



Government of Tamilnadu

STANDARD TWO

TERM III

VOLUME 2

MATHEMATICS

ENVIRONMENTAL STUDIES

NOT FOR SALE

Untouchability is Inhuman and a Crime.

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ENVIRONMENTAL STUDIES

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MATHEMATICS

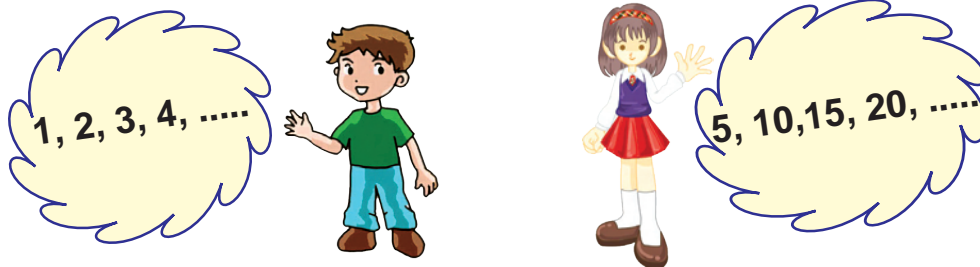
STANDARD TWO

TERM III

1. Patterns in Numbers

We have already seen some patterns with shapes and figures.

Now, we can create patterns with numbers.

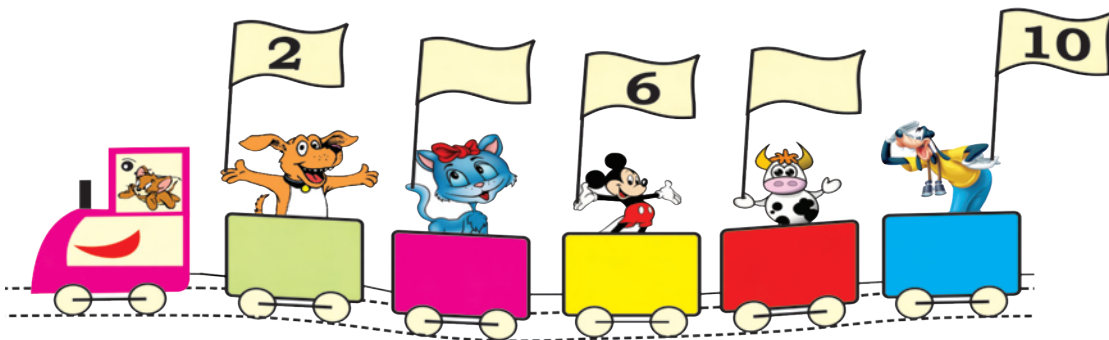


Look at this number pattern.

1, 3, 5, 1, 3, 5,...
10, 20, 30, 10, 20, 30,...

*A number pattern is a chain of numbers
which follows a certain order.*

Complete the journey of cartoons.



Fill in and complete the number pattern

1. 1, 2, 3, 1, 2, 3,

			,				,			
--	--	--	---	--	--	--	---	--	--	--

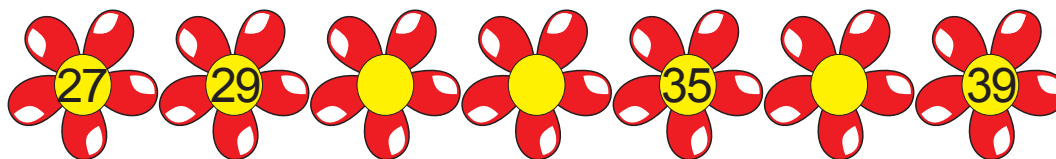
2. 49, 59, 49, 59

		,			,		
--	--	---	--	--	---	--	--

3. 5, 55, 5, 55,

		,			,		
--	--	---	--	--	---	--	--

Identify the number pattern and complete them



Observe each number pattern and fill in the boxes.

$$\boxed{17} \longrightarrow \boxed{71}$$

$$\boxed{45} \longrightarrow \boxed{}$$

$$\boxed{25} \longrightarrow \boxed{52}$$

$$\boxed{} \longrightarrow \boxed{89}$$

$$\boxed{69} \longrightarrow \boxed{}$$

$$\boxed{} \longrightarrow \boxed{35}$$

$$\begin{array}{c} 2 \\ \swarrow \quad \searrow \\ 1 \quad 3 \end{array} \longrightarrow \begin{array}{c} 1 \\ \swarrow \quad \searrow \\ 3 \quad 2 \end{array}$$

$$\begin{array}{c} 6 \\ \swarrow \quad \searrow \\ 3 \quad 9 \end{array} \longrightarrow \begin{array}{c} 3 \\ \swarrow \quad \searrow \\ 9 \quad 6 \end{array}$$

$$\begin{array}{c} 4 \\ \swarrow \quad \searrow \\ 2 \quad 6 \end{array} \longrightarrow \begin{array}{c} 2 \\ \swarrow \quad \searrow \\ 6 \quad 4 \end{array}$$

$$\begin{array}{c} 10 \\ \swarrow \quad \searrow \\ \quad \end{array} \longrightarrow \begin{array}{c} 5 \\ \swarrow \quad \searrow \\ 15 \quad 10 \end{array}$$

$$\begin{array}{c} 3 \\ \swarrow \quad \searrow \\ 1 \quad 5 \end{array} \longrightarrow \begin{array}{c} \\ \swarrow \quad \searrow \\ \quad \end{array}$$

$$\begin{array}{c} \\ \swarrow \quad \searrow \\ \quad \end{array} \longrightarrow \begin{array}{c} 10 \\ \swarrow \quad \searrow \\ 30 \quad 20 \end{array}$$

$$\{1, 3, 5\} \longrightarrow \{2, 4, 6\}$$

$$\{33, 35, 37\} \longrightarrow \{, , \}$$

$$\{11, 13, 15\} \longrightarrow \{12, 14, 16\}$$

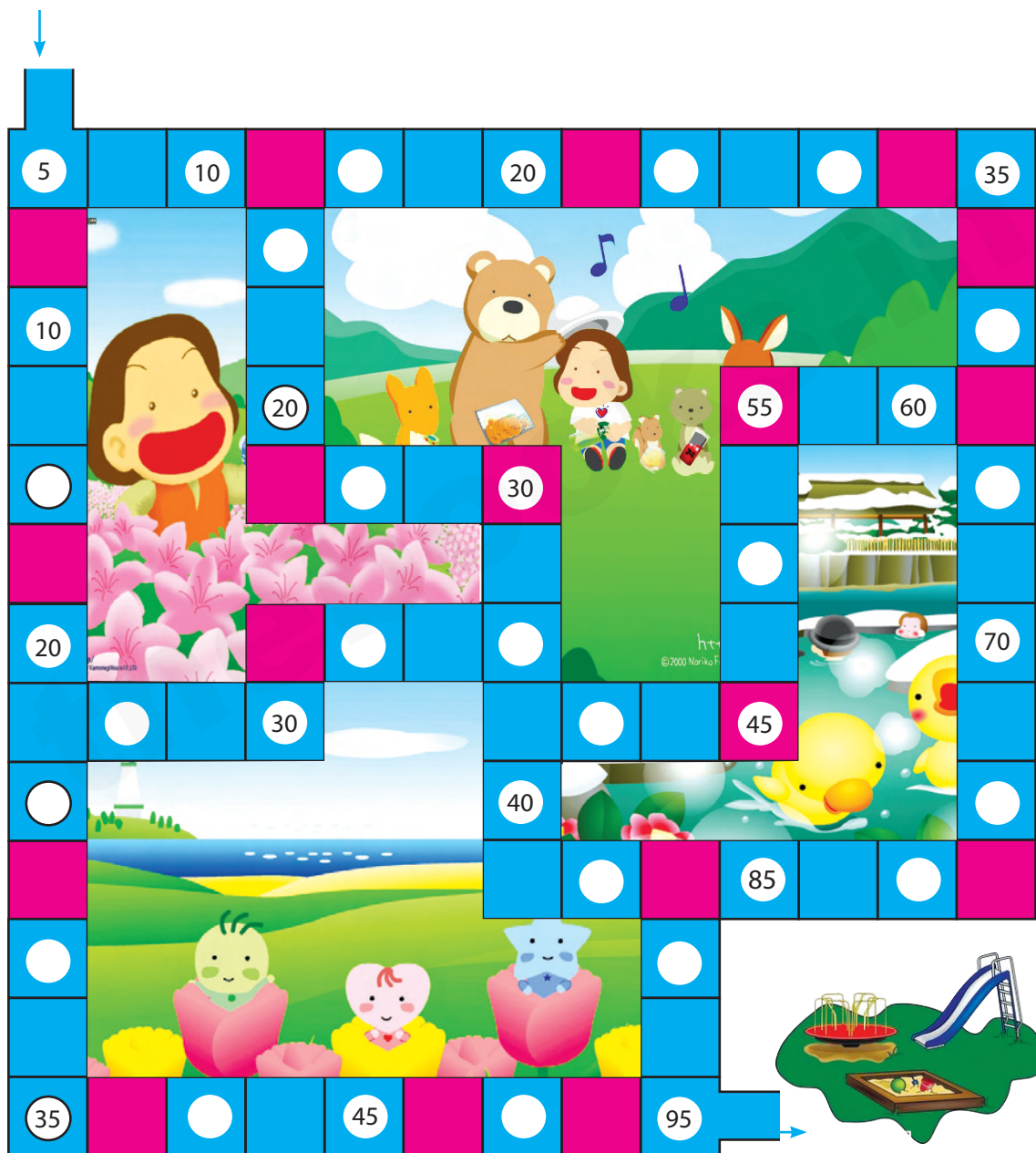
$$\{77, \} \longrightarrow \{78, 80, 82\}$$

$$\{21, 23, 25\} \longrightarrow \{, , \}$$

$$\{, \} \longrightarrow \{44, 46, 48\}$$



Help Anand to go to the playground by crossing some number patterns !



2. Measures of Capacity

We observe that...



has more capacity than a



has less capacity than a



The capacity (volume) of a container depends on its size.



ACTIVITY

Filling water

- a) Take an  to fill up a 

Ans : ink filler

- b) Take a  to fill up a 

Ans : bottle cap

c) Take a  to fill up a 

Ans : bowl

d) Take a  to fill up a 

Ans : bottle



ACTIVITY

★ Take sand grains in a  and pour them down on a sheet of newspaper.

★ Take sand grains in your  and pour them next to the previous heap.

★ Take sand grains in a  and pour them next to the two heaps.

Compare the three heaps of sand grains and find out which one of them has the least capacity.

[Spoon / bowl / two palms]

We buy oil, milk, petrol by measuring their volume (capacity).



- ✱ The smallest unit of capacity is Millilitre.
- ✱ The standard unit for measuring liquids is Litre.



ACTIVITY

Ask and learn from your mother

- ★ The quantity of oil she buys for a month
- ★ The quantity of milk she buys every day.

Do you know ?

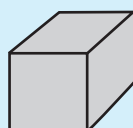
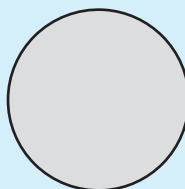
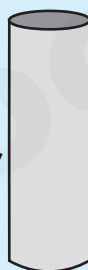
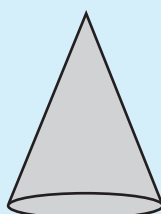
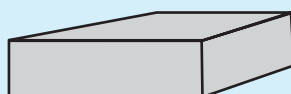
A child must drink 6 to 8 tumblers (nearly 2 litres) of water every day



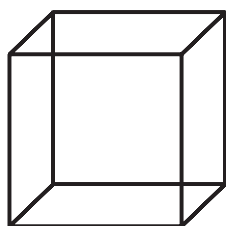
3. Figures

ACTIVITY

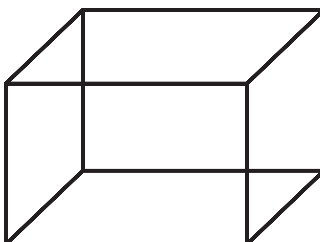
Match the objects with their figures.



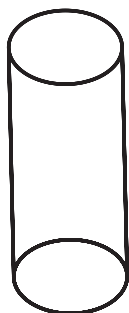
Look at the shapes of these figures ! Learn their names!



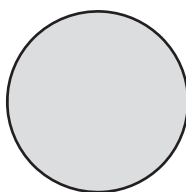
Cube



Cuboid



Cylinder



Sphere



Cone



ACTIVITY

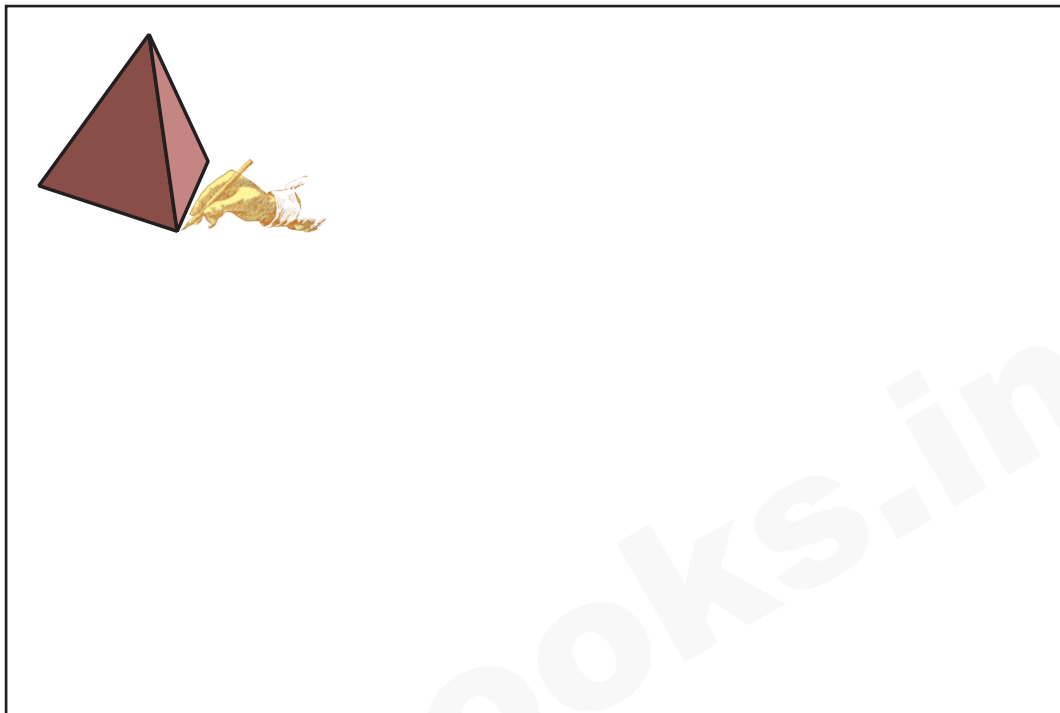
Children are asked to sit in circles and close their eyes.



Teacher gives different objects and asks the children to name them.





Draw outlines of objects and learn!

Collect dice, bottle cap, matchbox, eraser, coin, prism etc... and trace below as shown.



Now, you have learnt that the faces of the three dimensional figures give the outlines of two dimensional shapes.

List the names of the things you have used to draw the following figures.

			
Eraser			

Find out the shapes of the following.

Cuboid, Cube, Cone, Cylinder, Sphere

Sweet lime _____ Sphere _____

Matchbox

Dice

Tube light

Funnel

Book

Globe

Flute

Joker's cap





Pile of one-rupee coins

4. Study of Data

Uma wants to count the flowers in her garden. The data of different types of flowers in her garden are given below.

Let us help Uma to count the flowers.



Flowers	In numbers
	
	
	
	



'Data' is a collection of facts and figures



Ravi tabulated the weight of his friends. Arrange the data in descending order.

Name	Weight(kg)
Babu	18
Elango	21
Mamtha	16
Rajan	22
Sumathi	19
Aruna	17



Name	Weight (kg)
Rajan	22

Among Ravi's friends.....

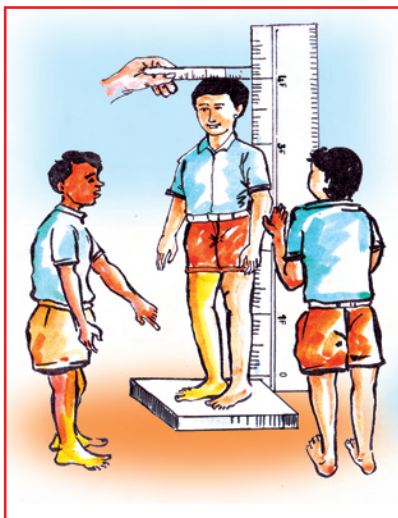
Who weighs the most?

Who weighs the least?

Who weighs more than Elango?

Who weighs less than Aruna?

Let us find out



With the help of your teacher, write the names of your friends and their measure of heights.

Name	Height (cm)

Arrange the data in ascending order.

Name	Height (cm)

- * The highest measurement iscm.
- * The least measurement is.....cm.
- * What is your height?cm.
- * How many of them are taller than you?
- * How many of them are shorter than you?



Data on favourite game

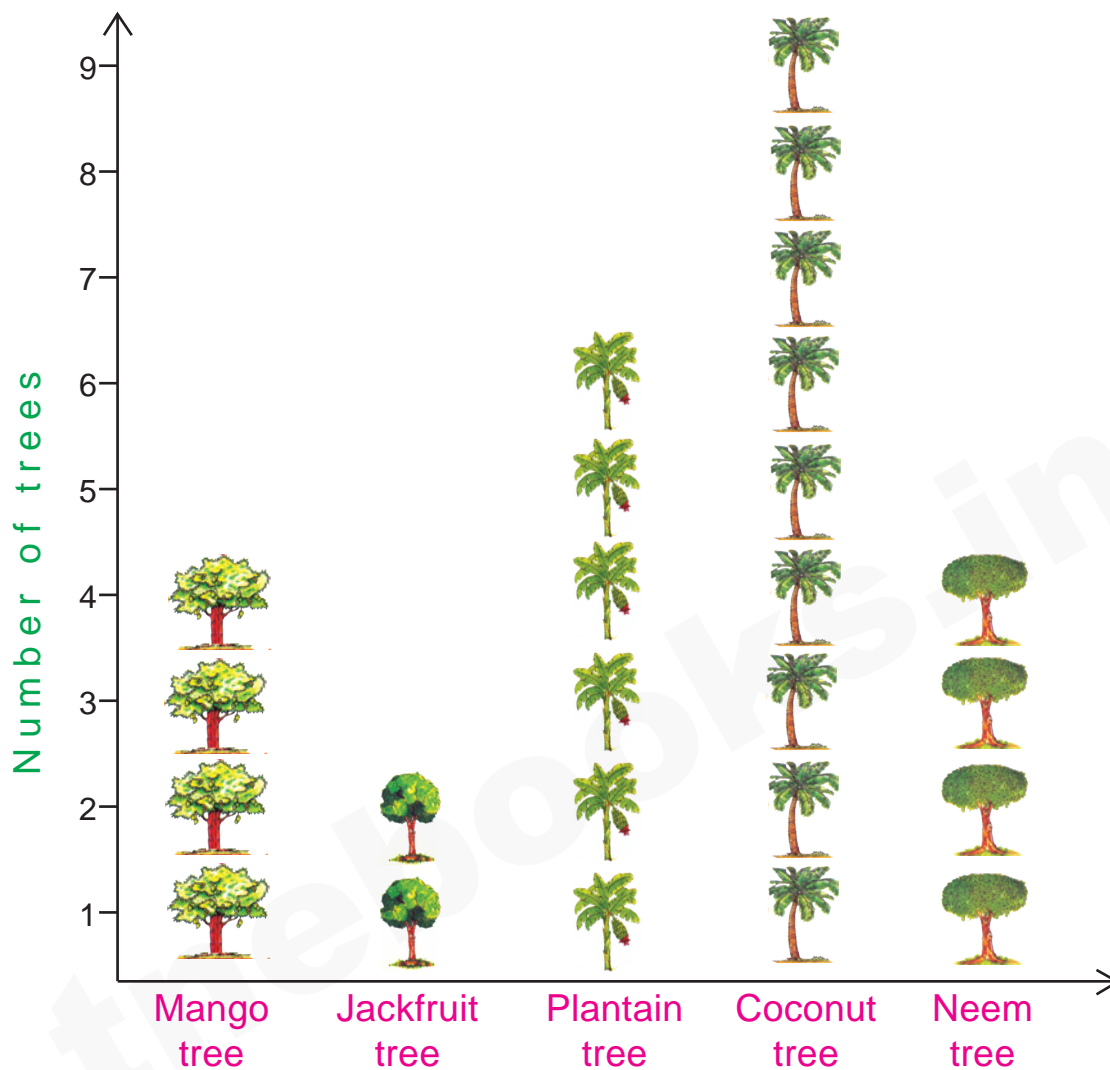


Complete the table

Game	Children (Pictograph) 😊									In numbers
Volleyball	😊	😊	😊	😊	😊					5
Cricket	😊	😊	😊	😊	😊	😊	😊	😊	😊
Kabadi	😊	😊	😊	😊	😊				
Basketball	😊	😊	😊	😊					
Football	😊	😊	😊	😊	😊	😊	😊	😊	

- ✳ How many children like volleyball?
- ✳ Which is the game liked by most of the children ?
- ✳ How many of them like kabadi?
- ✳ How many of them like basketball?
- ✳ How many of them like football?
- ✳ The total number of children in the classroom:

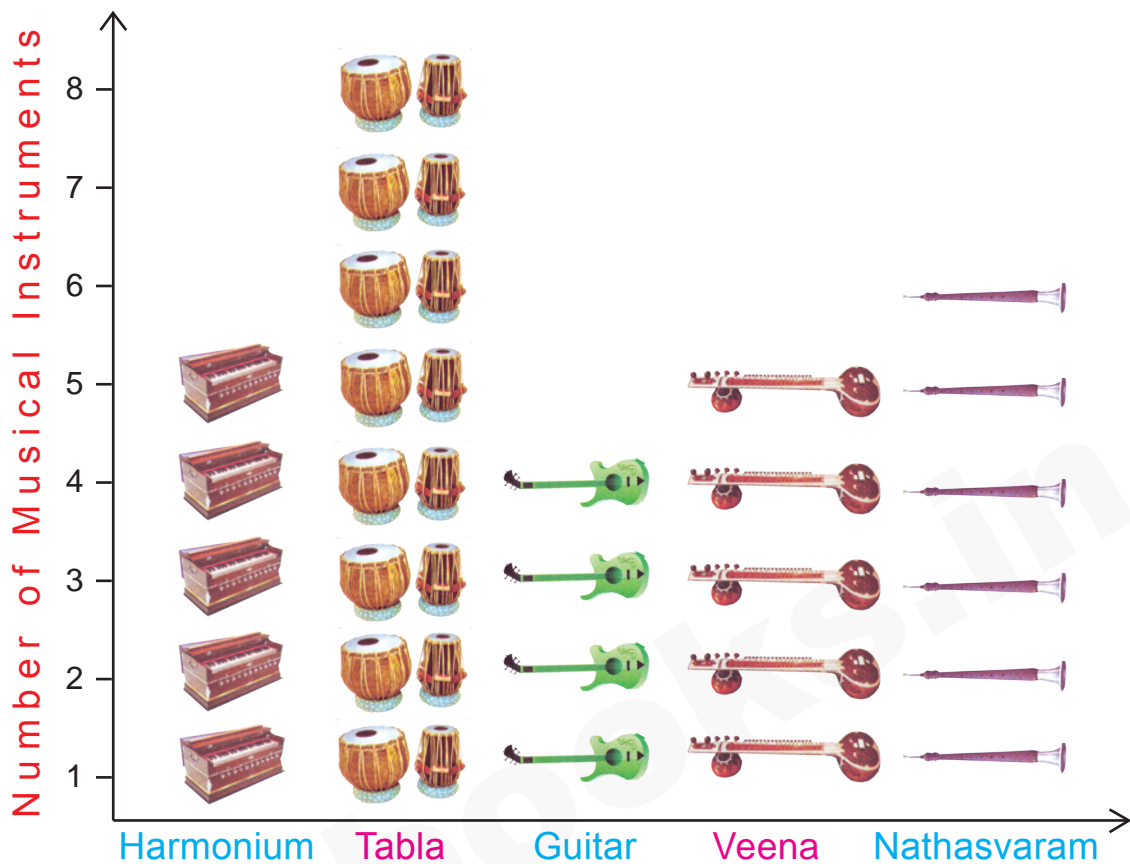
Let us study the data on various trees in a farm.






Types of trees

- ♣ Number of mango trees
- ♣ Number of jackfruit trees
- ♣ Number of neem trees
- ♣ Name the trees which are equal in number
..... ,
- ♣ The total number of trees in the farm

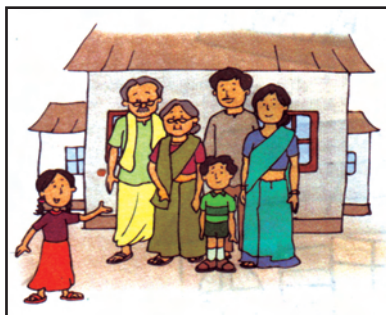
Look at the Musical Instruments. Fill in the blanks.



- Number of 
- Number of 
- Number of 
- Name the instrument that is the least in number
- Name the instrument that is the most in number
- Name the instruments which are equal in number
-,

ACTIVITY

Name the month in which your family members were born.



Father	
Mother	
Grandfather	
Grandmother	
Elder brother	
Elder sister	
Younger sister	
Younger brother	



Myself:.....

ACTIVITY

Collect the names of favourite fruits of your friends.
Tabulate the details.



(Apple, Banana, Jackfruit, Mango, Grapes, Orange, ...)

Fruits	Friends (Pictograph) 😊	In numbers

5. Measures of Time

Let us observe the calendar

2014

January						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

March						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

May						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

July						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

August						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

September						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

October						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

November						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

December						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Mathematics

Calendar shows days, weeks and months of a year.

★ There are 7 days in a week.

★ **SUNDAY** is the first day of the week.

★ **SATURDAY** is the last day of the week.

Let us say the days of the week



7 days = 1 week

4 weeks = 1 month

12 months = 1 year

365 days = 1 year

Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

★ There are 12 months in a year.

They are

January

May

September

February

June

October

March

July

November

April

August

December

★ A year has 365 days

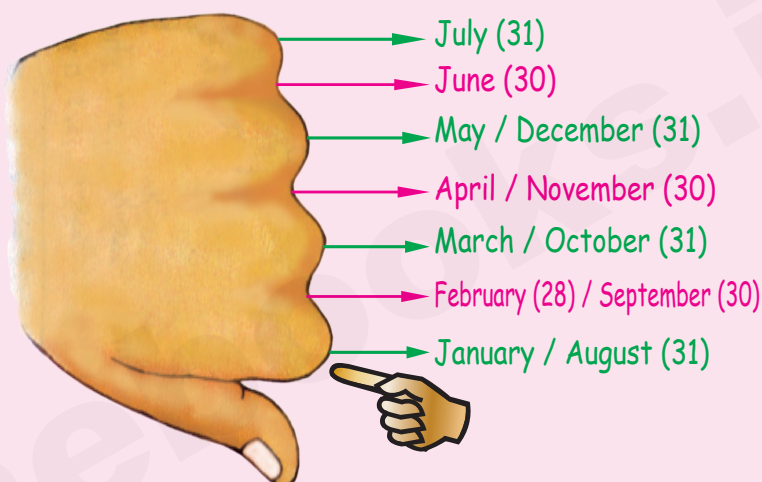


ACTIVITY

Write and practise the days of the week and months in a year

We see that all months do not have the same number of days.
Let us remember this by doing this activity:

- ✚ Fold the fingers of your left hand.
- ✚ With the index finger of your right hand, touch the knuckles and gaps of the left hand fist alternately.
- ✚ At the same time, recite the names of all the 12 months



The months on the knuckles have **31** days and those in the gaps have 30 days (except February).

The leap year which falls once in 4 years has 29 days in February.

A leap year has 366 days.

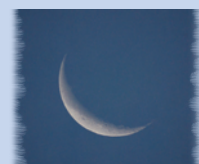
- ★ Our school works from June to April.
- ★ We have our vacation during May.

Let us know some celebrations in a year



Do you know?

This year, we celebrate the Ramzan festival in the month of



1. In the calendar given, circle the days of the following using colour pencils.

- ❖ Your birthday
- ❖ School re-opening day after half-yearly holidays
- ❖ Republic day
- ❖ Tamil New Year day
- ❖ All Thursdays in the month of February
- ❖ Christmas day
- ❖ Gandhi Jayanthi day

2. Find out the day of the following in the calendar given.

- ❖ January 20th _____ day
- ❖ February 4th _____ day
- ❖ March 15th _____ day
- ❖ This year, your birthday falls on _____ day
- ❖ The last day of the April month is, _____ day

3. Match the following.

- | | |
|----------------------|-------------|
| ❖ World Literacy Day | November 14 |
| ❖ Children's Day | September 5 |
| ❖ Human Rights Day | May 1 |
| ❖ May Day | December 10 |
| ❖ Teacher's Day | September 8 |

Teacher's Note :



The teacher may give similar practices to the children by asking the above type of questions using the current calendar.



EXERCISE

Choose the correct answer:

- 1) The academic year starts in (**January / June**)
- 2) Independence day is celebrated in the month of (**January / August**)
- 3) The first working day in a week (**Sunday / Monday**)
- 4) day is celebrated in the month of September (**Children's / Teacher's**)
- 5) Education development day is celebrated in the month of (**June / July**)

Seasons

Summer



March, April,
May, June



Rainy



July, August,
September, October



Winter



November, December,
January, February

Let us know calendars based on different cultures

Tamil calendar

It is used by Tamilians.

First month : Chithirai

Last month : Panguni

திருக்கிர் வடம்	பங்குனி 19	சுரபந்தம்	பங்குனி 27
பு	1	சுரபந்தம்	9
திருவாரூர்	பங்குனி 20	சித்திரை	பங்குனி 28
பு	2	புத்திரை	10
புத்திரை	பங்குனி 21	கார்த்திகை	பங்குனி 29
பு	3	புத்திரை	11
புத்திரை	பங்குனி 22	சிவராத்திரி	பங்குனி 30
பு	4	சிவராத்திரி	12
சிவராத்திரி	பங்குனி 23	சிவராத்திரி	பங்குனி 31
பு	5	சிவராத்திரி	13
சிவராத்திரி	பங்குனி 24	சிவராத்திரி	14
பு	6	சிவராத்திரி	15
சிவராத்திரி	பங்குனி 25	சிவராத்திரி	16
பு	7	சிவராத்திரி	17
சிவராத்திரி	பங்குனி 26	சிவராத்திரி	18
பு	8	சிவராத்திரி	19

Islamic calendar

It is used by Muslims.

First month : Muharam

Last month : Zul huj

MOHARRAM	SHAWAL	RABI'UL AWWAL	RABI'UL THANI	JAUMAD AL AWWAL	JAUMAD AL THANI	MUHAMMAD RABI'UL AWWAL
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35

Gregorian calendar

It is used by most of the people in the world. In India, we use this calendar.

First month : January

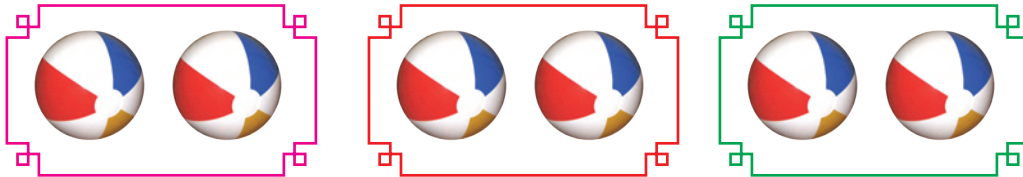
Last month : December

JANUARY	FEBRUARY	MARCH
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31

Mathematics

6. Multiplication

Let us see the arrangements.



There are 3 groups .

Two balls are in each group and totally there are 6 balls.

It can be written as 2 balls + 2 balls + 2 balls = 6 balls.

It means 3 times of 2 balls, 3 x 2 balls = 6 balls

Multiplication is repeated addition of the same number. The symbol 'X' denotes multiplication.



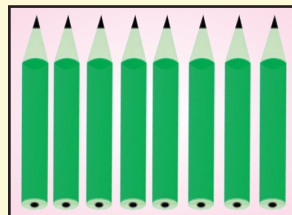
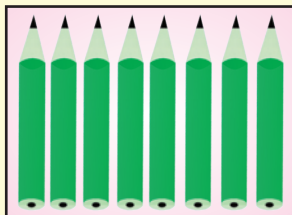
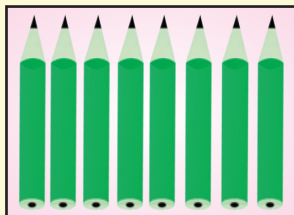
$$\begin{array}{ccccccc} \boxed{3} & + & \boxed{3} & + & \boxed{3} & + & \boxed{3} & = & \boxed{12} \\ & & & & \boxed{4} & \times & \boxed{3} & = & \boxed{12} \end{array}$$

Do it yourself



$$\begin{array}{ccccccc} \boxed{} & + & \boxed{} & = & \boxed{} \\ \boxed{} & \times & \boxed{} & = & \boxed{} \end{array}$$

Do it yourself



$$\square + \square = \square$$

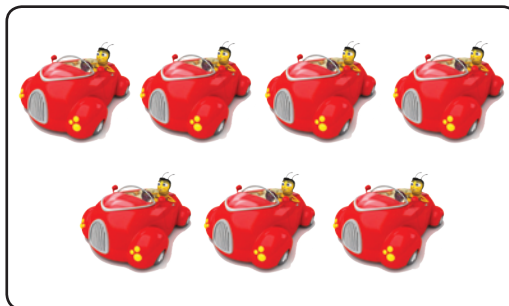
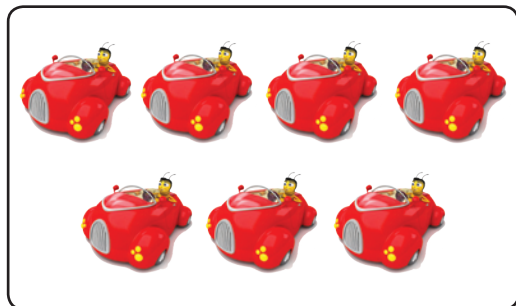
$$\square \times \square = \square$$



$$\square + \square + \square + \square + \square + \square = \square$$

$$\square \times \square = \square$$

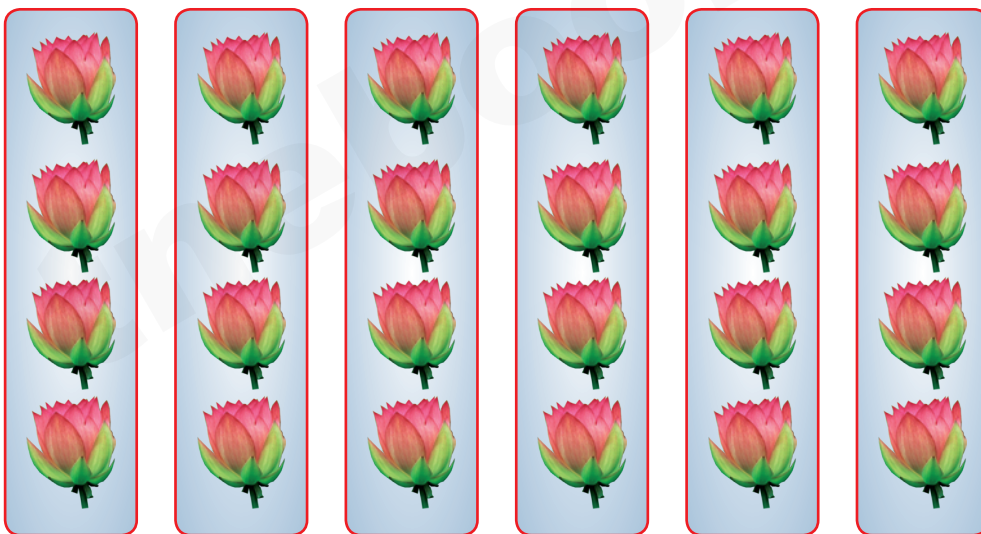
Do it yourself



$$\square + \square = \square$$

$$\square \times \square = \square$$

Mathematics



$$\square + \square + \square + \square + \square + \square = \square$$

$$\square \times \square = \square$$



Write the multiplication facts.

$2 + 2 + 2$

=

3×2

$4 + 4 + 4 + 4$

=

$6 + 6 + 6 + 6 + 6$

=

$9 + 9 + 9 + 9 + 9 + 9$

=

$5 + 5$

=

$7 + 7 + 7 + 7$

=

$8 + 8 + 8 + 8 + 8 + 8 + 8$

=

$3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3$

=

$0 + 0 + 0 + 0$

=

$1 + 1 + 1$

=



Mathematics





Fill in the blanks.

$$5 + 5 + 5 + 5 = \underline{\quad} \times 5$$

$$2 + \underline{\quad} + 2 + \underline{\quad} = 4 \times \underline{\quad}$$

$$8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 8 \times \underline{\quad}$$

$$1 + 1 + 1 + 1 + 1 = \underline{\quad} \times 1$$

$$6 + 6 + 6 = \underline{\quad} \times \underline{\quad}$$

$$4 + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = 7 \times \underline{\quad}$$

$$3 + 3 + 3 + 3 + 3 + 3 + 3 = \underline{\quad} \times 3$$

$$9 + 9 + 9 + 9 = \underline{\quad} \times \underline{\quad}$$

$$0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 = \underline{\quad} \times 0$$

$$7 + 7 + 7 + 7 + 7 + 7 = 6 \times \underline{\quad}$$

$$4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 9 \times \underline{\quad}$$





Match the following.

			3
			3

$$2 \times 2$$

				4
				4
				4

$$2 \times 3$$

		2
		2

$$1 \times 10$$

					5
					5
					5
					5

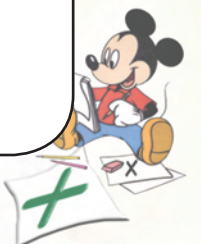
$$3 \times 4$$

										10
--	--	--	--	--	--	--	--	--	--	----

$$4 \times 5$$



Mathematics



Match the following.

$9 + 9 + 9 + 9 + 9 + 9 + 9$

3×6

$5 + 5 + 5 + 5$

5×7

$6 + 6 + 6$

2×4

$7 + 7 + 7 + 7 + 7$

4×5

$4 + 4$

7×9

Write the repeated addition facts.

$6 \times 2 = 2 + 2 + 2 + 2 + 2 + 2$

$7 \times 4 =$

$3 \times 8 =$

$2 \times 9 =$

$4 \times 6 =$

$5 \times 3 =$

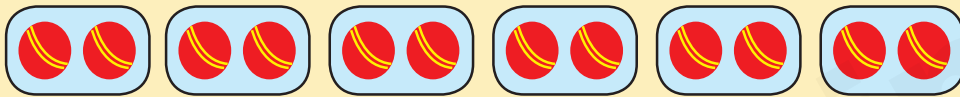


Group the objects equally

Shall we share 12 balls equally?



$$12 = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1$$



$$12 = 2 + 2 + 2 + 2 + 2 + 2$$



$$12 = 3 + 3 + 3 + 3$$



$$12 = 4 + 4 + 4$$



$$12 = 6 + 6$$

12 balls can be grouped equally in 5 different ways.



Mathematics



Let us share 15 objects equally.



$$15 = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1$$



$$15 = 3 + 3 + 3 + 3 + 3$$



$$15 = 5 + 5 + 5$$

15 apples could be shared equally in 3 different ways.

Try to share 18 bananas equally in different ways.

Different number of objects can be shared equally in different ways.



Mind maths

A packet has **10** Pens.



How many pens will be in **2** packets?

1 packet = 10 pens
2 packet = $2 \times 10 = 20$ pens



A basket has **10** apples.



How many apples are in **6** baskets?



A packet has **10** biscuits.

How many biscuits are in **4** packets?

10 students sit in a row



How many students will be in **9** rows?



A box contains **10** eggs.

How many eggs are in **3** boxes?

Teacher's Note

Teacher may give more examples to practise mind maths involving multiplication.



7. Money

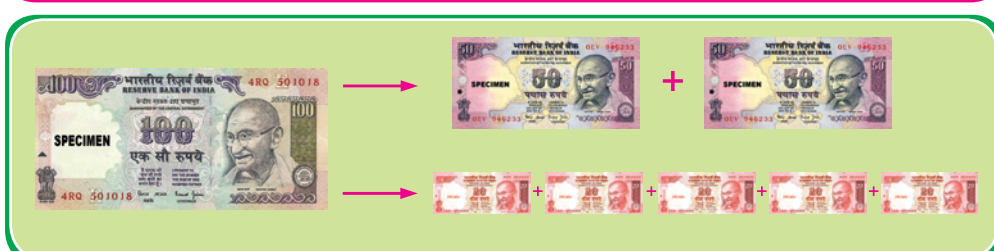
What do you need to buy something from a shop?

Money.....

We call our money as rupees and paise.
It is used in the form of notes and coins.



Let us learn some money transactions.



Now think...

★ Is there any other transaction for ₹ 5 ?

★ The other possibilities to change ₹ 10

Put (✓) the correct transaction.



			<input type="checkbox"/>
			<input type="checkbox"/>



			<input type="checkbox"/>
			<input type="checkbox"/>



		<input type="checkbox"/>
		<input type="checkbox"/>



				<input type="checkbox"/>
				<input type="checkbox"/>

Match the price of the object with its transaction.

	₹ 7
	₹ 10
	50 P
	₹ 12
	₹ 20

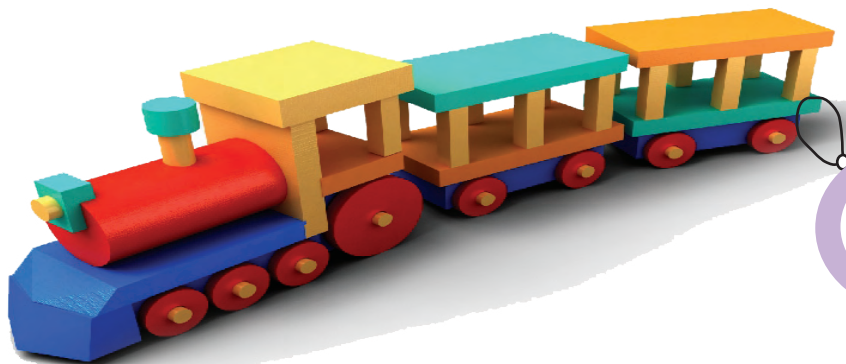


Let us know

'p' denotes paise.

'₹' denotes rupees.

Put (✓) for the boys who have enough money to buy the toy train



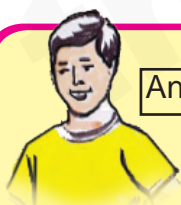
₹ 50



Arun



Anwar



Antony



★ How much more money does Arun need to buy the toy train?

₹

★ How much is left with Antony after buying the toy train?

₹

The prices of some objects are given below.



Find out the cost of each set.

Items	₹
 + 	<input type="text"/>
 + 	<input type="text"/>
 + 	<input type="text"/>
 + 	<input type="text"/>



Think and answer orally.

The cost of an



is ₹ 10

The cost of a



is ₹ 3.

What is the total cost of these two fruits?

A



costs ₹ 10. A



costs ₹ 5.

How much does the pen cost more than the chocolate ?

The cost of a



is ₹ 7 and that of a



is ₹ 30.

I have ₹ 40. Can I buy both the top and doll ?

My mother gave me ₹ 20 on my birthday. I bought a piggy bank for ₹ 15. I put the remaining in my piggy bank. How much did I save?



Teacher's Note



The teacher may give more examples based on the life situations.

Do you know?

The symbol of the Indian currency '₹' was designed by **Mr. D. Udhayakumar** of Tamil Nadu.

8. Block Patterns

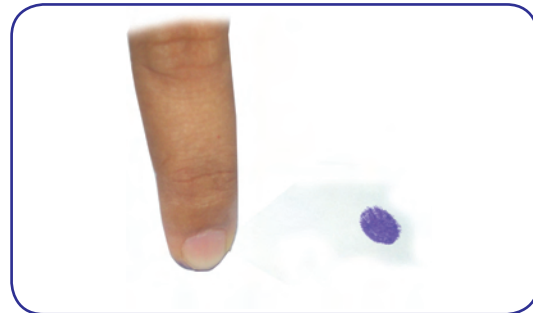
Patterns are not only made by shapes and numbers. It can be made by many things which we use in day-to-day life.

For example : Thumb printing, Vegetable printing,.....

Thumb Print Pattern



Thumb and Fingertip Print Pattern



Vegetable Print Patterns



Block patterns are made by repeating the same motif again and again.



ACTIVITY

Using vegetable cuttings like potato, lady's finger and bitter gourd, try to make patterns.



ACTIVITY

Using your thumb and fingertip, create patterns of your own.

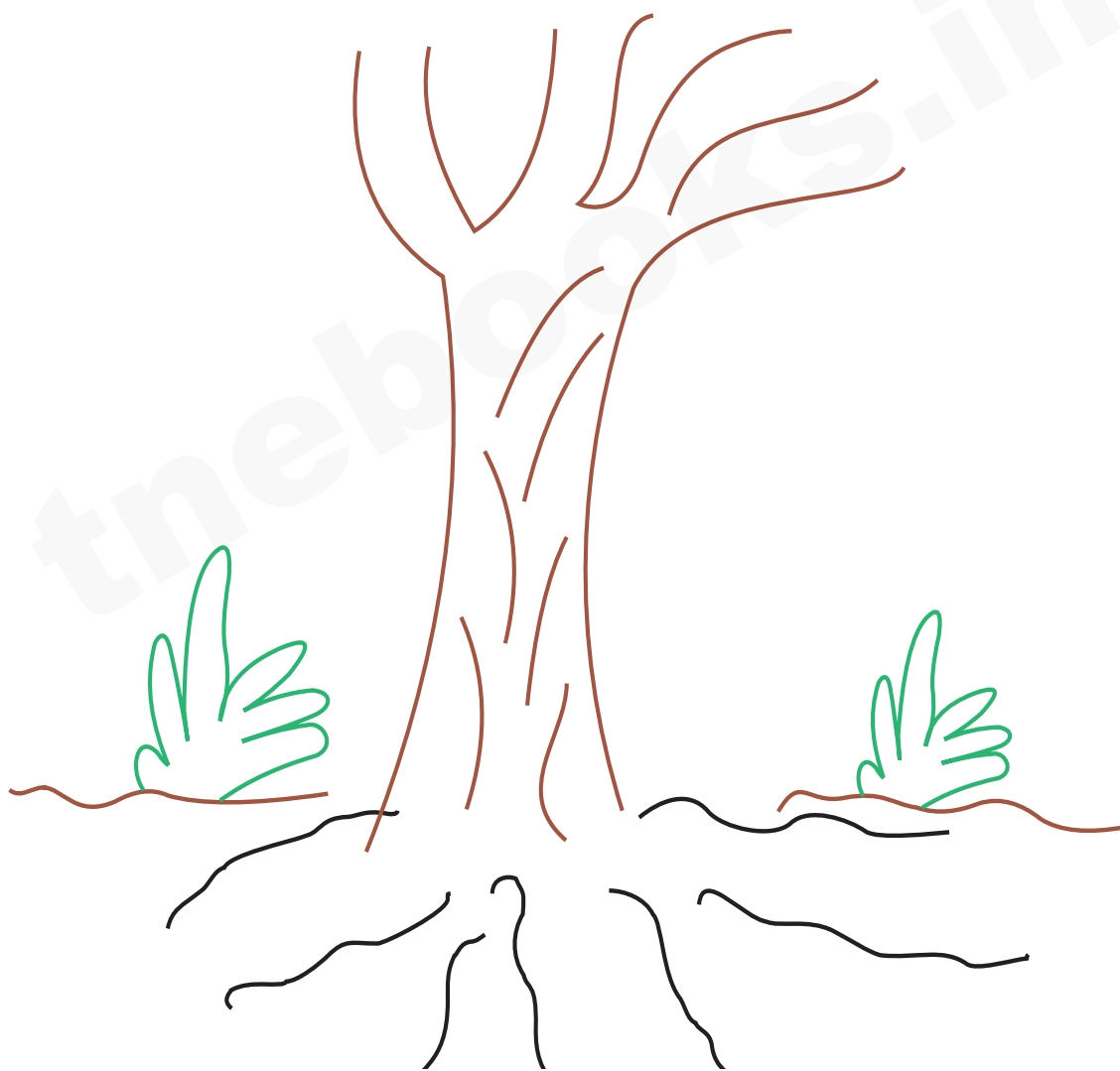
Teacher's Note



Help the children to do these activities in groups with the help of ink and water colours.



Complete the picture given below by adding stem, leaves, flowers, fruits, birds etc. using block patterns.



Use objects of regular shapes and print the given patterns in a paper



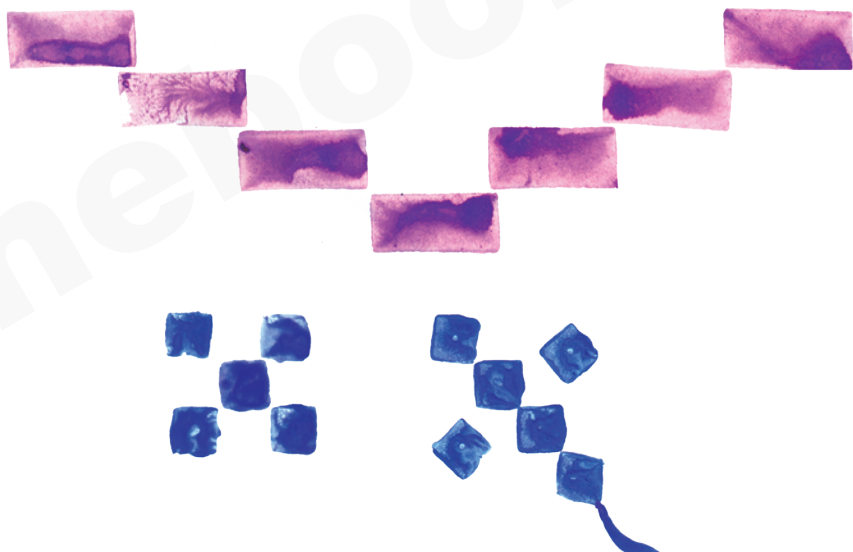
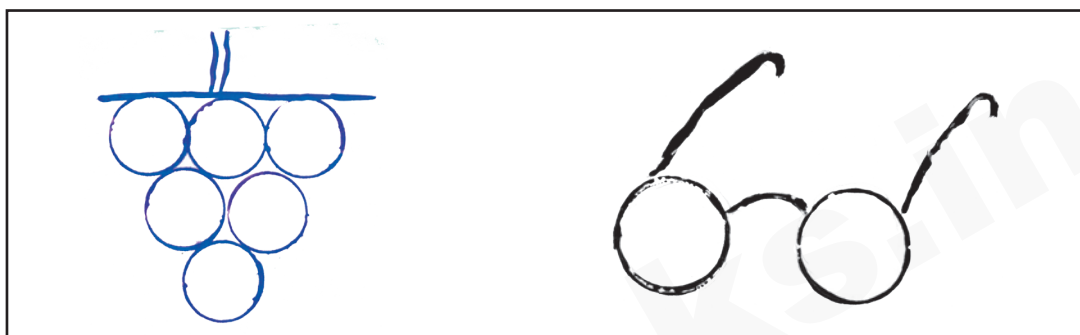
Bottle caps



Eraser



Dice



ACTIVITY

Create your own patterns using objects with regular shapes of different sizes.

Student's Activity Record

[illegible]

Mathematics