 + 24 = 224$
6	60	24	



$$14 = 10 + 4$$

$$16 = 10 + 6$$

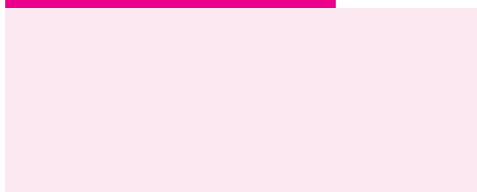
$$14 \times 16 = (10 + 4) \times (10 + 6)$$

$$\begin{array}{r} 10 \times 10 = 100 \\ 10 \times 6 = 60 \\ 4 \times 10 = 40 \\ \underline{4 \times 6 = 24} \\ 224 \end{array}$$

$$\begin{array}{r} 14 \times \\ \underline{16} \\ 6 \times 14 \rightarrow 84 \\ 10 \times 14 \rightarrow \underline{140} \\ 224 \end{array}$$

If the 14 kilograms of okra was sold in public market, how much more money would the club have got?

**How I found out**

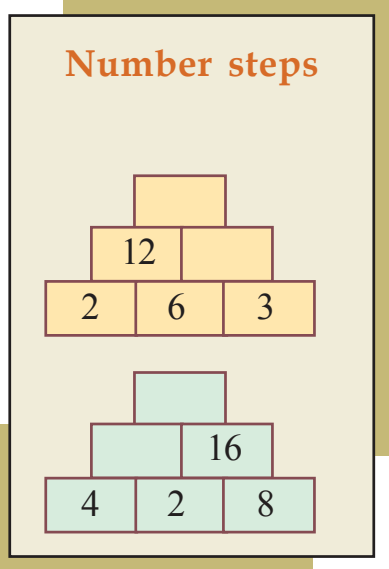


**How my friends found out**

I understood what to find out	<input type="checkbox"/>
I could find this out without computing the total at market rate	<input type="checkbox"/>
The calculation was correct.	<input type="checkbox"/>
I could explain the method of calculation	<input type="checkbox"/>

- Babu needs 12 bars of soap. He checked the prices in two shops. In the first shop, if 3 soaps are bought, one is free. But the price of one soap is 14 rupees. In the second shop, the price of one soap is 12 rupees. From which shop should Babu buy? Why?
- Radha sells 15 litres of milk every day to the society. How many litres of milk did she sell in the month of November?

- In the Mathematics Talent Examination, there are 25 questions. Each correct answer is given 4 marks. For every wrong answer, 1 mark is subtracted from the total marks. Abu got 19 answers correct and 6 wrong. How many marks does he get?
- In Sabir's school, 13 kilograms of rice is needed each day for noon-meal. How many kilograms of rice is needed for 22 days?
- The price of one notebook is 16 rupees. How much money is needed to buy 17 such notebooks?
- The price of pipe is 20 rupees a metre. Unni bought 15 metres of pipe. How much money did he spend?
- In the school assembly, students are standing in 18 rows. Boys make 8 rows and girls, the remaining. In each row, there are 15 students. How many boys are in the assembly? How many students are in the assembly? Compare your method with your friends.
- Write a problem, which can be solved by calculating the product  $12 \times 7$ .



**Pretty Products**

$37 \times 3 = 111$   
 $37 \times 6 = 222$   
 $37 \times 9 = 333$   
 $\dots \times \dots = 444$   
 $\dots \times \dots = \dots$   
 $\dots \times \dots = \dots$   
 $\dots \times \dots = \dots$

**Calculate without Multiplying**

$7 \times 8 = 56$   
 $8 \times 9 = 72$   
 $9 \times 10 = 90$   
 $\dots \times \dots = 110$   
 $\dots \times \dots = \dots$   
 $\dots \times \dots = \dots$   
 $13 \times 14 = \dots$

How did you find the answer?

8

# Measure and Tell

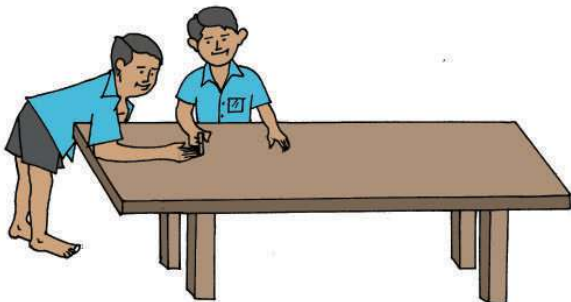
## Buying flowers

The flowerman measured out 10 cubits of jasmine. When I measured, it was 12 cubits. When teacher measured, it was 9 cubits.



Got different measures of same thing. Why?

Measure the length of your bench like this:



Does everyone on your bench get the same length?

Try measuring with a stick or a piece of string.

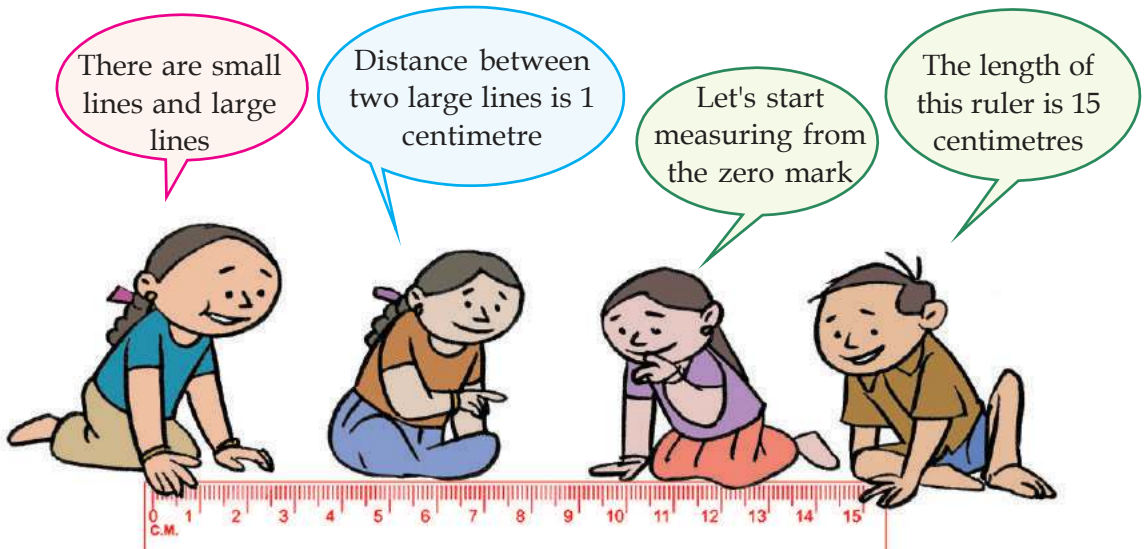
What do we do to get the same measure for everyone?

## Measuring length using a ruler

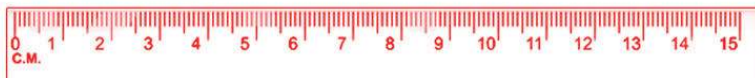
How about measuring with the ruler in your pencil box?

How do you measure using a ruler?

What all things are marked on it?



## Length of Pencil



What is the length of the pencil in the picture? .....



Measure the length of this pencil and write it down...

### My pencil

The length of my pencil is .... centimetres.



What is the length of the pencil of each one on your bench?

Length of longest pencil

Length of shortest pencil

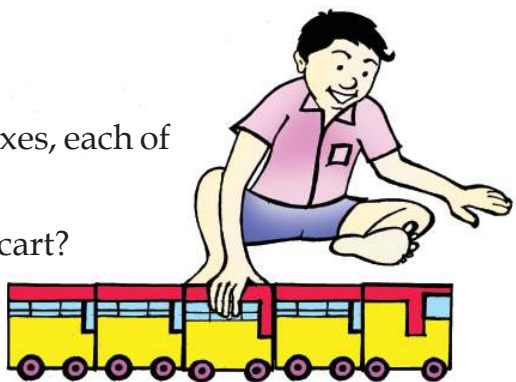
### What is the length?



### Toy cart

See the toy cart Abu made using 5 boxes, each of length 20 centimetres.

- What is the length of Abu's toy cart?



100 centimetre = 1 metre  
100 cm = 1 m



100 centimetre is called 1 metre.

### Let's buy ribbon

Ramya bought 3 ribbons, each of length 50 centimetres. Arya bought 2 ribbons each of length 1 metre. Placed side by side, whose ribbon will be longer?

How to check?

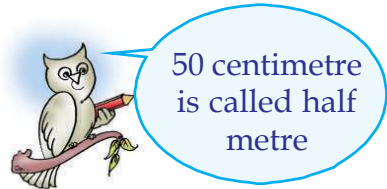


Can you say the length of each ribbon in centimetres?

Ramya ..... cm      Arya ..... cm

And in metres?

Ramya ..... metre... cm  
 Arya ..... metre... cm



My height

The maximum height of children on my bench

Minimum height

The maximum height of children in my class

Minimum height

- Make a chart showing the heights of all children in your class in order and put it on the wall.
- Make some questions on it, to ask your friends.
  - Who all are of the same height?
  - 
  -

### Make a guess!

	Gussed length	Measured length
Table	.....	.....
Eraser	.....	.....
Chalk	.....	.....
Blackboard	.....	.....
Mathematics textbook	.....	.....
Bench	.....	.....
Umbrella	.....	.....
Chart paper	.....	.....
Classroom	.....	.....



### Flag post

Look at the shadow of the flag post of your school. Measure its length at each hour of a day.

Make some questions to ask your friends.

- At what time is the shadow longest?
- 
- 

#### Construct

Take three *eerkil bits* of length 5 centimetres. Can you make a triangle using these? To make a square, how many more pieces do you need?

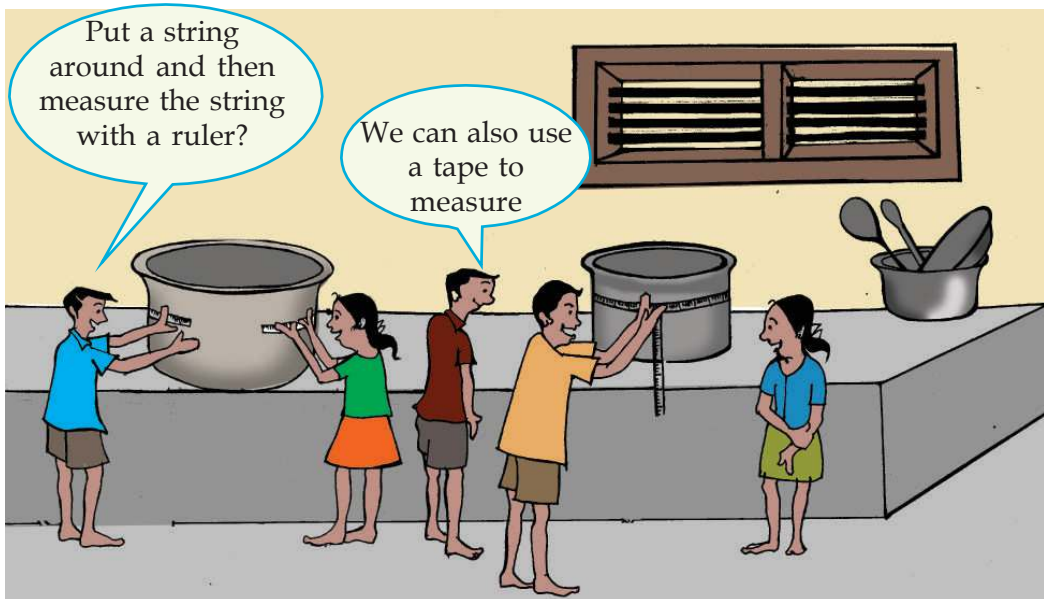
## Guess the height!

	Gussed height	Measured height
Door		
Bench		
Desk		
Chair		
Window		
Wall		



## Canteen

See the vessels of different sizes in your canteen. Measure the girth of each vessel and write in the note book.



Find the depth of each vessel and write down.



### Triangle

With two sticks of length 4 centimetres and another stick of 5 centimetres, can you make a triangle?



Measure the thickness of the door frame of your school

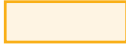


And of your home

My guess

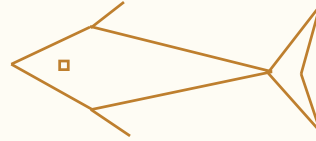


Actual measurement



### Shapes

Make the figure below using *eerkkil* bits. How many of these are of the same length?



### Can you guess?

	Guess	Actual measure
Thickness of a pencil		
Thickness of your wrist		
Thickness of your thumb		
Thickness of a tree in the school ground		
Thickness of the school flagpost		
Height of a chalk box		
Depth of a bucket		
Depth of a drinking glass		
Length of a desk		
Thickness of a pillar		
Height of a step in a staircase		
Thickness of a dictionary.		
Distance between two pillars in the school		
Distance between the two bars of a window.		

### Fill in the table

230 centimetres	2 metres 30 centimetres
173 centimetres	
	3 metres 60 centimetres
One and a half metre	
	5 metres 50 centimetres
	4 metres 5 centimetres

### How many metres?

Suma had a piece of cloth 3 metres and 30 centimetres long. She bought 2 metres and 90 centimetres more and made two skirts for her daughter. How much cloth did she use in all?

How do we calculate it?

What Suma had : 3 metres 30 centimetres

What she bought : 2 metres 90 centimetres

m	cm
3	30 +
2	90
<b>6</b>	<b>20</b>

First let's add the centimetres

$$\begin{array}{r}
 30 \text{ centimetres} + \\
 90 \text{ centimetres} \\
 \hline
 120 \text{ centimetres} = 1 \text{ metre } 20 \text{ centimetres}
 \end{array}$$

Adding the metres: 3 metres + 2 metres = 5 metres

Adding together      1 metre 20 centimetres +  
5 metres

We get      6 metres 20 centimetres as the total.



■ To make curtains, first 16 metres and 50 centimetres cloth was purchased. This was not enough and so 3 metres and 75 centimetres of cloth was also bought. How much cloth was bought in all?

■ 12 metres and 60 centimetres of blue ribbon, and 8 metres and 40 centimetres of white ribbon were bought for children doing group dance. The price of ribbon is 12 rupees a metre. What is the total price?

## What is left

In the shop, there is a piece of blue cloth of length 12 metres and 60 centimetres. Of this, 8 metres and 80 centimetres was sold today. How much of the cloth is left?

How do we find out?

Stock : 12 metres 60 centimetres

Sold : 8 metres 80 centimetres

First let's find the difference of centimetres.

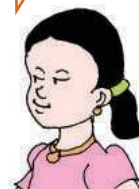
We cannot subtract 80 centimetres from 60 centimetres. What do we do?



we get

11	160
12 metres	60 centimetres
8 metres	80 centimetres
3 metres	80 centimetres as the difference

Take 1 metre from the 12 metres and add to 60 centimetres



- The shop has a rope 16 metres and 25 centimetres long. From this, a piece 5 metres and 75 centimetres long is cut off. What is the length of the remaining piece?
- Janu bought a saree six and a half metres long and cut out 80 centimetres for a blouse. What is the length of the saree now?
- An 8 metre long iron rod is cut into pieces of 50 centimetres. How many pieces can be got?
- The School Sports is going on. One lap around the ground is 200 metres. How many laps should be done for 800 metres?

## Uniform

Arya's class has 22 boys and 18 girls. Each boy needs 1 metre and 20 centimetres for shirt, and 90 centimetres for shorts; each girl needs 1 metre and 10 centimetres for shirt, and 1 metre and 90 centimetres for skirt. How much of each kind of cloth should be bought?

### How I found out



### How my friends found out.



I understood what to do to find the answer

Used the relation between centimetres and metre correctly

Did the calculations correctly

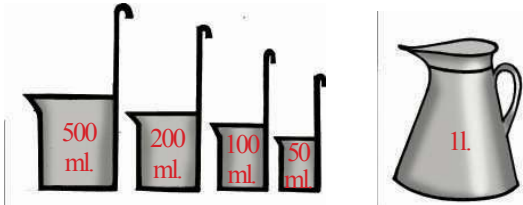
I could explain to others how I got the answer

### How to say?

	Centimetre	Metre
Height of a one-year old child	✓	
Width of a bench		
Depth of a well		
Length of a finger		
Length of a bus		

## Measuring jars

Look at these pictures:



Have you seen such jars?

What do we use them for?

What all can we measure using them?

- Milk
- 
- 

Have you ever measured anything using them?

## Let's measure water

How much water is there in your water bottle?

How about measuring it?

What all things are needed?

400 in my bottle

In my water bottle

In my friend's water bottle

In the bottles of my friends on my bench.

•	•
•	•



We say 400 millilitres



### Fill it up!

Joby's water bottle contains 400 millilitres and Rafeek's water bottle contains 500 millilitres. If the water in both is poured into a big bottle, how much water would it have?

1000 millilitres = 1 litre  
1000 ml = 1 l



### Measuring milk



At my home we buy 1 litre of milk from the society

We buy 3 packets of 500 millilitres from the booth

500 millilitre means half a litre



Are the milk used in both houses same?



### Water in the bottle

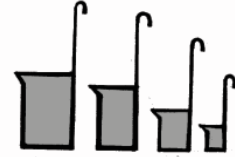
Vinu's water bottle contains 550 millilitres of water. Shan's bottle contains 250 millilitres more. How much water is there in both the bottles together?

## One litre

How many times each measuring jar is to be used to fill a one litre vessel?

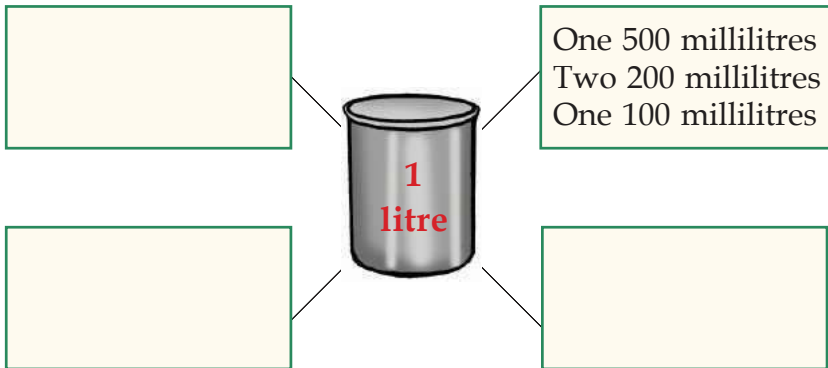


Measuring Jar	Times
1 litre	1
500 millilitres	
200 millilitres	
100 millilitres	
50 millilitres	



## How many times?

Using 500, 200 and 100 millilitre measuring jars, what are the possible ways of filling a one litre can?



Like this, can you fill a 2 litre can in different ways?

## How many litres?

There was 2 litres and 500 millilitres of coconut oil in the shop. Today, 6 litres and 750 millilitres of coconut oil was added. How much coconut oil does the shop have now?

In shop : 2 litres 500 millilitres

Added today : 6 litres 750 millilitres.

First, add the milliliters.



1000 millilitre means one litre

What did you get? 1250 millilitre = 1 litre 250 millilitre

Now add the litres

$$\begin{array}{r}
 1 \text{ litre } 250 \text{ millilitres } + \\
 8 \text{ litres} \\
 \hline
 \text{Total } 9 \text{ litres } 250 \text{ millilitres} \\
 \hline
 \end{array}$$

Litre		Millilitre	
2	500	+	
6	750		
<hr/>			
9	250		



- For a marriage party, 4 litres and 500 millilitres of milk was bought for tea, and 15 litres and 500 millilitres for making *payasam*. How much milk was bought in all? If the price of milk is Rs. 36 a litre, how much money was spent for milk?
- At Achu's home, cows are milked in the morning and evening. 8 litres of milk is got in the morning, of which 6 litres and 700 millilitres is sold; 5 litres is got in the evening of which 3 litres and 800 millilitres is sold. How much milk is sold each day? The wages for milking is 6 rupees a litre. How much is spent each day on wages? How much milk is sold in one day?

### Selling problem

There was 6 litres and 750 millilitres of coconut oil in the shop. Today, 3 litres and 350 millilitres was sold. How much oil is left?

How do we find out?

In the shop : 6 litres 750 millilitres

Sold : 3 litres 350 millilitres

First find the difference of millilitres.

How much did you get?

The difference in litres?

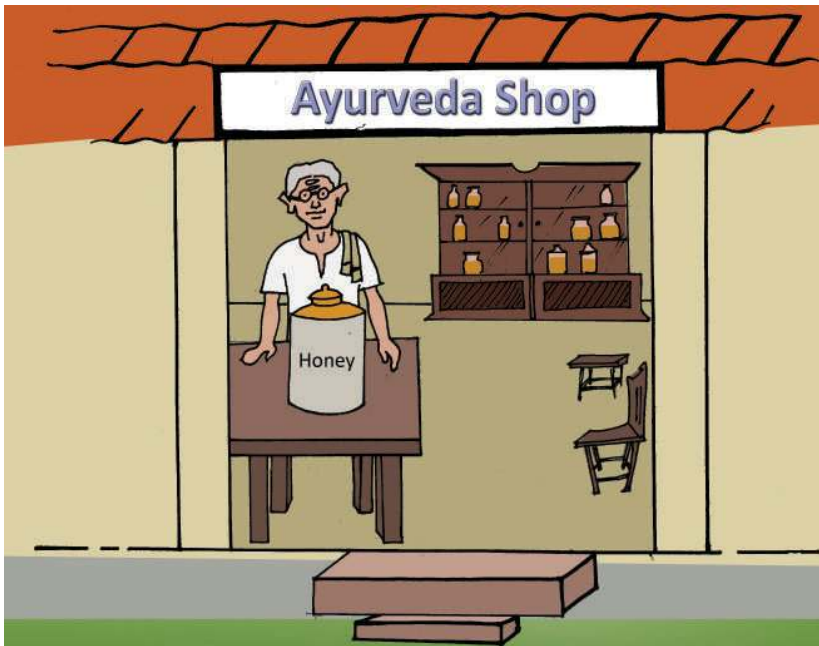
How much is left in all?





- A can contained 4 litres and 500 millilitres of kerosene. 2 litres and 150 millilitres was used to fill the stove. How much oil is left in the can?
- 13 litres and 500 millilitres of paint was bought to paint the house. 6 litres was used on the first day and 5 litres 500 millilitres on the second day. How much paint is left?

## Honey



Appu Vaidyar had three and a half litres of honey in his shop. He first filled 10 bottles of 50 millilitres. The rest he used to fill 100 millilitre and 200 millilitre bottles. How many bottles of each type did he use?

What is the total amount of honey in each type of bottle?

If the number of bottles are to be equal, how much honey should be filled in each type of bottle?

### How I found out





How my friends found out

I understood what to do to find the answer

Used the relation between litres and milliliters  
correctly

Did the calculations correctly

I could explain the steps for getting the answer

### Measure puzzle

Ammu came with a can to buy milk. She needs 4 litres. The milk man had only 5 litre and 3 litre cans. He had another can with no measure marked. Yet he managed to measure out 4 litres for Ammu. Can you say how he did it?

# Equal Shares

## Smart club Puthumala

Dear Friends,

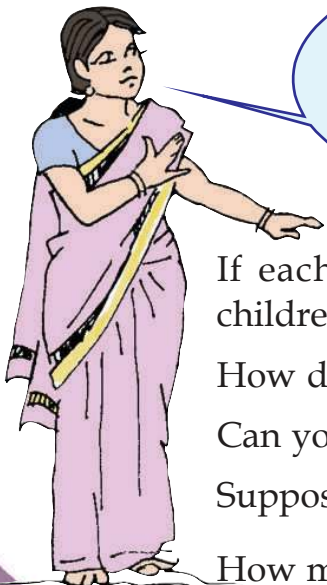
We have decided to give free notebooks, pens, pencils, crayons, slates and rulers to all children of Puthumala LP School.

Please join us and help us!



Read the notice?

Which all things are given out? Have you got any free school materials like this?



There are 18 notebooks of 100 pages in a bundle

If each child is given two notebooks, how many children get books?

How do we find out?

Can you draw a picture?

Suppose we start giving two notebooks to each.

How many will get notebooks?

That is,

$$18 - 2 = 16$$

$$16 - 2 = 14$$

$$14 - 2 = 12$$

$$12 - 2 = 10$$

$$10 - 2 = 8$$

$$8 - 2 = 6$$

$$6 - 2 = 4$$

$$4 - 2 = 2$$

$$2 - 2 = 0$$

### Let us Multiply


Look at the number in the boxes. Which all pairs have their product also in same box here?

3		4
12	2	16
6		8

We subtracted 2 repeatedly from 18.

How many times was 2 subtracted?

18 notebooks of 100 pages are to be divided equally among 9 children. Then how many notebooks would each get ?



Below each face is a small blue box for an answer. The first box contains '1 + 1', and the other 8 boxes are empty.

If one each is given to 9, then the total number given out is  and the remaining is

Again give one to each. How many notebooks are given?  And the remaining is

Total number of notebooks given



$$\begin{array}{r} 18 - \\ \underline{9} \phantom{0} \\ 9 - \\ \underline{9} \phantom{0} \\ 0 \end{array}$$

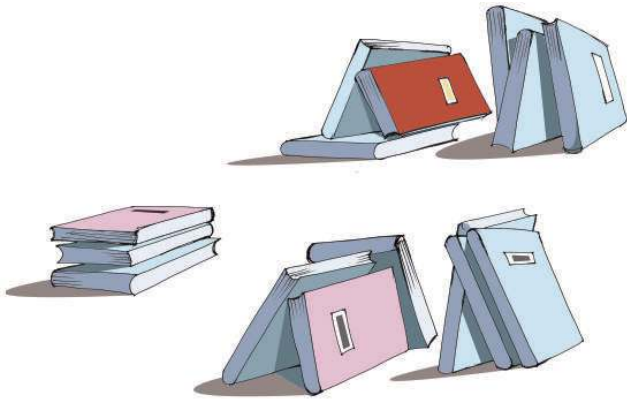
Each got

When 18 notebooks are divided equally among 9 children, each gets

When 9 children are given 2 each, the total is 18

### Book distribution

One bundle has 15 notebooks of 200 pages. If 3 books are given to each child, how many children will get notebooks?



For the first	15 -
	<u>3</u>
The second	12 -
	<u>3</u>
The third	9 -
	<u>3</u>
The fourth	6 -
	<u>3</u>
The fifth	3 -
	<u>3</u>
	0

15 notebooks can be given to 5 children, each getting 3. This we write using signs as  $15 \div 3 = 5$ .

Read as 15 divided by 3 equals 5.

One bundle has 15 notebooks of 200 pages. If these are equally divided among 5 children, how many would each get?

Children	Notebooks	Total

	15 -
One each to 5 students	<u>5</u>
	10 -
Again one each to 5	<u>5</u>
	5 -
Again one each to 5	<u>5</u>
	0

All the 15 notebooks are given to 5 students, each getting 3.

We say 15 divided by 5 is 3.

Using signs we can write it as  $15 \div 5 = 3$ .

The first one

$$\begin{aligned} 15 \div 3 &= 5 \\ 3 + 3 + 3 + 3 + 3 &= 15 \\ 5 \times 3 &= 15 \end{aligned}$$

When 15 is split into groups of 3, we get 5 groups. We say that when 15 is divided by 3, we get 5. This can be written using symbols as  $15 \div 3 = 5$ .

The second one is

$$\begin{aligned} 15 \div 5 &= 3 \\ 5 + 5 + 5 &= 15 \\ 3 \times 5 &= 15 \end{aligned}$$

When 15 is split into groups of 5, We get 3 groups. We say that when 15 is divided by 5, we get 3. This can be written using signs as  $15 \div 5 = 3$ .



*That is, to divide 15 by 5, we should see by what number 5 should be multiplied to get 15*

## Class Library

56 books were given to the Class 3 A library. The bookshelf in the classroom has 7 rows. The number of books in the rows must be the same. How many books can we put in each row?

To find how many books can be put in each row, we need only divide 56 by 7.

For this, we should find, by what number 7 should be multiplied to get 56.

$$56 \div 7 = \dots\dots$$



### Banana grove

There are 72 banana trees in a grove. Each row has 8 banana trees. How many rows are there?

$$\dots \div \dots = \dots$$

### Pencils

3 packets of pencils, each containing 10, was brought for distribution. How many can be given pencils, if each is given 2 ?

How many, if each is given 5 pencils?

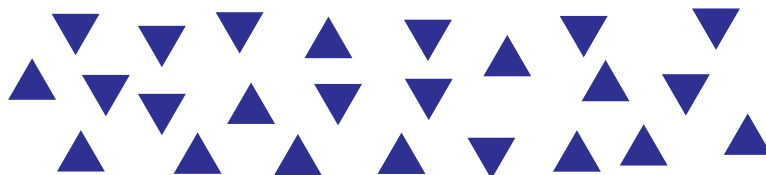
### How many packets?

6 candles can be put in a packet. How many such packets are needed to pack 60 candles?

### Making Shapes



4 triangles are used to make this. Using the triangles given below how many such shapes can be made?



Using these triangles, how many shapes can be made with 8 triangles in each?



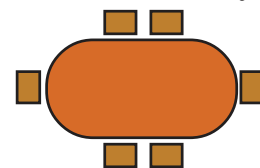
How many shapes can be made with 6 triangles in each?

How many with 3 triangles in each?

### How many tables?

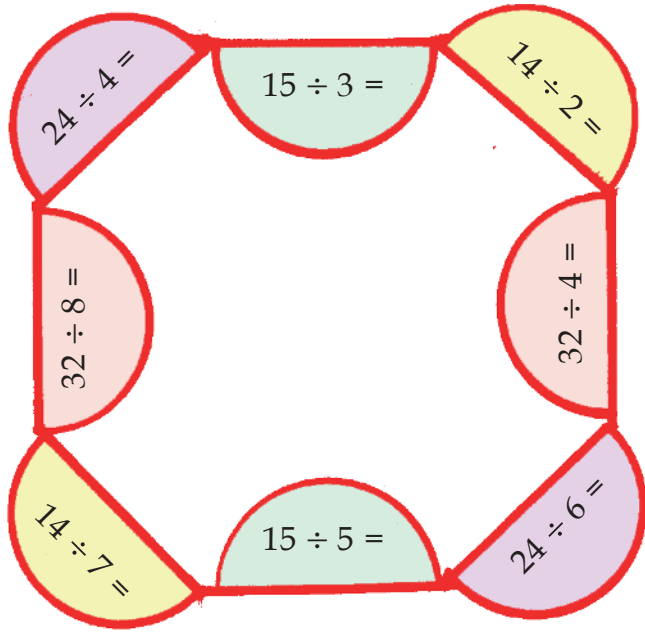
See the picture of chairs put around a table.

Like this, the chairs below can be put around how many tables?

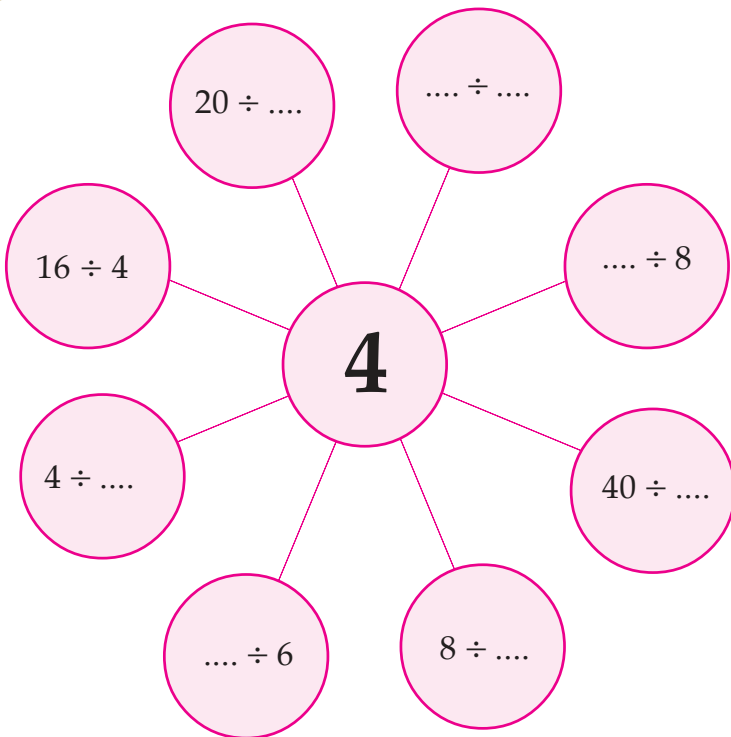


### Making Connections

Find the connections between the parts of the same color.



To get four





### Can you say?



Which number divided by 5 gives 4?

What do you get when 7 is divided by 1?



What is got when 120 is divided by 10?



Any number divided by 1 gives the number itself



### A Mistake

Vipin was asked to double a number, but he halved the number instead. He got 14.

What is the first number?

### How many can be given?



- I have 100 rupees. Among how many people can I distribute this, if each is to get 20 rupees?

- How many if each is to get 10 rupees?

- How many if each is to get 5 rupees?

### Another One

When Regitha was asked to divide a number by 3, she multiplied the number by 3 instead. She got 3. What is the first number?

## Pencils and friends

There are some pencils in a packet. When 2 each was given to 6 friends, there were no pencils left. How many can be given, if each is to get 4 pencils?



## How many sweets?



I have some sweets, less than 10 in number. When I made them into packets of 2, I had 1 left. I tried packets of 3 and then also 1 was left. How many sweets do I have?



## Gooseberries

I have some gooseberries, less than 20. If I split them into 2's none is left. I can also split them into 3's or 4's with none left. How many berries do I have?

Can you find out all such numbers less than 100?



## Division

Software to be used : : G compris in IT @ School Gnu/Linux.

To open software : Open Gcompris and then Mathematics → Using mental arithmetic → Division.



- 35 rupees was divided equally among 5 persons. How much did each get?
- When 28 mangoes were equally divided among some persons, each got 4. How many persons were there?
- 24 bangles are to be split into groups containing the same number. Do this in different ways. Write the number of groups and the number of bangles in each group. Give this as a table.
- 8 times a number is 56. What is the number?
- Write 48 as the product of two numbers in different ways.

### What is the number?

- When one number is divided by 3, we get 8. What would be obtained, if the same number is divided by 6?
- When one number is divided by 2, we get 8. What would we get, if the same number is divided by 4? What if we divide by 8?

### Multiple and Part

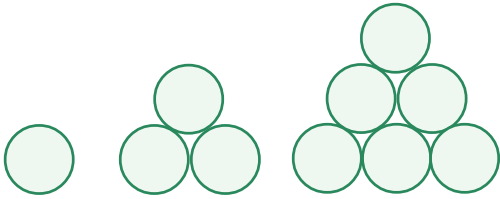
- |                              |                                     |
|------------------------------|-------------------------------------|
| • $7 \times 8 = 56$          | • $56 \div 7 = 8$                   |
| • $5 \times 6 = \dots\dots$  | • $30 \div 5 = \dots\dots$          |
| • $8 \times 4 = 32$          | • $\dots\dots \div \dots\dots = 4$  |
| • $9 \times 7 = \dots\dots$  | • $\dots\dots \div 9 = \dots\dots$  |
| • $3 \times \dots\dots = 27$ | • $27 \div \dots\dots = \dots\dots$ |
| • $9 \times 9 = \dots\dots$  | • $\dots\dots \div 9 = \dots\dots$  |
| • $6 \times 10 = \dots\dots$ | • $\dots\dots \div 10 = 6$          |

### Fill in the blanks

- |                             |                              |
|-----------------------------|------------------------------|
| • $16 \div 4 = \dots\dots$  | • $36 \div 6 = \dots\dots$   |
| • $45 \div 9 = \dots\dots$  | • $54 \div 9 = \dots\dots$   |
| • $64 \div 8 = \dots\dots$  | • $48 \div 8 = \dots\dots$   |
| • $36 \div 9 = \dots\dots$  | • $28 \div 7 = \dots\dots$   |
| • $49 \div 7 = \dots\dots$  | • $100 \div 10 = \dots\dots$ |
| • $50 \div 10 = \dots\dots$ | • $110 \div 10 = \dots\dots$ |

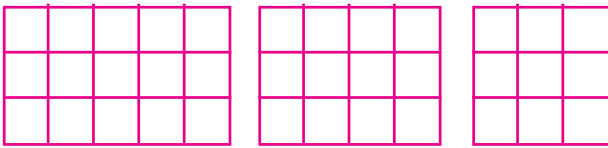
**Draw two more figures of each pattern**

(1)



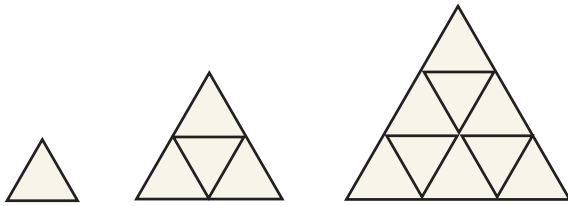
..... , .....

(2)



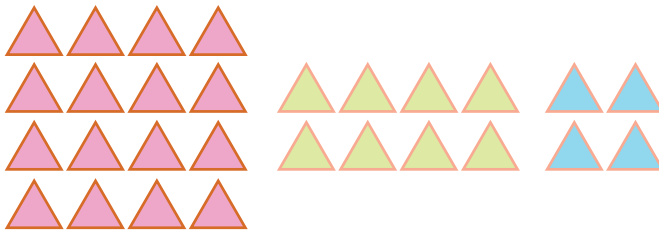
..... , .....

(3)



..... , .....

(4)



..... , .....

10

# Measuring Weights

## My Weight

Find the things in the class you can lift up.

- 
- 
- 



What all things in your home can you lift up? Make a guess.

- 
- 
- 



See the pictures. Which of these have you seen?



What is the use of all these?

Which of these can be used to find your weight?

- My weight
- The greatest weight of children on my bench
- The least weight
- The greatest weight of the children in my class
- The least weight



- Make a table showing in order, the weights of children in your class.

--

- Make some questions based on this table to ask your friends.
  - How many have the same weight?
  -
- Find the weight of your school bag.

### Onam

*Rice for Onam  
to be given tomorrow.  
5 kilograms for each.*





- How much rice is needed for your class?
- If there is 50 kilograms of rice in a sack, how many sacks are needed for your class?
- What if there is 100 kilograms in a sack?

### Noon meal

*For noon meal programme, hundred grams of rice a day is allotted to each child.*



Did you note what the teacher told in the PTA meeting?  
How many grams of rice is needed for 10 students?

10 hundred grams is 1000 grams  
1000 grams is equal to 1 kilogram  
1000 grams = 1 kilogram

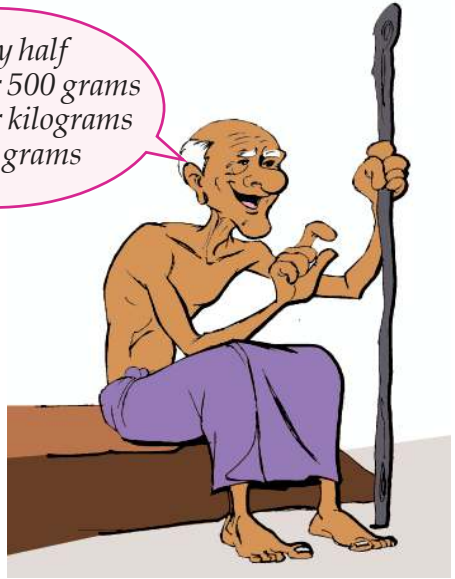
How many kilograms of rice is needed for the noon meal of children in your class today?

## Fill the bag

Fill up each bag below with things in the list in different ways.

Item	Packets (in grams)
Chilly powder	100
Coriander powder	250
Coffee	200
Dhal	500
Mustard	100
Cashew nut	50
Cardamam	50
Sugar	750

*We say half kilogram for 500 grams and quarter kilograms for 250 grams*



Items	Number	Grams



*Careful! Too much weight will burst the bag*



Items	Number	Grams



Items	Number	Grams

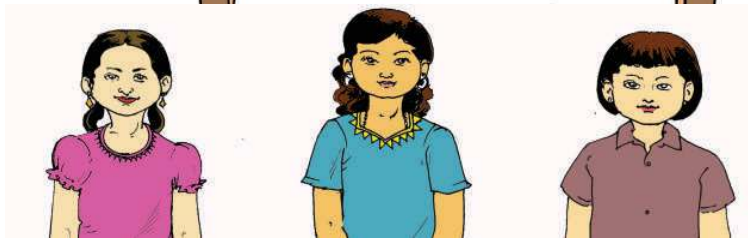
Make another bag and list like this



## Buying soap



75grams - 12 rupees  
 100 grams -15rupees  
 125 grams - 17rupees



<b>Indu :</b> I bought one of each.	<b>Lissy :</b> I bought two of 125 grams and one of 100 grams.	<b>Shamna :</b> I bought two of 100 grams and two of 25 grams
--	---	--

- What is the total weight of soap each bought?

Indu	Lissy	Shamna

- Which two bought the same weight of soap?
- How much did each pay?

Indu	Lissy	Shamna
rupees	rupees	rupees

## How many packets?

See what all things Ramu brought to the mill for grinding.

Chilly 4 kilogram

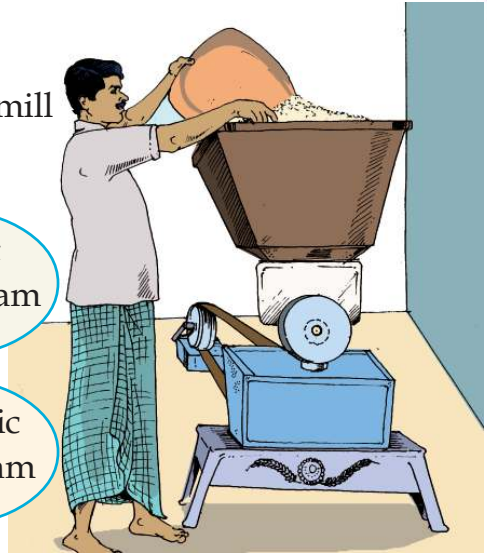
Rice 20 kilogram

Wheat 30 kilogram

Chickpea 3 kilogram

Coriander 5 kilogram

Turmeric 5 kilogram



Ramu packed the powders like this:

- Turmeric-100 gram packets, Chilly-200 gram packets, Chickpea-250 gram packets, Coriander-500 gram packets, Wheat-2 kilogram packets, Rice- 1 kilogram packets. How many packets of each are there?

*It would be easier, if we make a table*



Found out what to tabulate

Made the table according to the details

Used the relation between kilogram and gram to complete the table

### Let's Weigh



The software to be used:  
Gcompris in IT@school  
Gnu/Linux

To open software : open  
Gcompris and then Maths →  
Calculation → Let's Weigh-1

The software to be used:  
Gcompris in IT@school  
Gnu/Linux

To open software : open  
Gcompris and then Maths →  
Calculation → Let's Weigh-2

### 50 gram packs

The weights of various things kept in jars in Hamsa's shop are given below:

Cashew nut 1 kilogram	Raisin 500 gram
Cardamum 400 gram	Cumin seed 200 gram



Have you noted the weights?

Each of these is to be packed in 50 gram packets. How many packets of each would be there?

Cashewnut	
Raisin	
Cardamam	
Cumin seed	

### Can you guess?

To weigh each of the things given below, guess whether gram or kilogram is more suitable.

Item	Grams	Kilograms
Aracanut	✓	
Coconut		
Orange		
Watermelon		
Soap		
Tooth paste		

### Two weights

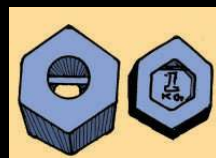
Ramu has two 1 kilogram weights and two 5 kilo-gram weights in his shop.

Abu wanted 4 kilograms of sugar and 3 kilograms of pulses.

Joby wanted 6 kilograms of rice and 8 kilograms of wheat.

Ramu measured out each of these with a single weighing.

Can you say how he managed it?



## What is the weight?

Suma bought 2 kilograms of pulses, 1 kilogram and 250 grams of jaggery, and 300 grams of ghee. What is the total weight?

How do we find it?

First we add the grams.

What do we get?  grams

Now how about the kilograms?

$$2 \text{ kilograms} + 1 \text{ kilograms} = 3 \text{ kilograms}$$

Both together      1 kilogram 50 grams +  
3 kilograms

We get 4 kilograms and 50 grams as total

1000 gram = 1  
kilogram



Kilograms	Grams
2	500
1	250
0	300
<b>4</b>	<b>050</b>



- Ravi runs a restaurant. He wants 4 kilograms and 650 grams of rice for *puttu* and 2 kilograms and 850 grams of rice for *appam*. What is the total weight of rice needed? The cost of grinding 1 kilogram of rice is 10 rupees. What is the total cost of grinding?
- Mumthas bought 4 kilograms and 350 grams of big bananas and 2 kilograms and 850 grams of small bananas. What is the total weight?

## Thomman the glutton

'Ha... Ha...!' Thomman, who weighs 96 kilograms, is happy.

His favorite food is in front:

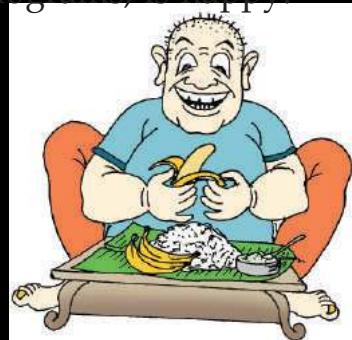
850 grams of *avil*

450 grams of banana

200 grams of sugar

Quickly tucked in

What is the total weight of the food he ate?



12 kilograms and 500 grams of jaggery was bought and from this, 9 kilograms and 250 grams was used to make *payasam*. How much is left?

How do we find it?

Weight of jaggery

bought : 12 kilograms, 500 grams

Used for *payasam* : 9 kilograms, 250 grams

Difference between grams

: 500 gram - 250 gram =  gram

Difference between

kilograms : 12 kilogram - 9 kilogram =  kilogram

Weight of remaining

jaggery : 3 kilograms, 250 gram

Kilograms	Grams
12	500
9	250



- The shop had 10 kilograms and 500 grams of sugar in stock and 8 kilograms and 450 grams was sold today. How much remaining?
- When 15 kilograms and 500 grams of wheat was washed and dried the weight was reduced by 1 kilogram 350 grams. Find the weight of the wheat now.

### Total Weight

When Sainaba's water bottle is full, it weighs 650 grams. When empty, it weighs 200 grams. What is the weight of the water in the bottle? How much would it weigh when it is half full?



### From One to Thirteen

A stone of 13 kilograms fell down and broke into three pieces. Using these pieces we can find all the weights from 1 kilograms to 13 kilograms. Can you find the weights of these pieces?

## One day

There are 109 students in Nitha's school. 4 students were absent on Wednesday. For each student 100 grams of rice is needed for the noon meal. How much rice is to be taken for the noon meal?

On Thursday and Friday, all the students were present. How much rice is needed on these days?

After Friday, how many kilograms of rice will be left?

Today is Wednesday. We have 35 kilograms of rice



## Story time

A king had severe stomach pain. All the doctors in the country examined him and gave medicines. But he was still in pain. So there was a royal proclamation. "I will give my elephant's weight in gold to anyone who cures my illness".

A doctor from another country came and cured the king.

But an elephant's weight in gold...

"Find the elephant's weight first and come back", ordered the king.

The doctor went home and told all this to his son.

The son managed to get a boat. The doctor went back to the palace and took the elephant to the river. First they marked the water level on the boat.

Then they got the elephant into the boat.

Again they marked the water level.






The king kept his promise and gave the elephant's weight in gold. How?



11

## Picture Math

The picture shows various fruits got from Asha's yard.

Mango	
Jackfruit	
Banana	
Pineapple	
Guava	

How many guavas?

Which fruit is the most?





How many more bananas than jack fruits?

## Garden

See the picture of the garden Asha and her friends went to.



There are various types of flowers. How many of each type? Write in the table:


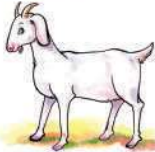


Flower	Number
	
	
	
	



## Domestic animals

Look at the picture of animals and birds of Asha's family keeps?



Animal/Bird	Number
	
	
	
	

How many ducks are there?

Which animal is the most?

And the least?

How many birds?

How many animals?

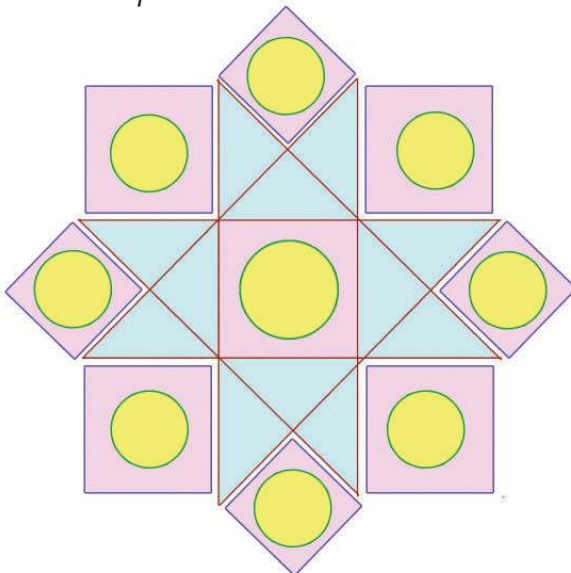
### What you have

All students have the things shown in the table. Find the total number of each in your class and write in the table.

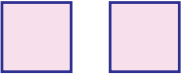
Item	Number
	
	
	
	

### Math Fair

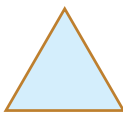
See the diagram of the *pookkalam* made for the Math Fair in the school



How many of each shape is used? Draw in the table.

Shape	Number
Square	
Triangle	
Circle	

Which shape is the most? Put a ✓ mark against it.



### Let's Count

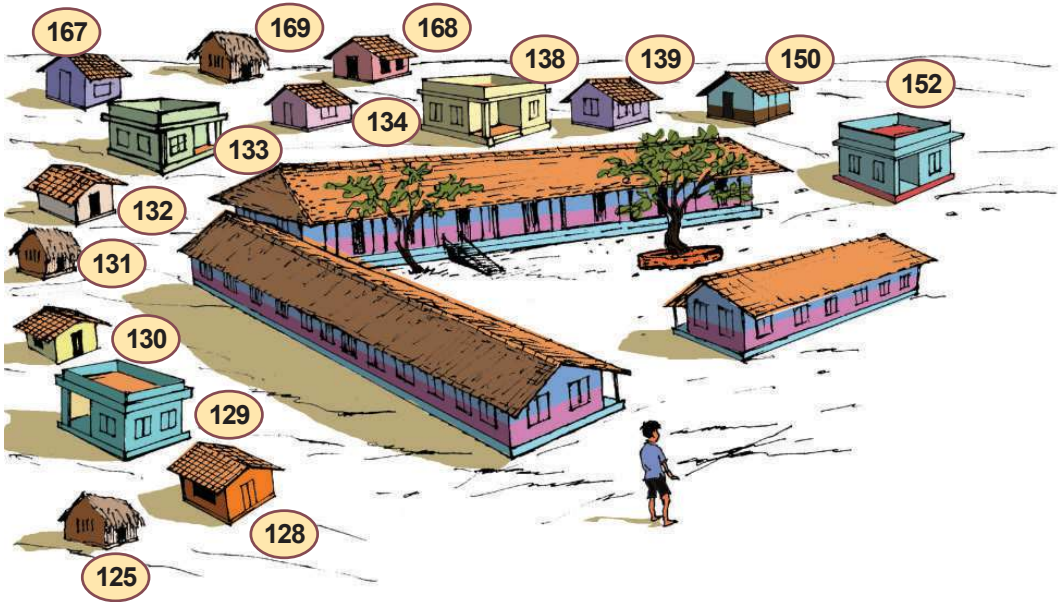




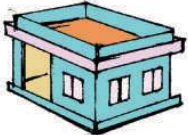
The software to be used: Gcompris in IT@ School Gnu/Linux

To open the software : Open Gcompris and then Maths → counting → How Many

## Many kinds of houses

See the houses around Babu's school. In table below, write the door numbers of houses of each kind. Also write the total number of each kind.



Type of house	House number	Number of houses
		
		
		

Make some questions on this to ask your friends.

- How many houses are there ?
- 
- 

### Hobbies

Find the hobbies of all children in your class. In the table, draw pictures to show the number of children who have each hobby.

Draw one child like this



Hobby	Number of Children
Reading	
Music	
Travel	

## Looking Back



What I can	On my own	With teacher's help	Must Improve
<b>7. Rows and columns</b>			
• Formulating multiplication facts through practical situations.			
• Using multiplication facts in problems solving.			
• Using multiplication for problem solving.			
• Explaining number concepts related with multiplication.			
• Making up practical problems using multiplication facts.			
<b>8. Measure and Tell</b>			
• Explaining the relation between the units of length (centimetre/ metre)			
• Measuring lengths accurately using tape measure/ruler.			
• Solving practical problems related to measures of length.			
• Explaining the relation between the units of volume (Millilitre/litre)			
• Measuring volumes accurately using measuring jars.			
• Solving practical problems related to measures of volume.			
<b>9. Equal shares</b>			
• Explaining different methods of division (Repeated subtraction, making groups, sharing equally)			
• Explaining different methods of doing the division operation.			

What I can	On my own	With teacher's help	Must Improve
<ul style="list-style-type: none"> <li>Using division for doing practical problems.</li> </ul>			
<ul style="list-style-type: none"> <li>Explaining the number concepts related to division.</li> </ul>			
<b>10. Measuring weights</b>			
<ul style="list-style-type: none"> <li>Explaining the relationship between the units of weight (gram/kilogram)</li> </ul>			
<ul style="list-style-type: none"> <li>Measuring weight accurately using balance</li> </ul>			
<ul style="list-style-type: none"> <li>Solving problems related to weight</li> </ul>			
<b>11. Picture Math</b>			
<ul style="list-style-type: none"> <li>Explaining information given in pictures</li> </ul>			
<ul style="list-style-type: none"> <li>Analyzing information given in pictures</li> </ul>			
<ul style="list-style-type: none"> <li>Tabulating information given in pictures</li> </ul>			
<ul style="list-style-type: none"> <li>Making conclusions by analyzing given information.</li> </ul>			