MATH-MAGIC

Book 2

Textbook in Mathematics for Class II

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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FOREWORD

The National Curriculum Framework (NCF), 2005, recommends that children's life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home and community. The syllabi and textbooks developed on the basis of NCF signify an attempt to implement this basic idea. They also attempt to discourage rote learning and the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (1986).

The success of this effort depends on the steps that school principals and teachers will take to encourage children to reflect on their own learning and to pursue imaginative activities and questions. We must recognise that given space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. Treating the prescribed textbook as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. Inculcating creativity and initiative is possible if we perceive and treat children as participants in learning, not as receivers of a fixed body of knowledge.

These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table is as necessary as rigour in implementing the annual calendar so that the required number of teaching days are actually devoted to teaching. The methods used for teaching and evaluation will also determine how effective this textbook proves for making children's life at school a happy experience, rather than a source of stress or boredom. Syllabus designers have tried to address the problem of curricular burden by restructuring and reorienting knowledge at different stages with greater consideration for child psychology and the time available for teaching. The textbook attempts to enhance this endeavour by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups, and activities requiring hands-on experience.

National Council of Educational Research and Training (NCERT) appreciates the hard work done by the Textbook Development Committee responsible for this book. We wish to thank the Chairperson of the Advisory Committee, Professor Anita Rampal and the Chief Advisor for this book, Professor Amitabha Mukherjee for guiding the work of this committee. Several teachers contributed to the development of this textbook; we are grateful to their principals for making this possible. We are indebted to the institutions and organisations which have generously permitted us to draw upon their resources, material and personnel. We are especially grateful to the members of the National Monitoring Committee, appointed by the Department of Secondary and Higher Education, Ministry of Human Resource Development under the Chairpersonship of Professor Mrinal Miri and Professor G.P. Deshpande, for their valuable time and contribution. As an organisation committed to the systemic reform and continuous improvement in the quality of its products, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinement.

Director
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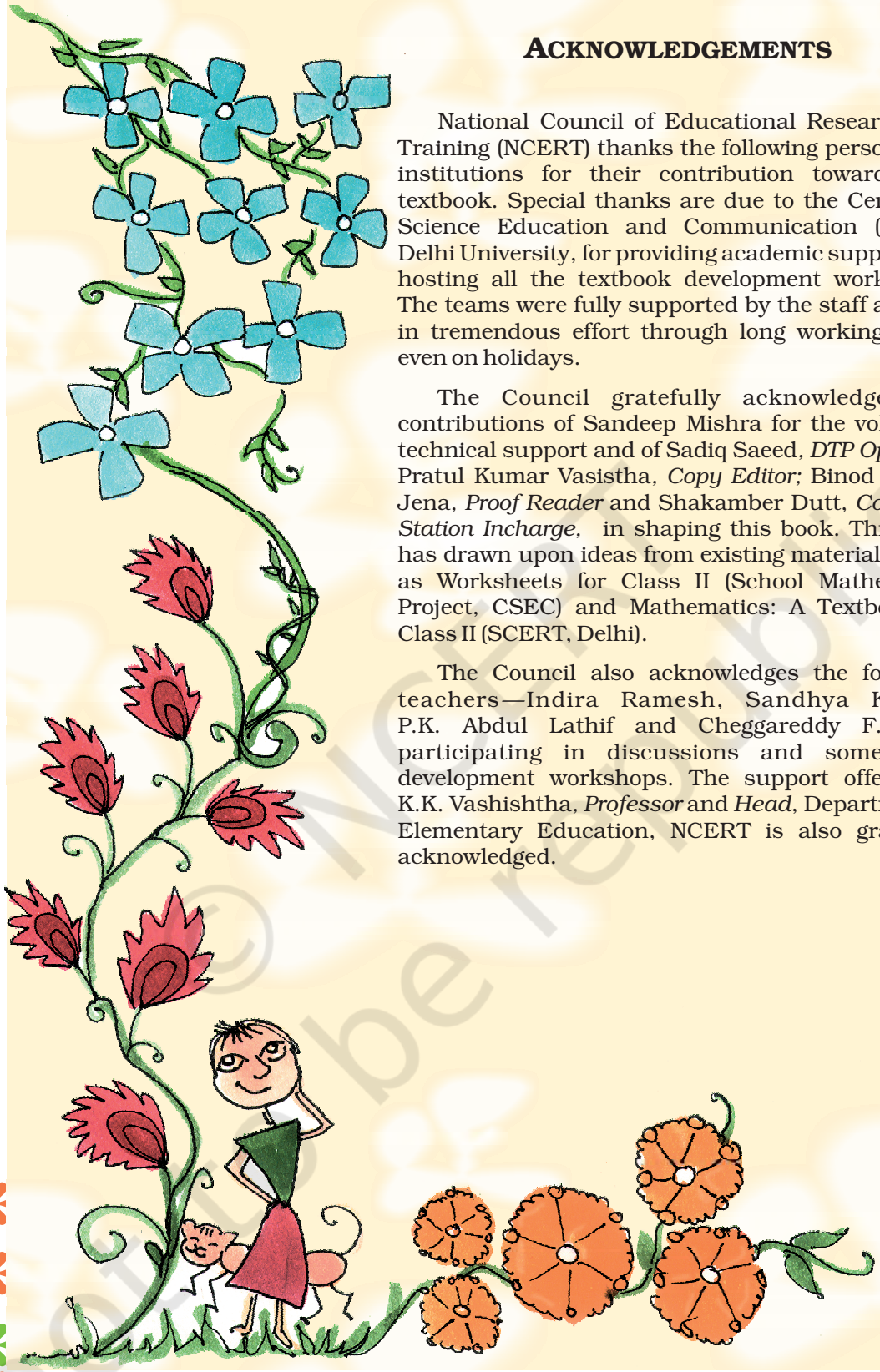

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The Council gratefully acknowledges the contributions of Sandeep Mishra for the voluntary technical support and of Sadiq Saeed, *DTP Operator;* Pratul Kumar Vasistha, *Copy Editor;* Binod Kumar Jena, *Proof Reader* and Shakamber Dutt, *Computer Station Incharge,* in shaping this book. This book has drawn upon ideas from existing materials, such as Worksheets for Class II (School Mathematics Project, CSEC) and Mathematics: A Textbook for Class II (SCERT, Delhi).

The Council also acknowledges the following teachers—Indira Ramesh, Sandhya Kumar, P.K. Abdul Lathif and Cheggareddy F.C.—for participating in discussions and some book development workshops. The support offered by K.K. Vashishtha, *Professor* and *Head*, Department of Elementary Education, NCERT is also gratefully acknowledged.

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Math-Magic 2

What is inside this book?

1.	What is Long, What is Round?	1
2.	Counting in Groups	9
3.	How Much Can You Carry?	18
4.	Counting in Tens	24
5.	Patterns	30
6.	Footprints	39
7.	Jugs and Mugs	47
8.	Tens and Ones	56
9.	My Funday	66
10.	Add our Points	76
11.	Lines and Lines	84
12.	Give and Take	90
13.	The Longest Step	104
14.	Birds Come, Birds Go	111
15.	How Many Ponytails?	124

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A Page to Cut Out

Your Game Board

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Start

Use this board to play games like those given on page 79 and page 83. You can also make your own games by changing the rules.

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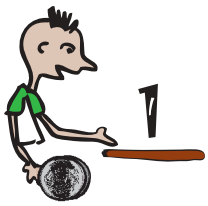

1 What is Long, What is Round?

0219CH01

Guess its Name

Children love Uncle Meeku. He plays with them every day. Today he has kept different things in his bag. The game is "Guess its Name".

Uncle Meeku puts his hand in the bag.

Team A sings a song.

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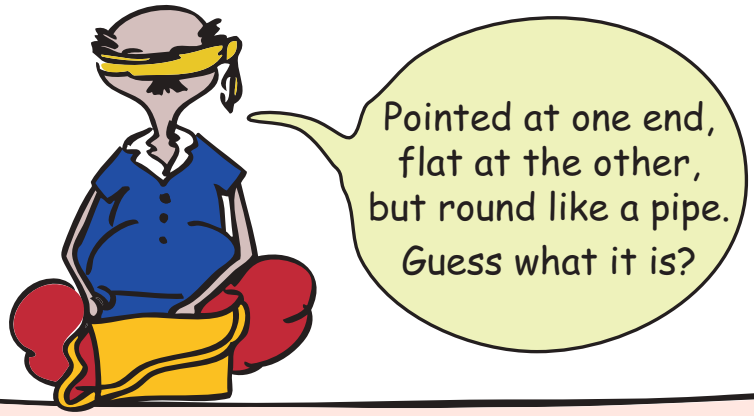

Team A says — pencil.

✦ Do you also think so?

Now you think of a different answer for Uncle Meeku's question. _____

Now it is the turn of team A to touch and guess. Everybody sings:

Tell us, tell us how it feels.
We guess its name and win the game.

A child from team A puts his hand in the bag. Others in team A have to guess. Can you help them?

The game 'Guess its Name' helps children observe and describe shapes of different objects. Discuss similarities and differences among their properties, physical features etc., such as edges, corners, faces, smooth or rough surfaces, if it rolls or slides. For example, a matchbox has sharp corners and it cannot roll while a plate is flat and can roll.

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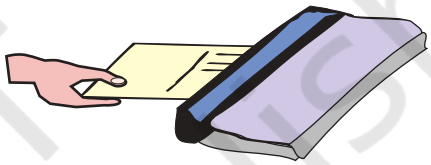
Then is the turn of team B to feel and guess. And so the game goes on ...

Now you play this game in teams. Put different things in a bag. A cloth is tied on one child's eyes. She puts her hand in the bag. She touches it and says what it feels like. Her team has to guess the name.

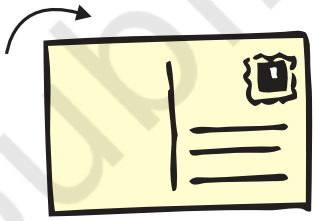
How Strong is a Postcard?

Hold a postcard from one corner. If you keep a book on it, can it hold the book?



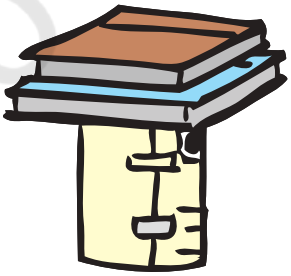
Now try this.

1. Roll a postcard to make a pipe.



2. Use tape to stick the ends together.

3. Put a book on it. Does the postcard hold it? See how many books it can hold.



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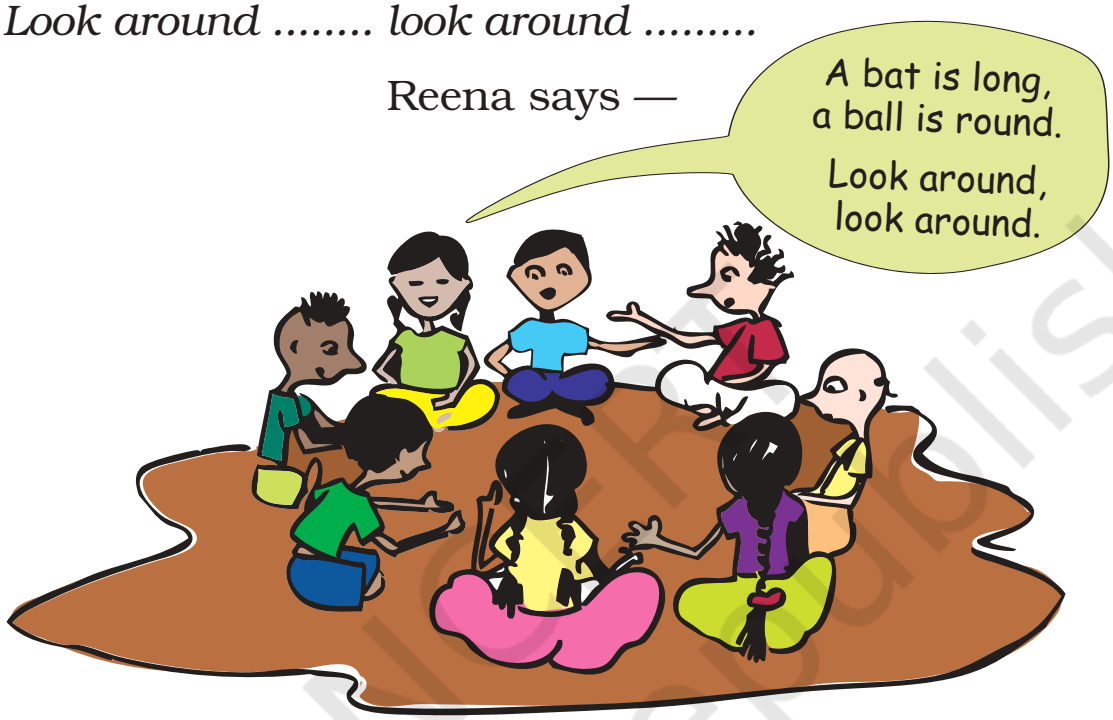
Hurry Up! Be Quick!

Children are sitting in a circle in the class.

They are playing this game by clapping and singing.

What is long ..... what is round? .....
Look around ..... look around .....

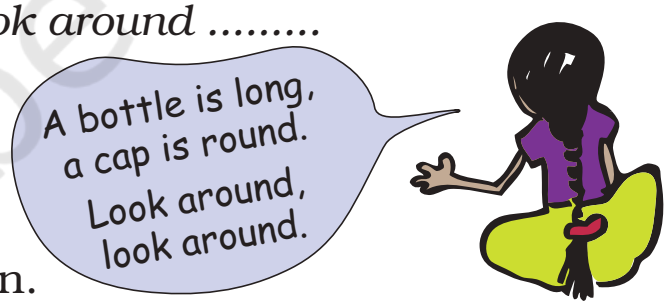
Reena says —



All children are singing .....

What is long ..... what is round? .....
Look around ..... look around .....

Meenu says —



And the game goes on.

✦ Now you play this game in your class. Take turns to name two things — one long and one round. Do not repeat things which others have named.

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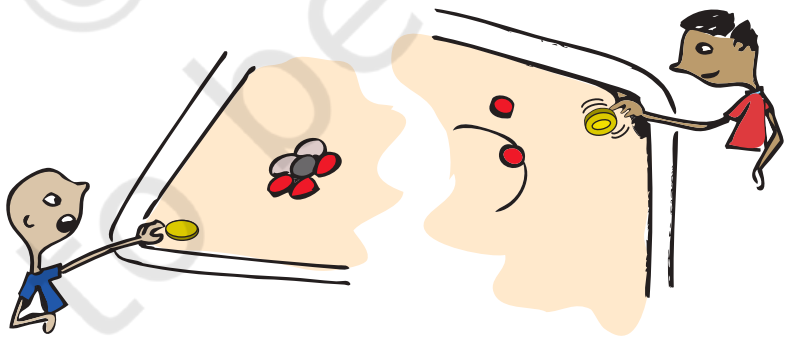
What Rolls, What Slides?

Look at the picture. Some children are rolling and some are sliding things in a park.

There are some things which can roll and some which can slide.

There are things which both roll and slide.



Start a discussion in the class on things in the child's environment which roll and slide. Help children to look at their shape and see how some things roll and others slide.

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Look at things around you.

Write below:

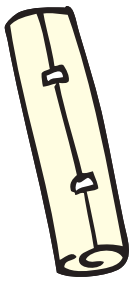
Things which roll	*Things which slide*	*Things which both roll and slide*

My Tiny Tree

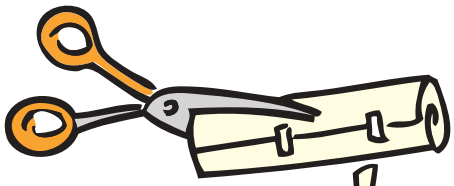
1. Take a sheet of paper like this.

2. Roll the paper to make a pipe.

3. Your paper pipe will look like this now.
   Use glue or tape to stick it.



4. Using scissors, cut strips at one end of the paper pipe.
   Make 7 or 8 cuts.



5. Turn down the cut ends.

   Your tree is ready! Colour it.

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The Tallest Tower

- Collect different things, such as boxes of different kinds, balls, erasers, matchboxes etc.
- Make your towers using different things, like only matchboxes, only tins.

Now mix and make with different things, like — shoe boxes and tins together, balls and matchboxes together.

Start a discussion in the class about which shapes can be stacked one over another and which cannot be. Encourage children to look for surfaces which are flat or not flat. They can also get an intuitive feeling that shapes with broader bases are more stable and discuss how different things like soaps, tea boxes, tins, etc. are stacked in a shop. Children will enjoy playing games like '*pitthoo*' (seven stones) in which they need to make stable stacks of irregular stones as fast as possible, while the other team runs for the ball.

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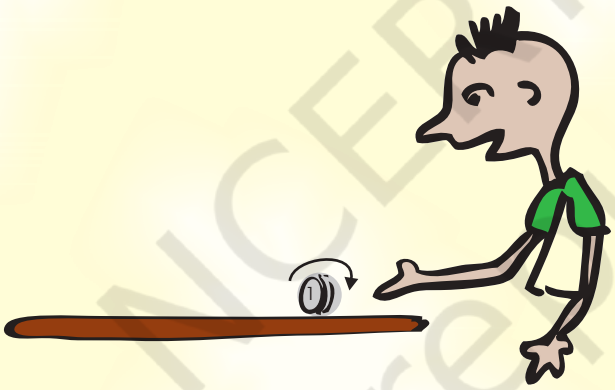
Coin Play

Try doing these with your coin.

- Hold the coin like this.

Make the coin spin. Does it look like a ball?



- Does a coin roll? Does it slide? Try.
- Can you make a 1-rupee coin stand like this?_____

Try doing the same using a 2-rupee coin and a 5-rupee coin.

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2 Counting in Groups

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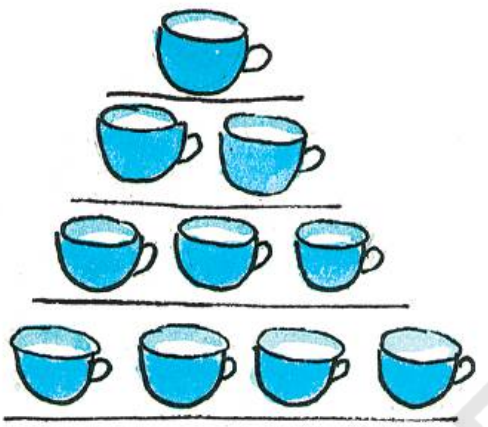
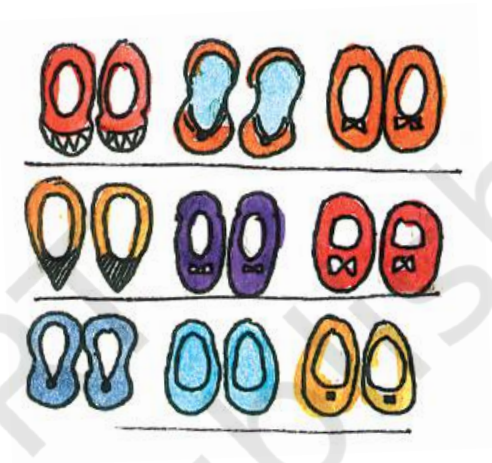
Look and Guess the Number

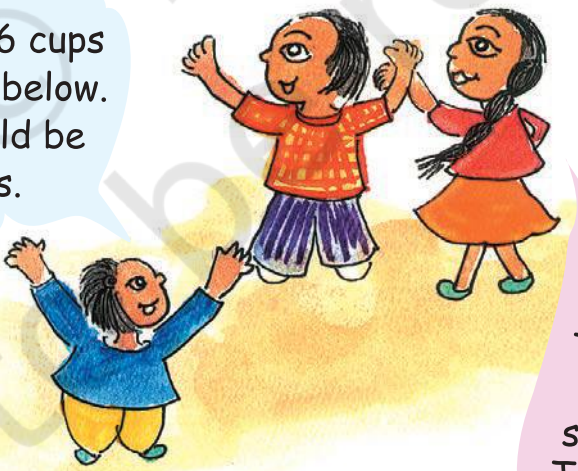




Can you guess how many cups?

Can you guess how many pairs of shoes?

3 and 3 is 6 cups and 4 cups below. That should be 10 cups.



There are 3 lines with 3 pairs of shoes in each line. That makes 9 pairs of shoes.

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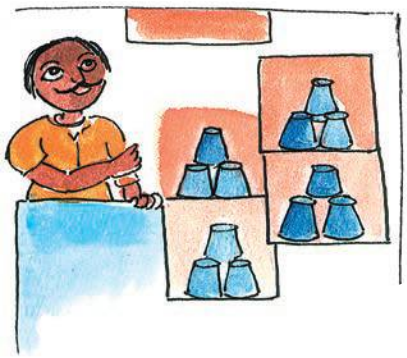
✸ Look at how different things are kept in groups. Try to guess the total number without counting each thing.

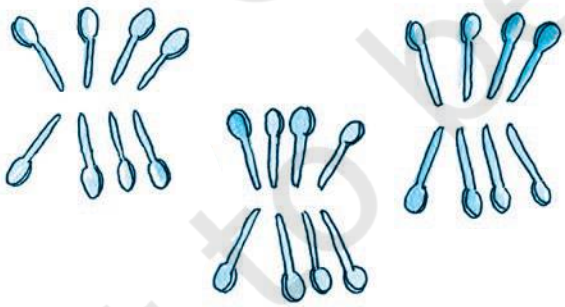


_____ glasses

_____ bangles

_____ pairs of earrings

There are three groups of spoons.



✸ How many in each group? _____

✸ Guess the total number of spoons. _____

Ask children to guess the numbers of things around them. The idea here is to encourage them to look at the arrangement of objects and use the strategy of counting in groups.

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More or Less, Let Us Guess

Ring the correct answer:

- Number of teeth in your mouth
  - More than 40
  - Less than 40

- Number of seeds in an orange
  - More than 50
  - Less than 50

- Number of matchsticks in a matchbox
  - More than 30
  - Less than 30

- Number of pencils in **your** class
  - More than 45
  - Less than 45

- Number of spokes in one cycle wheel
  - More than 20
  - Less than 20

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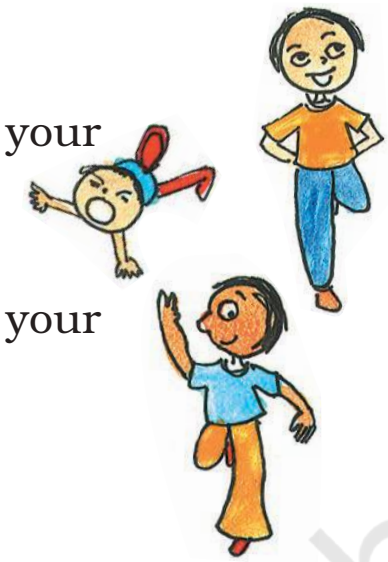
Hop Till You Drop



- How many times can you hop on your right foot without falling? _____

- How many times can you hop on your left foot without falling? _____

Join the Dots

Jojo doggy is hungry. Join the dots in order, from 21 to 52, and find out what is hidden for him to eat.

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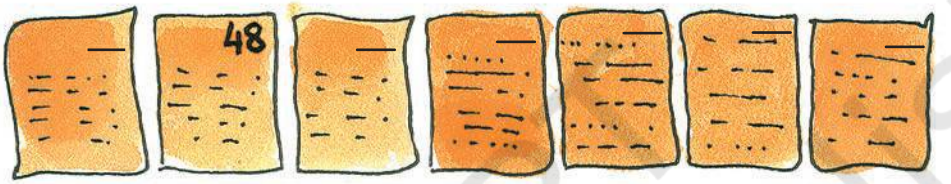
Naughty Bhurru

Bhurru has torn some pages of this book.

Write the page numbers in the correct order.



Puzzling Tail

Chipku rat has a long tail.

When he was sleeping, naughty cat thought of tying his tail to the poles.

She started from the pole with the biggest number. She moved on to the smaller numbers in order.

Help her in tying. But the tail should not cross itself anywhere.

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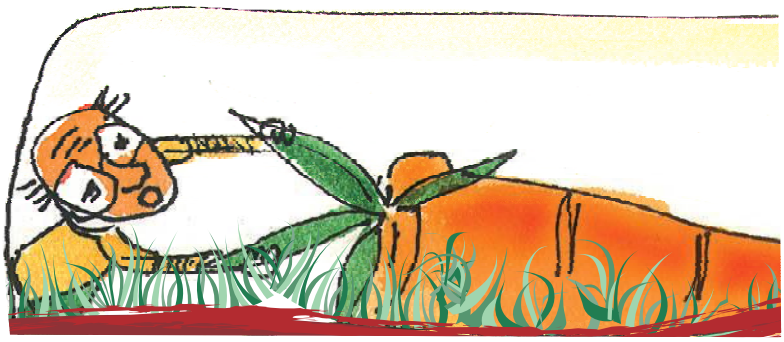
The Big Carrot

An old man planted a carrot seed.



The carrot grew big and sweet. It grew very very big!

He tried to pull out the carrot but it did not come out.

He quickly called his wife.

The old man pulled the carrot leaves and the old woman pulled him. But they could not pull it out.

The old woman called her granddaughter. The old man, the old woman and the granddaughter tried but could not pull the carrot out.

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The granddaughter called the dog. The old man, his wife, the granddaughter and the dog could not pull the carrot out.

Then the dog called the cat. Everyone pulled and the cat held on to the dog's tail. The carrot did not move.

The cat called the mouse.

They all pulled hard together and the carrot came out. ZABOOM! They all fell down!

They were so excited! So they all went to the kitchen to make *gajar ka halwa* and ate it up.

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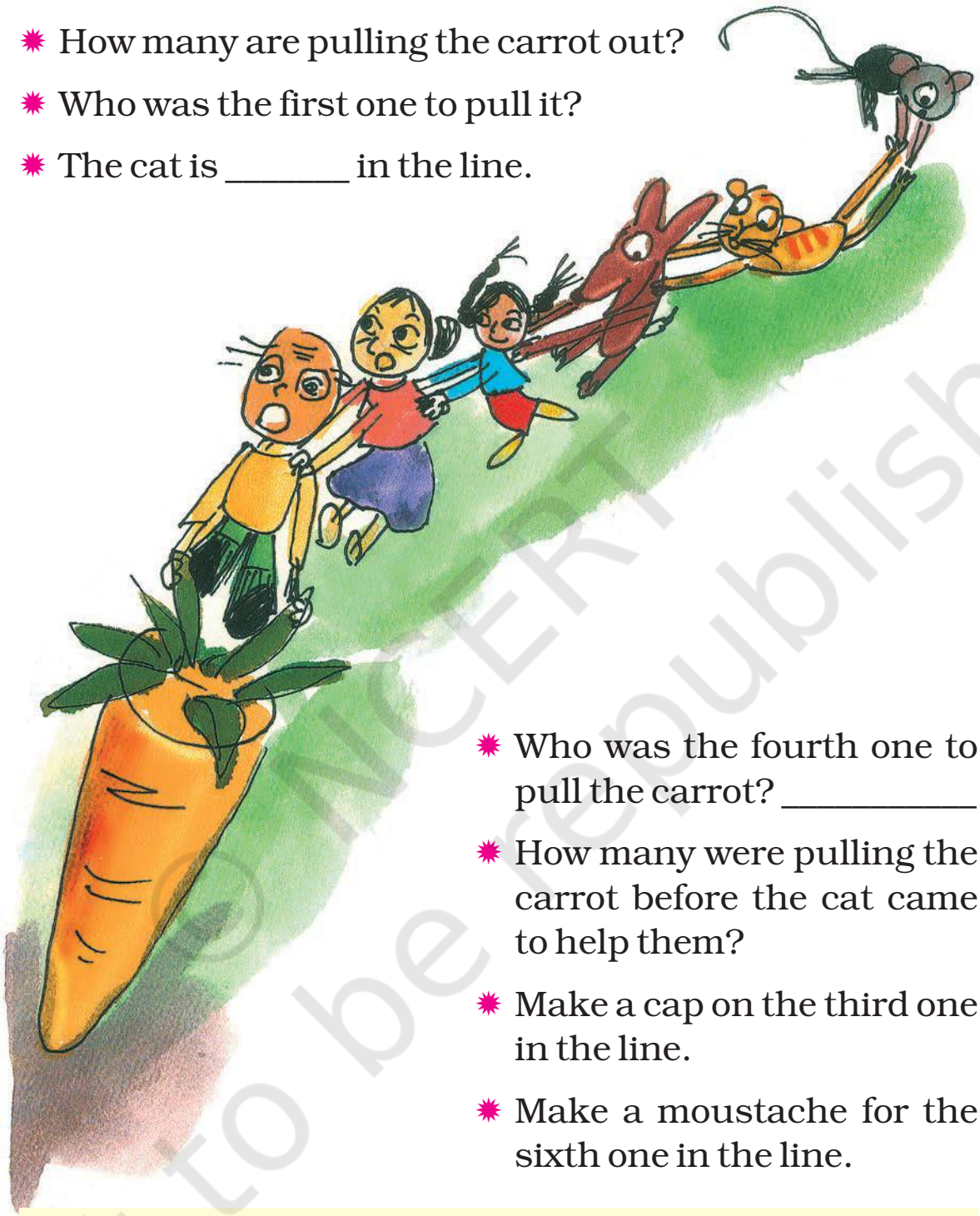
Look at the picture and write:

- How many are pulling the carrot out?
- Who was the first one to pull it?
- The cat is _____ in the line.



- Who was the fourth one to pull the carrot? _____
- How many were pulling the carrot before the cat came to help them?
- Make a cap on the third one in the line.
- Make a moustache for the sixth one in the line.

Teachers can create practice activities for the use of ordinal numbers. For example, make 6 children stand in a line. Assign them positions as first, second, third etc. with respect to some reference point. Give them interesting tasks to perform, such as 'third child, tickle your partner', 'second child, hold your nose', etc.

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Seema's Century

Seema has made a design with different *bindis*.

- Look at the groups and guess the total number of *bindis*.
- Draw more groups to complete 100 *bindis*. How many more *bindis* did you have to draw?

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0219CH03

3 How Much Can You Carry?

The Clever Donkey and His Heavy Sack

Sandesh has a donkey. It carries sacks full of salt on its back.

On the way to the market they have to cross a river.

One day, while crossing the river, the donkey slipped and fell into the river.

When it got up, the sacks felt very light.

❊ Guess why the sacks felt lighter?

The donkey was very happy. This also gave it an idea.

Next day, while crossing the river, the clever donkey decided to take a dip.

This time Sandesh understood the donkey's trick.

Next day Sandesh put sacks of woollen cloth in place of salt.

❊ Now, what would happen to the donkey when it dipped into the river? Why?

As reading skills are not yet fully developed in young children, pictographs serve as visual aids. Children also enjoy pictographs.

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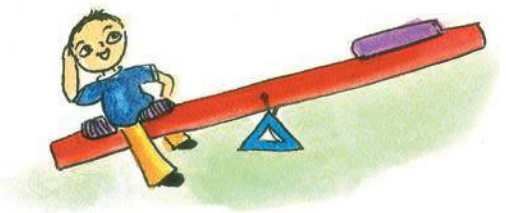
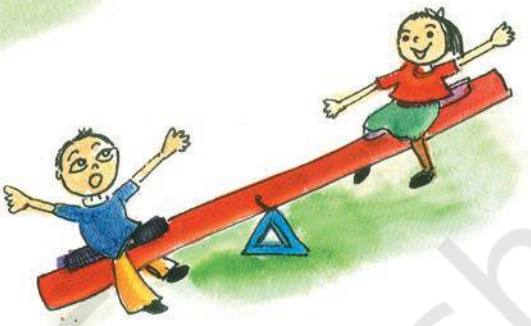
Raju Wants to Ride a See-saw

Raju needs a friend to ride a see-saw.



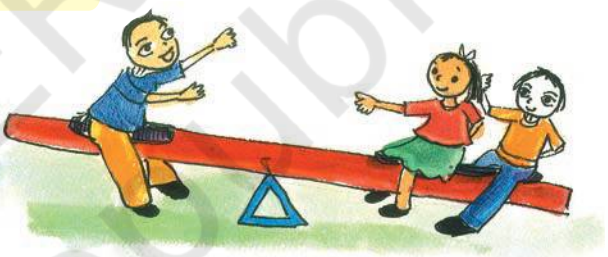


Rani comes to help Raju.

But still Raju cannot ride it.

❊ Can you tell why? Circle the correct answer.

Raju is heavier/lighter than Rani.



Aslam comes to help them.

Look at the picture.

❊ Can you tell why the see-saw turned this way?

Raju is heavier/lighter than Rani and Aslam together.

I have an idea! Let me keep my bag with me.

We are all enjoying the ride.

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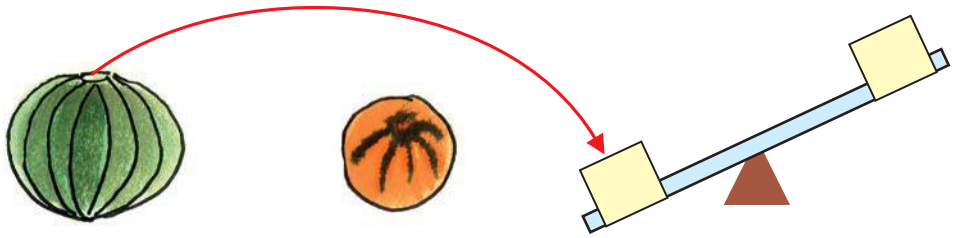
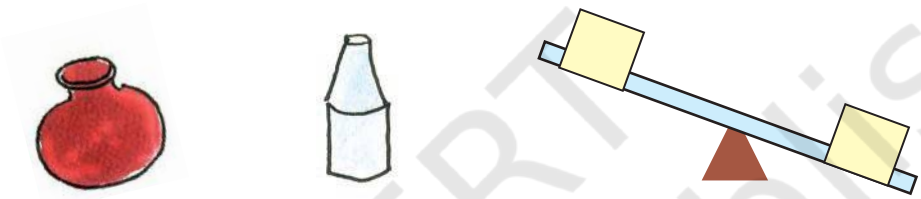
Heavier or Lighter

Which of the two things will make the see-saw go down? Look at the example.



❊ Draw a line to match the heavier one.

a)

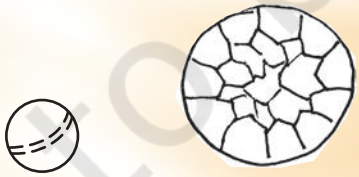


b)

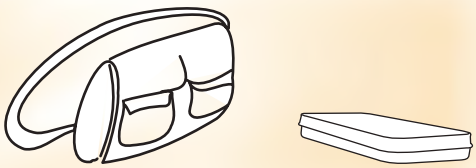
c)

❊ Colour the one which is lighter.

a)



b)



Before doing this activity, let children compare weights of different things by holding them in their hands.

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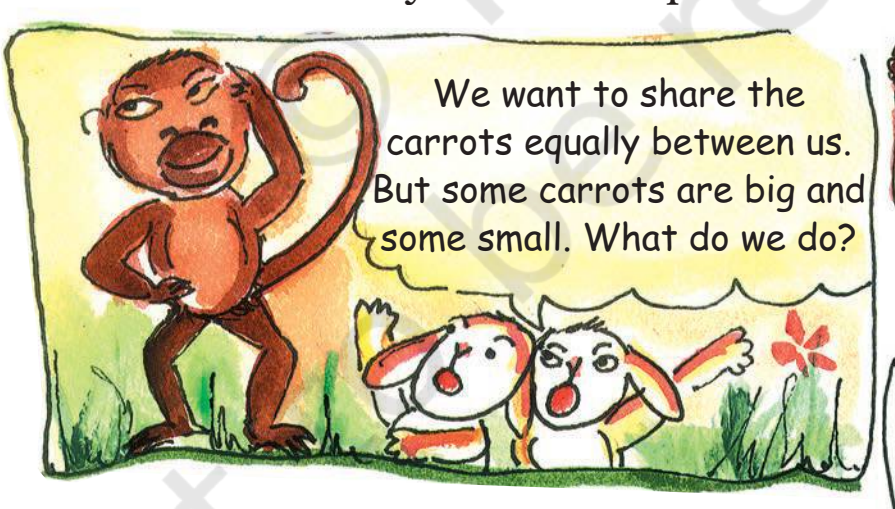
Chhotu Monkey and the Carrots

Chikky and Micky rabbits saw a bag. It had carrots in it.

Chikky and Micky started fighting.

Chhotu monkey came to help them.



Chhotu monkey brought something to help them.

- Guess and tell what Chhotu monkey used to help Chikky and Micky. Draw a picture of it in the monkey's hand.

Find Out

- Your parents buy carrots for the family. How much do they buy at one time?
- How does the vegetable seller weigh the carrots?

How Much Can Simran Carry?

Simran's father needs to move some things from the store of their house to the kitchen.

Simran wants to help her father.

❊ Guess which bags Simran can carry.

❊ Guess who can carry what —

a) Her father? _____

b) Her mother? _____

c) Her younger sister? _____

❊ Can Simran carry any two of these bags together?

If yes, which ones? _____

❊ Which bags can you carry? Guess. _____

❊ Match the picture of the animal with the thing it can carry.

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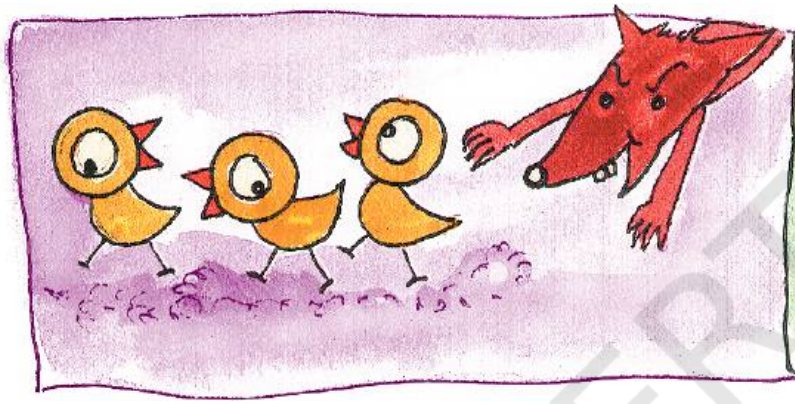
0219CH04

Counting in Tens

Chickens and the Clever Fox



Tikloo farmer has many chickens in her farm. One day a clever fox saw these naughty chickens playing around.

From that day, she started stealing and eating chickens every day.

Tikloo came to know about it.

She asked the fox.

Tikloo thought of counting her chickens every morning and evening. But the chickens kept moving around here and there. She said — I will put 10 chickens in one basket and count them. And if I find any of them missing ..... I will give the fox a tight slap.

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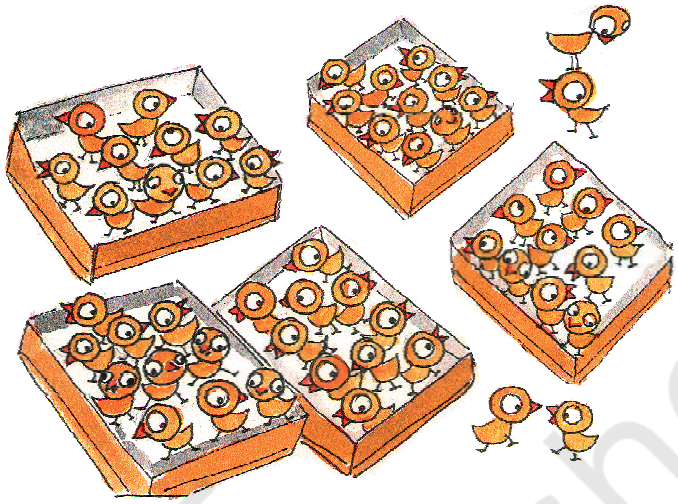
In the morning, she counted her chickens.

- How many baskets of 10 chickens are there? _____
- How many chickens are there in all? 50 + 4 = _____



In the evening, she counted the chickens again.

- There are _____ baskets of 10 chickens.
- There are _____ + 3 = _____ chickens in all.
- 54 – ____ = _____ chickens have been eaten by the fox.

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How Many are These?

Bhanu collects sticks from the jungle.
He sells them in the market.

He uses 10 sticks to make 1 bundle.

3 bundles have _____ sticks.

- Now, how many sticks in all are these?

_____ sticks in all.

4 bundles would have _____ sticks.

Before doing these exercises, ask children to represent numbers by making bundles of 10 with the help of materials such as sticks or beads. Help them link these concrete objects to written symbols and oral names of the numbers.

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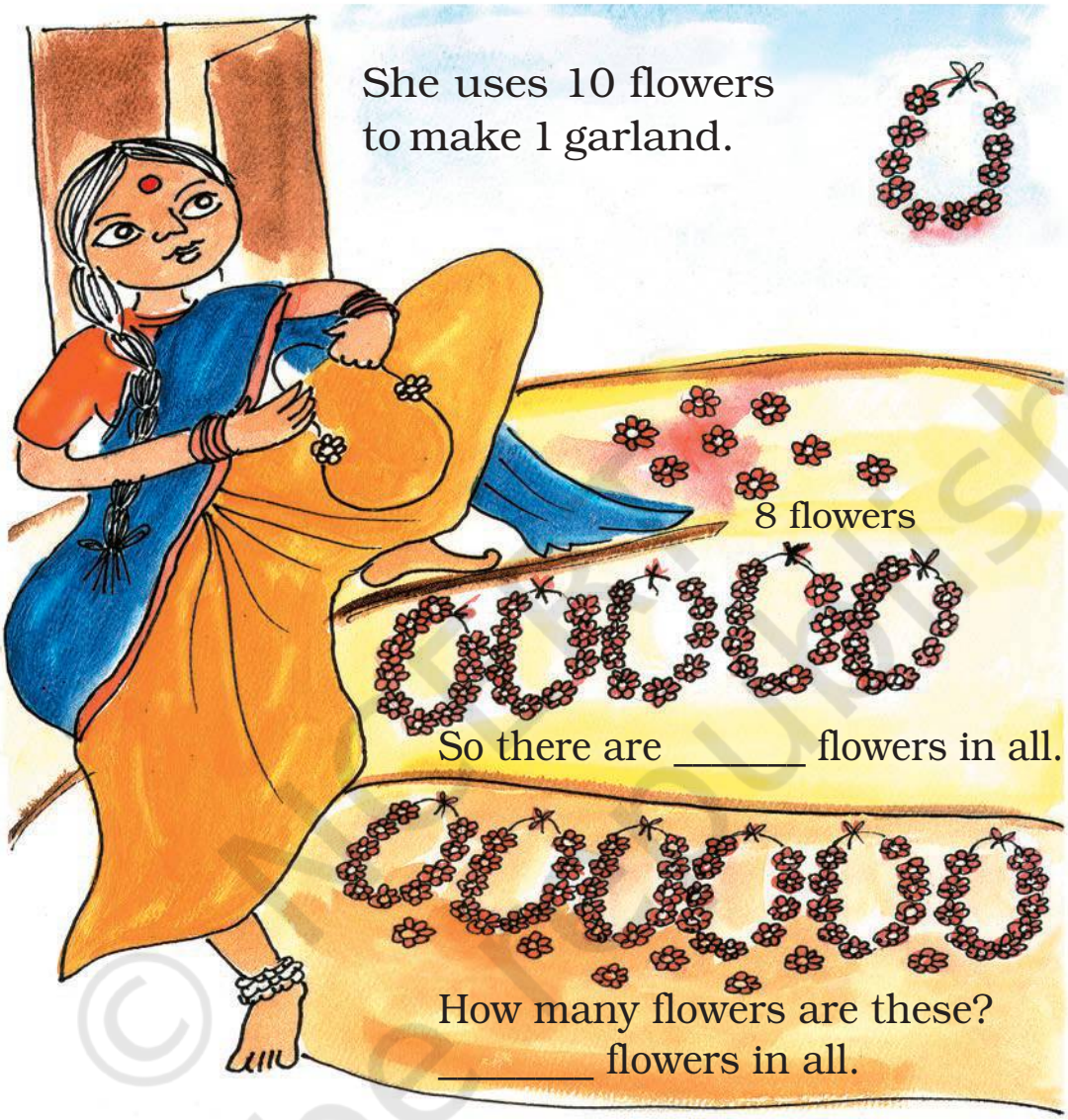
There is a wedding in Malti's house.
She is making flower garlands.



✤ How many garlands of 10 flowers each can you make using 21 flowers? Draw them in the space below.

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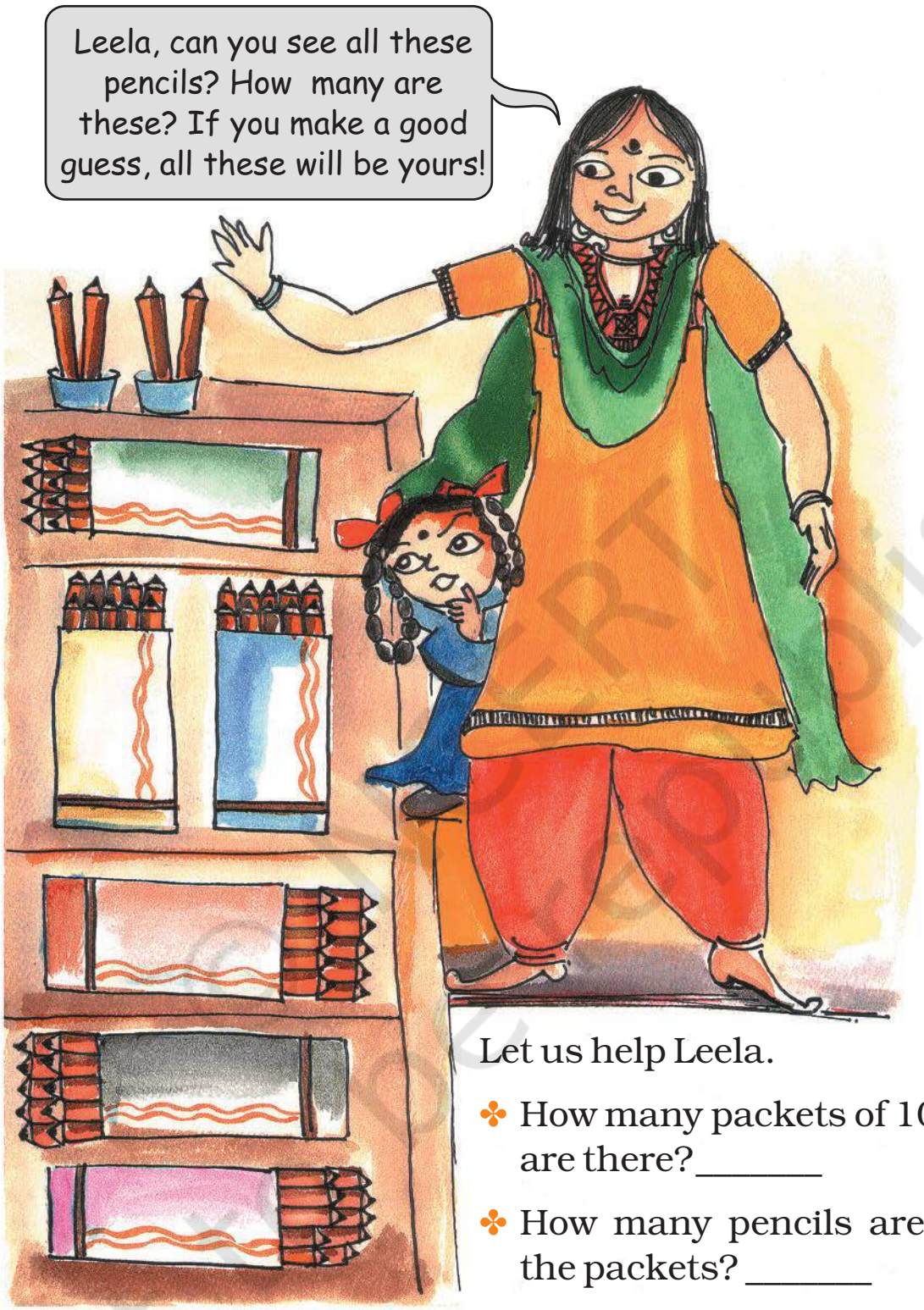

Let us help Leela.

- How many packets of 10 pencils are there? _____
- How many pencils are outside the packets? _____
- So, altogether there are _____ pencils.

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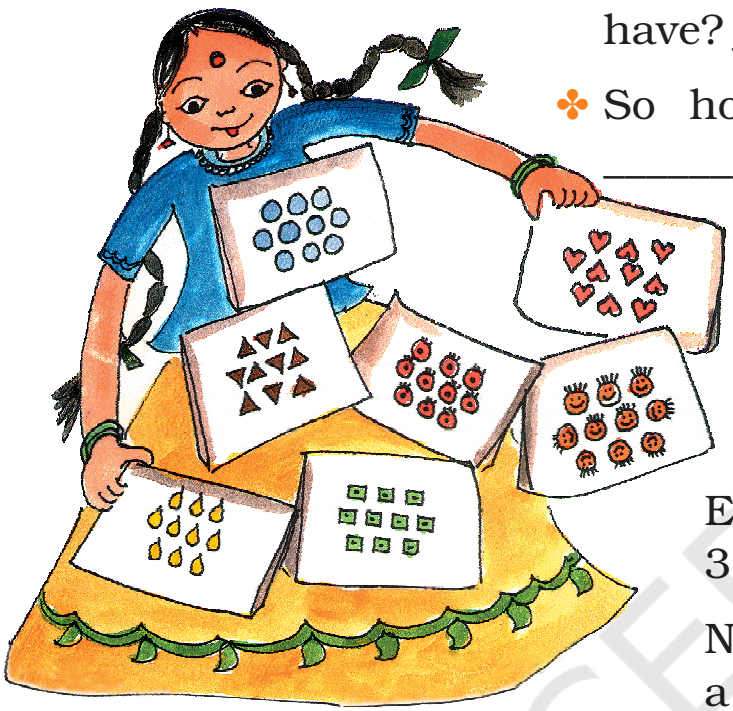
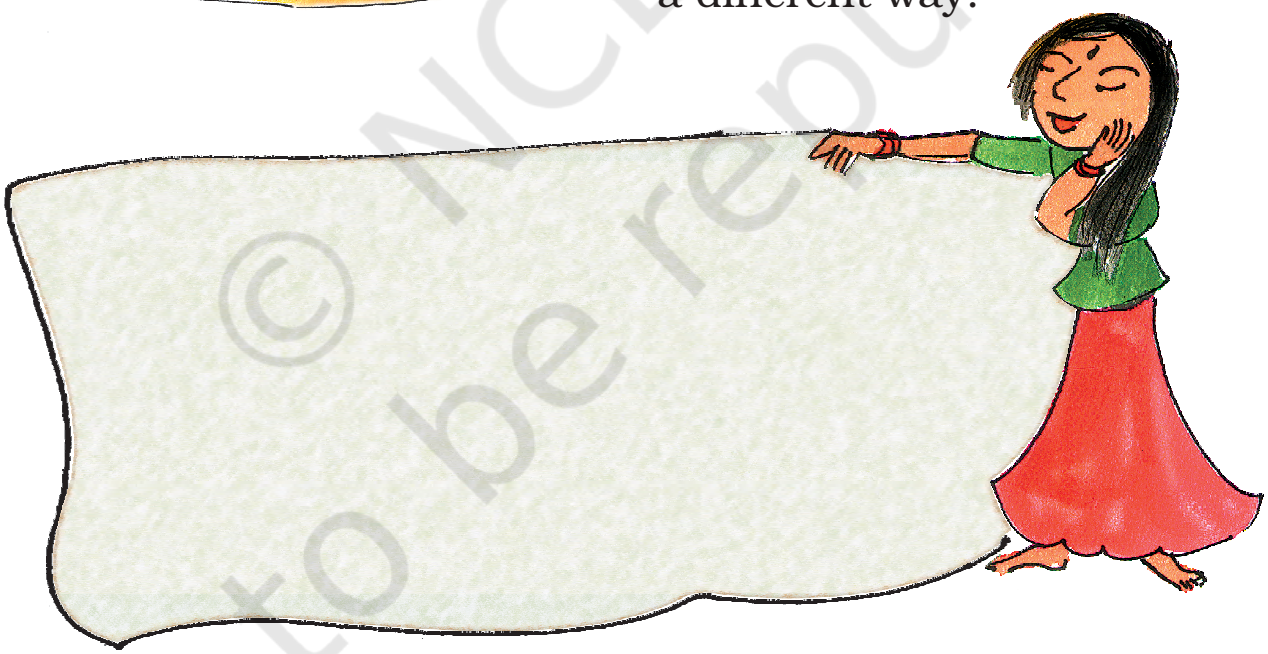
Kanak likes collecting different kinds of *bindis*.



- How many packets does she have? _____
- So how many *bindis* in all? _____

Each packet has
3 + 4 + 3 *bindis*.

Now you draw 10 *bindis* in a different way.



Discuss the strategy used by children for guessing. Encourage them to count in 10s. Also make children notice that 10 *bindis* can be arranged in different patterns. You may ask children to try different arrangements using 10 *bindis* which are visually easy to count.

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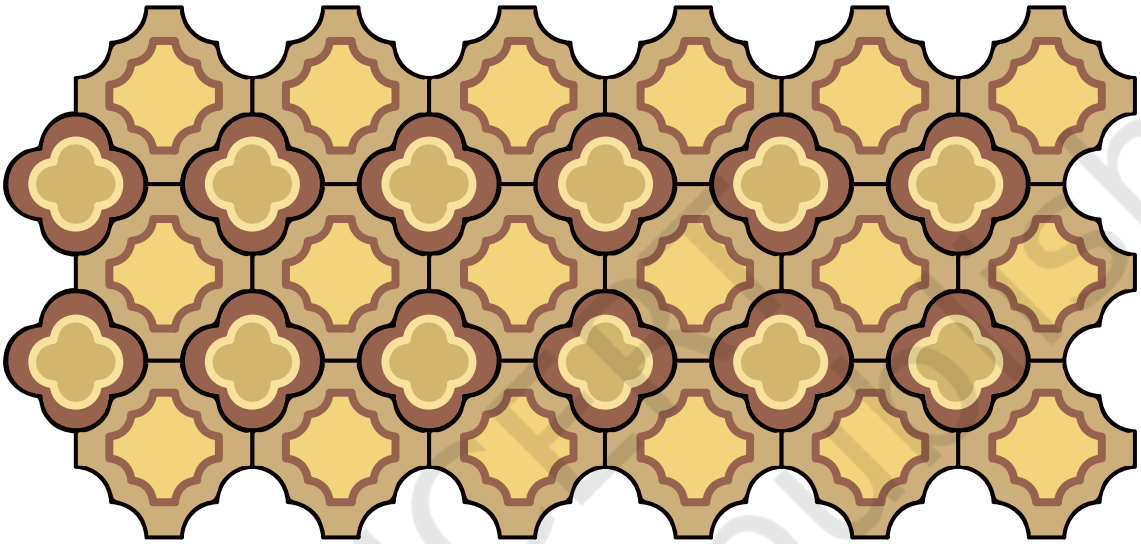
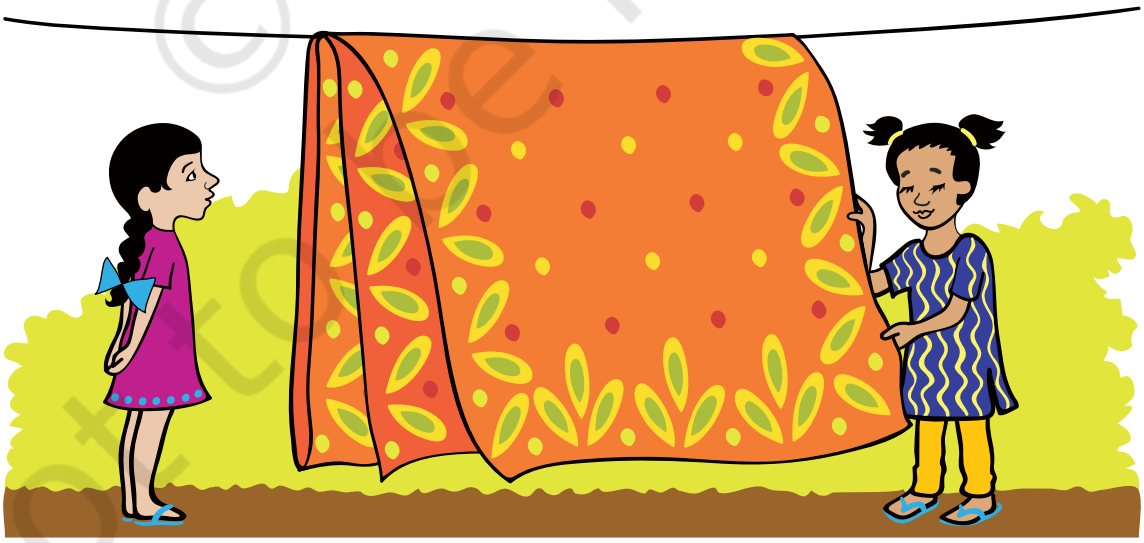
0219CH05

5 Patterns

Binni and Ginni were going home. On the way, they saw some people making the pavement. The tiles used were of different colours and designs. This is what they saw.



On reaching home they saw their mother's sari hanging on a rope. It also had a nice design with different colours.



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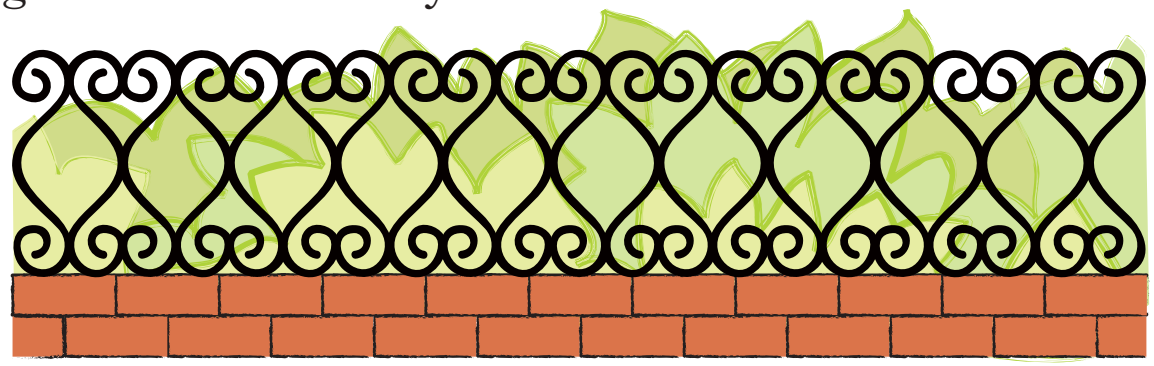
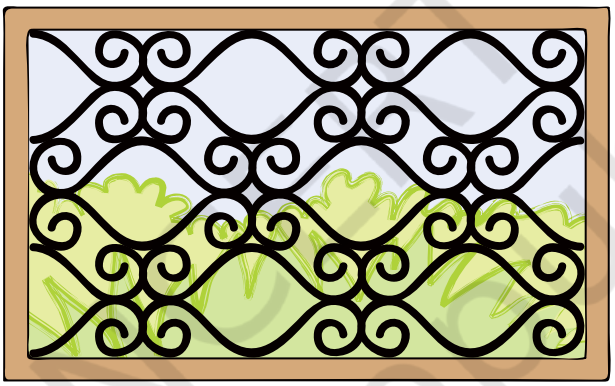
In the evening, they were playing in a park. They saw iron grills on the boundary wall.



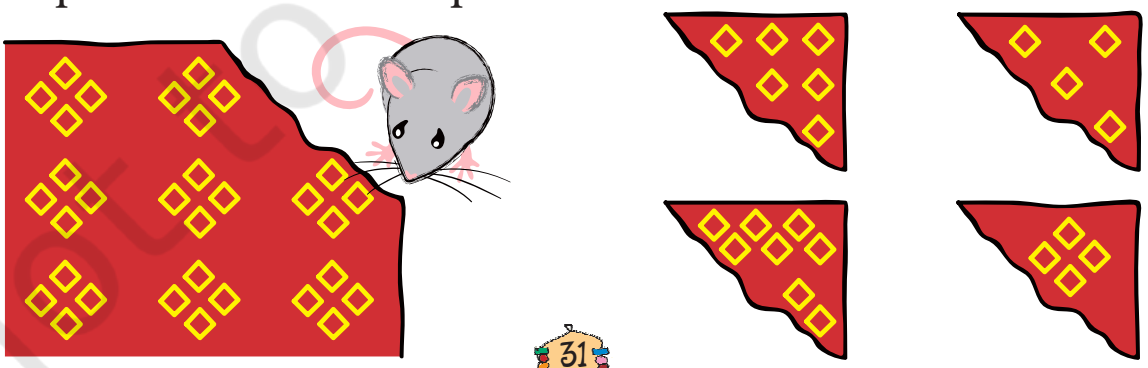
Looking at the grills, Binni said — these same grills make a different pattern in our windows at home.



We see many such patterns around us – on tiles, clothes, *durries*.

- Bholu has eaten a part of the shawl of Binni's mother.

  Look at the picture and help Binni in matching which piece is of the same pattern.



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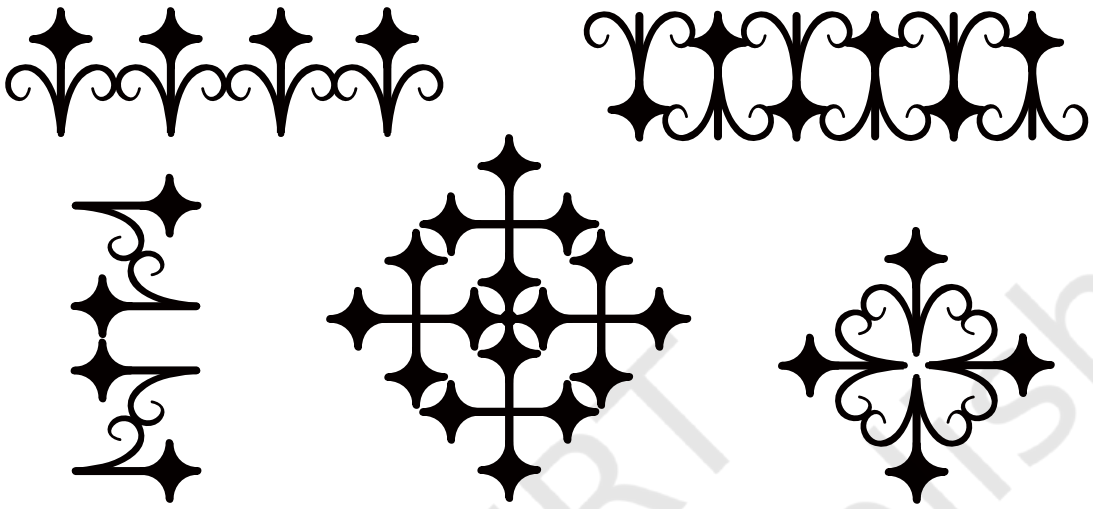
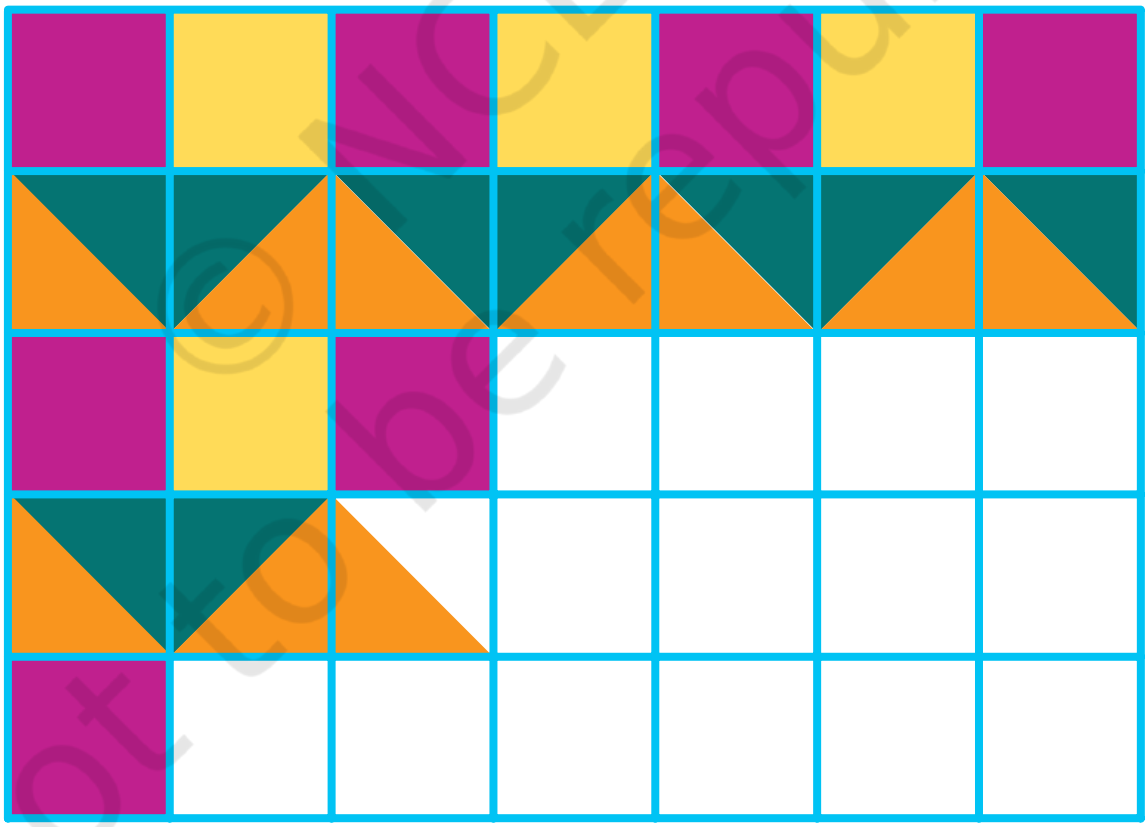
Madhav wants to make a pattern on a gate using .

Can you guess which of these cannot be formed with this?



Fill up the blank boxes to complete the pattern.



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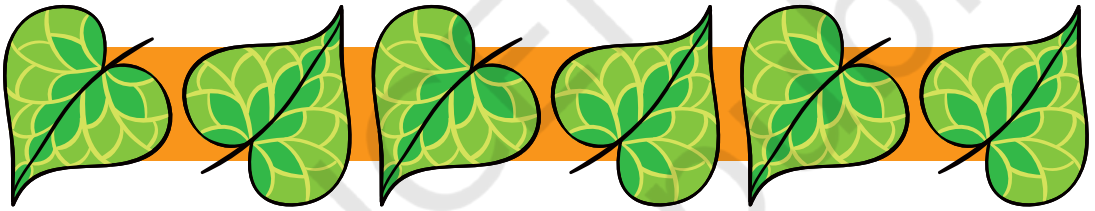
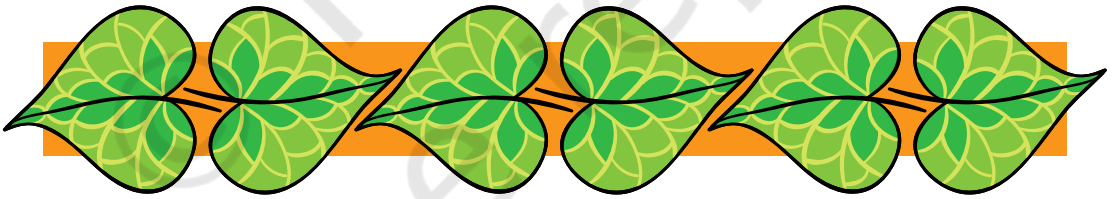
Leafy Patterns

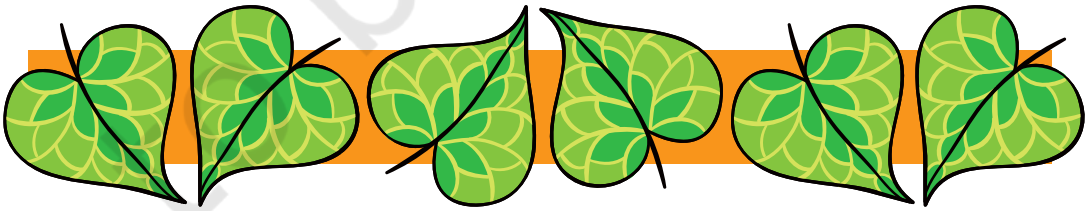
Using one leaf, we can make different patterns. See these five leafy patterns.

1.

2.

3. 

4. 

5. 

Now you also make some patterns with ↑ arrows in your notebook.

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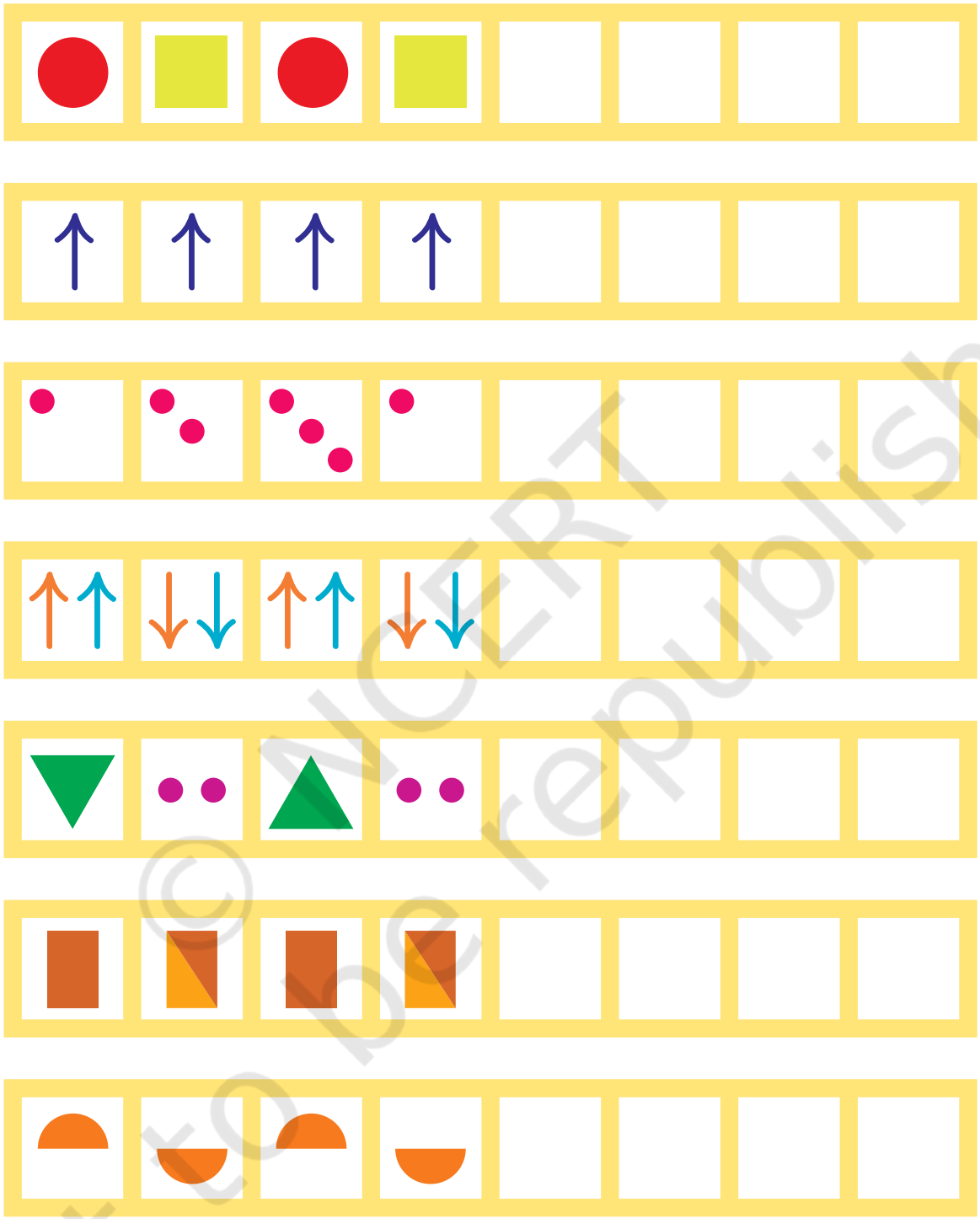
Look at the patterns and fill up the boxes.



Now, you also make patterns using different shapes and show them to your friends.

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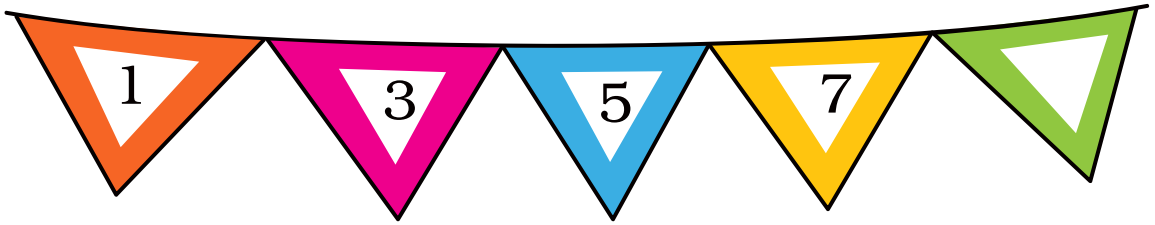
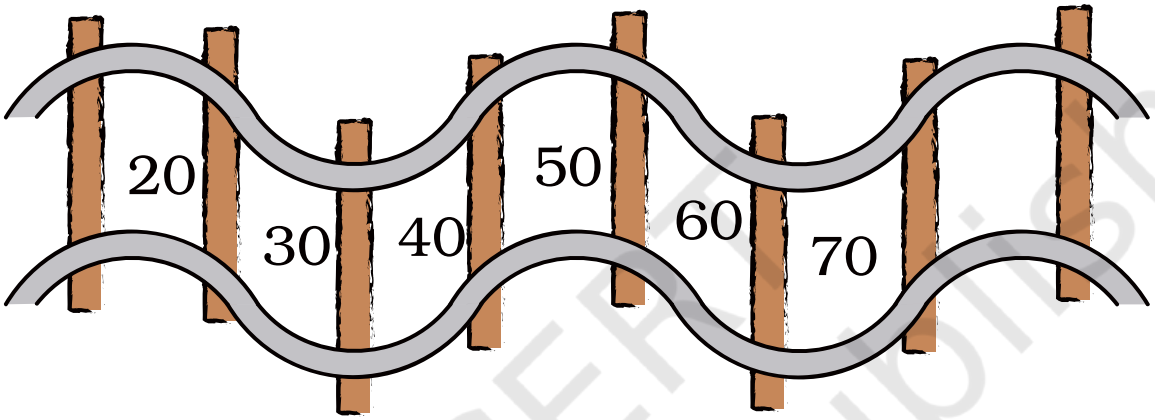
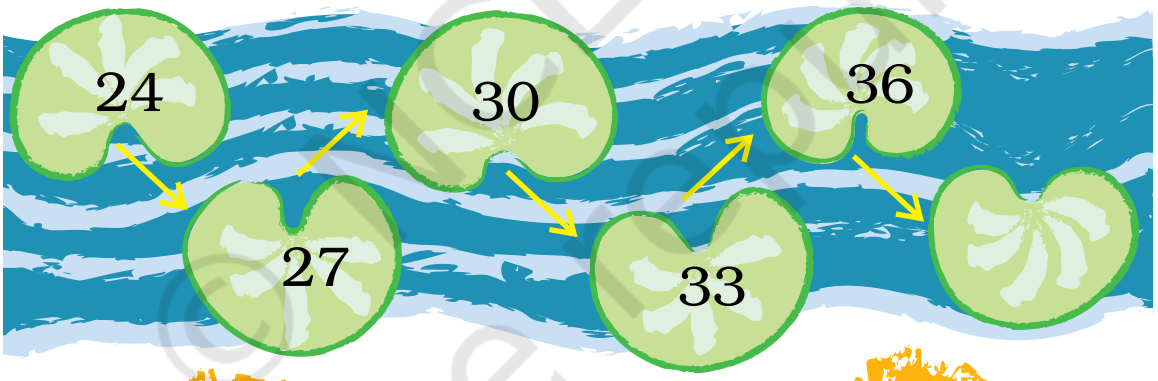
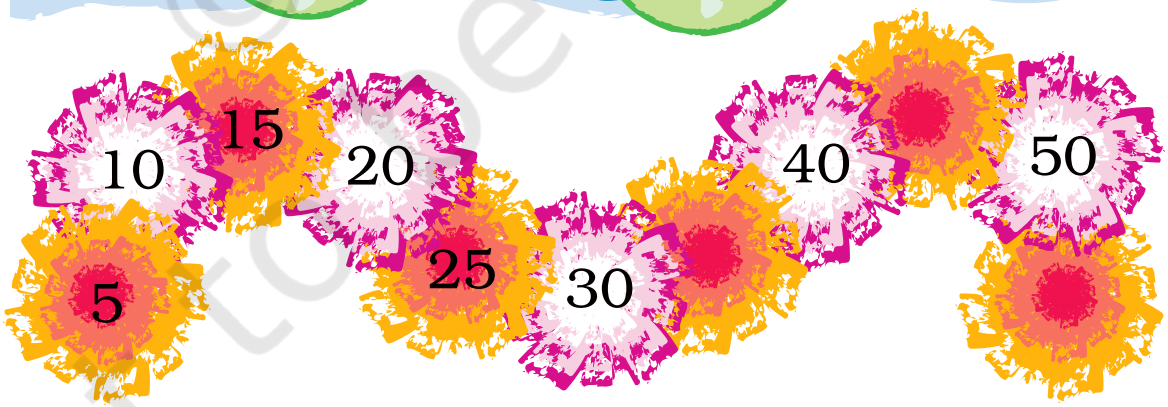
Number Patterns

Let us look at some patterns with numbers. Fill the number in the blank space of each pattern.









Encourage children to identify the patterns. Discuss with them various other possible number patterns.

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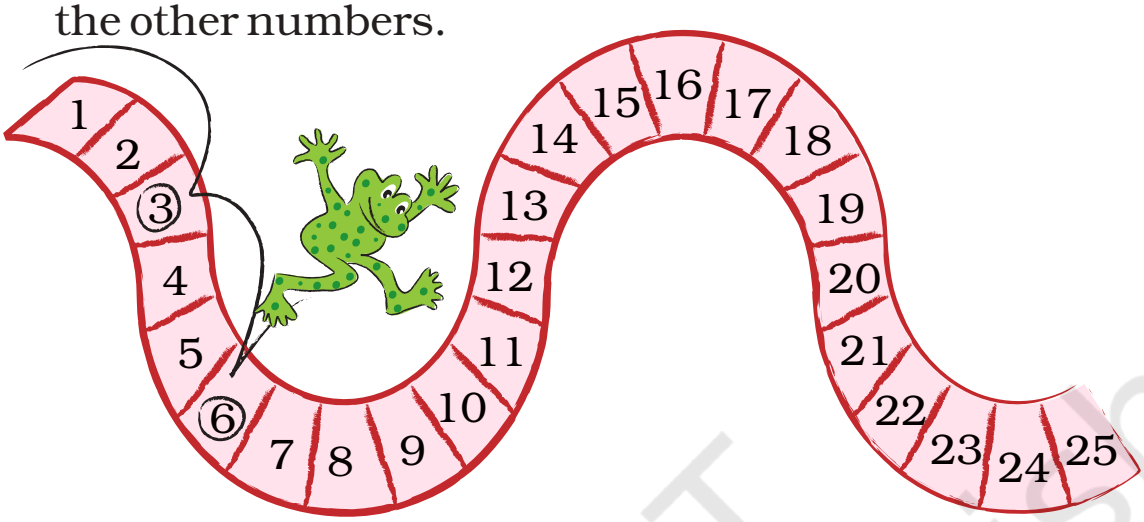
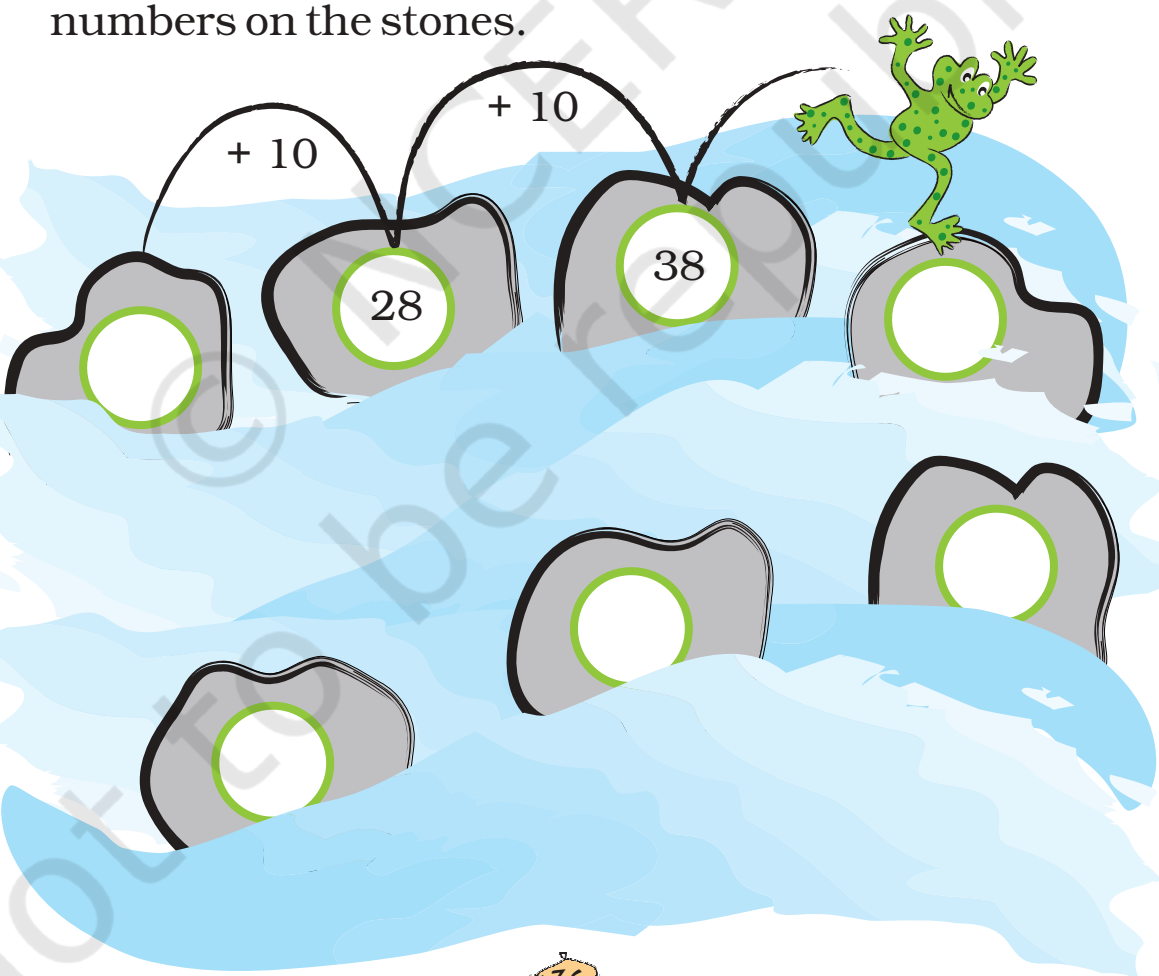
Titu frog jumps over two numbers and reaches the third number. Where will Titu go next? Make a ring on the other numbers.



Titu jumps and gets on every 10th stone. Write the numbers on the stones.



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Read and write what comes next:

AA	BB	CC					
AB	CD	EF					
DAY	NIGHT	DAY					
1	2	1	2				
87	88	89					
20	30	40					
19	29	39					
2	5	8					
15	20	25					
18	21	24					
52	54	56					
5P	6Q	7R					
85	75	65					
55	50	45					
20	19	18					
40	38	36					

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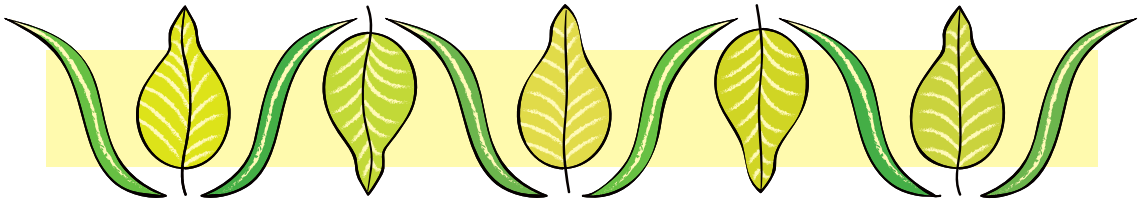
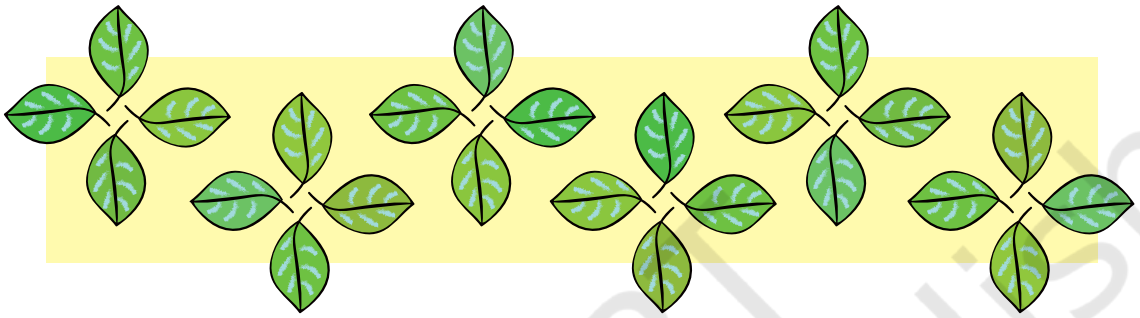
Ketu has made some patterns by collecting leaves.





- Now, you also collect some leaves and arrange them in different patterns. Also draw patterns using matchsticks.

Teachers should encourage the children to clean their classrooms after the activity.

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Footprints

0219CH06

Bholu and the Footprints

One day some baby animals were playing on a muddy road in a jungle.

All of a sudden an elephant shouted – Run! Run! Go to your homes. Bholu is coming to shoot with his camera.

So, all the baby animals ran away.

When Bholu came with his camera, all he saw was the footprints of these animals.

✤ Can you match the animals with their footprints?

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✤ Draw the footprints of a dog in this box.

✤ Make the footprint of your friend on the floor. Is it smaller than yours?

Trace and Guess

✤ Ron is tracing a leaf. You also collect a few things like leaves, pebbles, a stick, a bangle, *bindis*. Trace each thing here.

Roohi made two different traces of the same bowl.

✤ How did Roohi keep the bowl to get two different traces from it?

✤ Look for other things like Roohi's bowl which can give many different traces.

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Do at Home

On a newspaper trace the hands of different people in your family. Ask your friends to guess which trace is of your hand, your mother's, your father's, etc.

Read and Draw

Tamanna and her mother are sitting on chairs.

Tamanna is reading a story book.

Her mother is reading a newspaper.

Tamanna and her mother are sitting on the opposite sides of a table.

Draw the missing things in the picture.

Children may use different perspectives to draw. For instance, some will try to show the table from the top but might show all its legs too, while some might make only two legs. Leave it to them to draw the shapes as they visualise them. Teachers could use different drawings to discuss about shapes and also how they look different from different sides.

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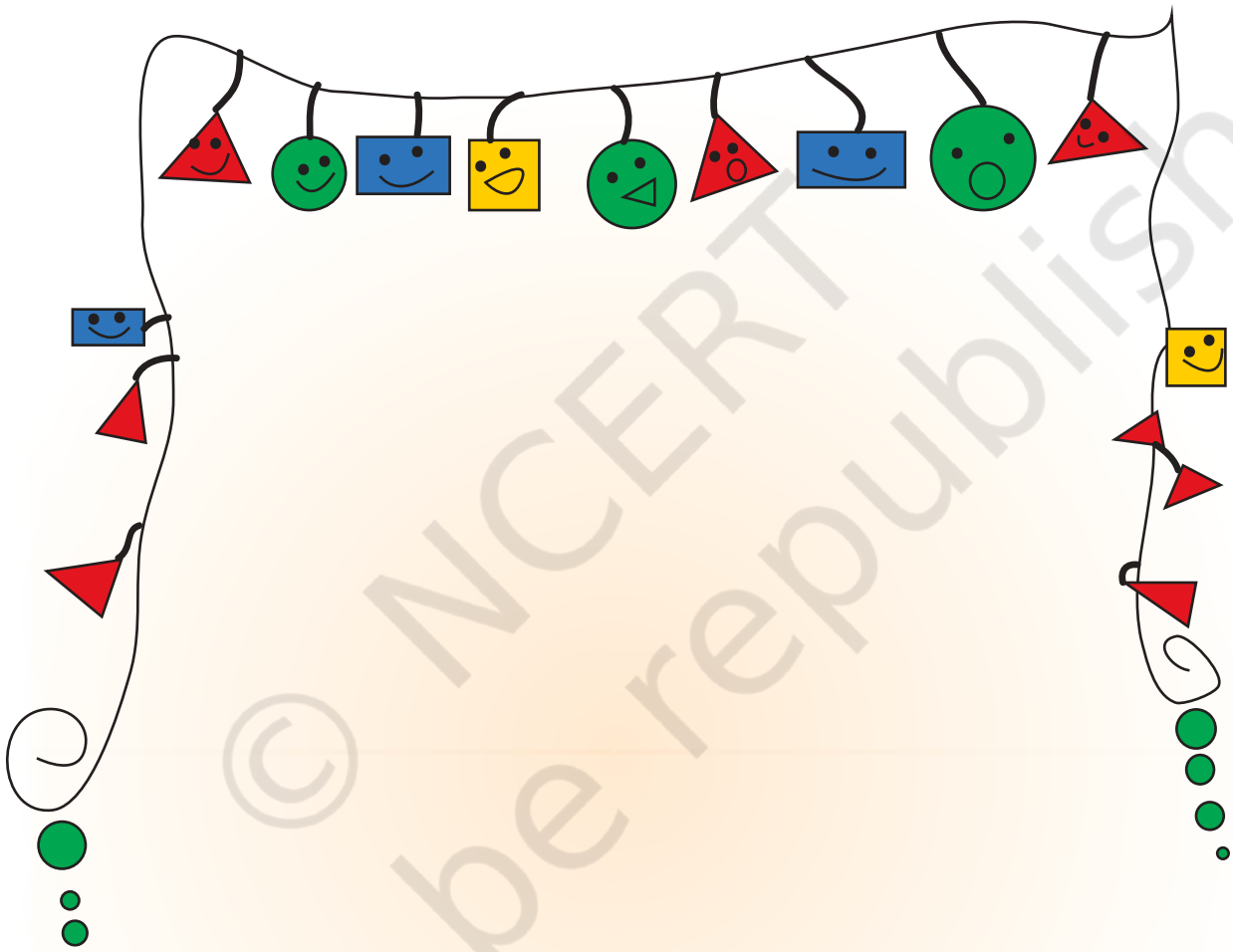
More Fun with Tracing

- Collect some things, such as — a potato, a bottle cap, a matchbox cover, a sharpener, an eraser, a spoon, a bus ticket, a coin, a straw. You can also bring other things.
- Trace each of these. Ask your friends to guess.



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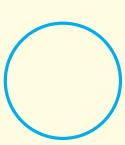
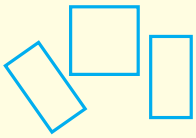
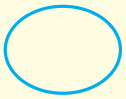
✤ Look at the shape of each trace you have made. See if it looks like any of the shapes given here. Write the name of the thing below the shape.

				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Help children look at the differences and similarities in the shapes which have come up after tracing. What is similar in the shapes — for instance, between a box and an eraser? These have been placed in the same column. Encourage children to name as many shapes as they can. We need to help the usage of words such as circle, square, rectangle, etc., so that these become a part of the child's vocabulary.

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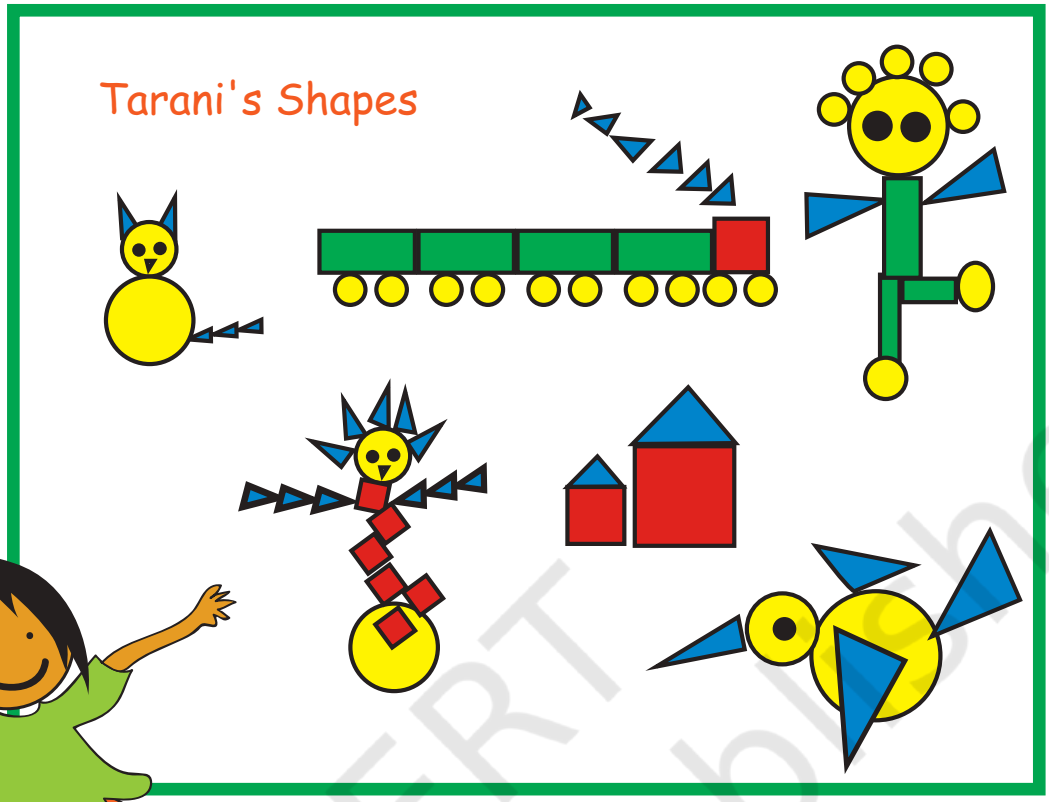

Tarani made a picture using different shapes.

Look at Tarani's picture and tell.

How many ▲ s? _____

How many ■ s? _____

How many ▬ s? _____

How many ● s? _____

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- Now you make your own picture using different shapes like , , , .

- Make a drawing using only s.

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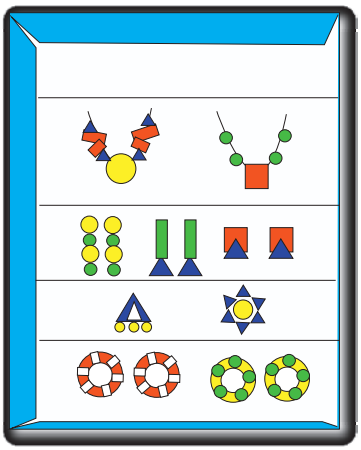
Dressing Up Bisania

✤ Bisania wants to dress up for a dance. Use different shapes in the box and draw jewellery on her.



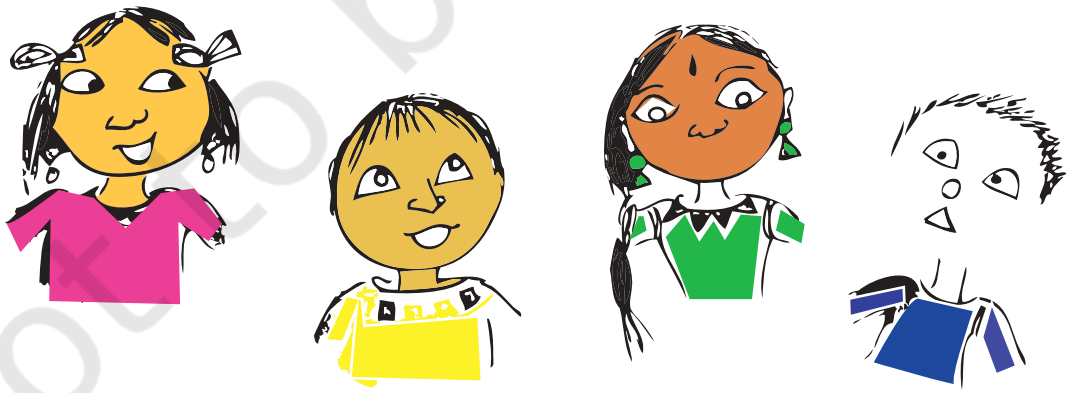
Shapes and Faces

a) Draw glasses of ▭ shape on the first face.

b) Draw a moustache of ⋈ shape on the second face.

c) Draw a ◯ mouth on the third face.

d) Draw a □ face in the last picture.



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7 Jugs and Mugs

0219CH07

Make and Enjoy Lemon Drink

You will need

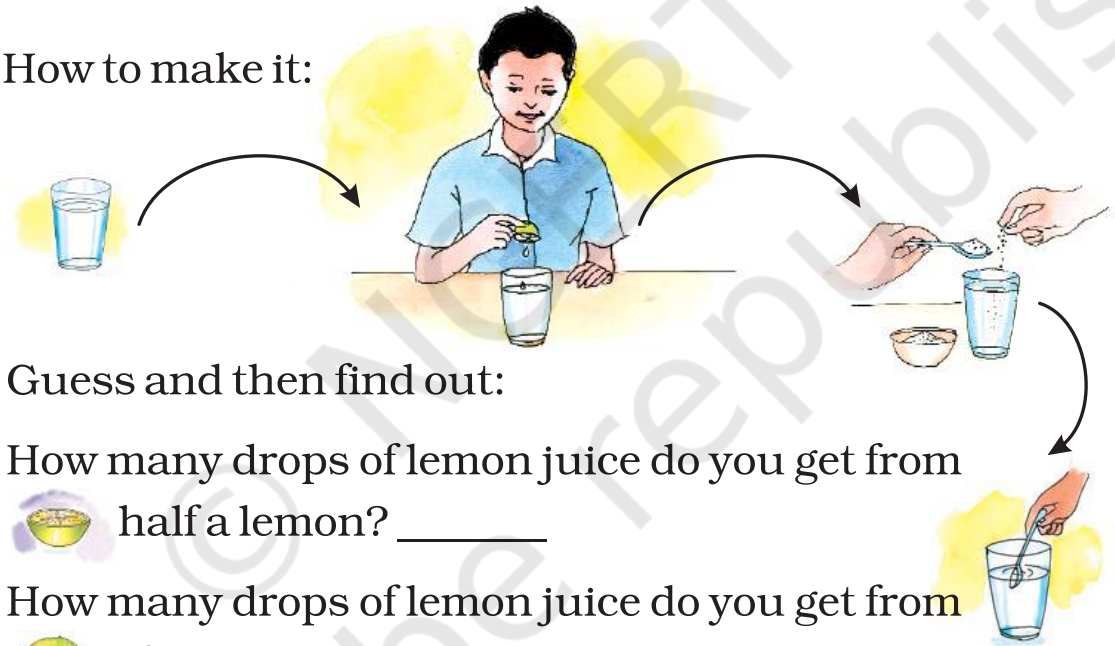
Half a lemon

A pinch of salt

One spoon of sugar

One glass of water

How to make it:



Guess and then find out:

How many drops of lemon juice do you get from half a lemon? _____

How many drops of lemon juice do you get from a full lemon? _____

How many drops of lemon juice fill one spoon? _____

Enjoy your lemon drink!

To make a drink, locally available material can be used or the name of the drink can also be substituted. The focus should be on volume.

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For making 6 glasses of lemon drink –

How many lemons will you need? _____

How many spoons of sugar will you take? _____

Lemon Drink Stall at a Village Fair

There is a fair in Chaitra's village. Chaitra, Nazim and Aneesh want to put up a stall to sell lemon drink. They make a bucket full of lemon drink.

They use two different sizes of glasses.

Aneesh got a jug.

Do you think it is easier to pour into a glass from a jug than a bucket?

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Nazim found that two big glasses fill the jug.

Shabnam wants to buy one jug full of lemon drink.

How much does she need to pay? _____

Chaitra found that two small glasses fill one big glass.

How many small glasses of lemon drink will fill the jug? _____

How many small glasses will fill half the jug?

Fun in Filling Vessels

Find out how many cups of water will fill your bottle.

First guess and then try it out.

Now, fill a different bottle with the same cup.

Which bottle holds less water?

Try it with another bottle.

Which bottle holds the least water?

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Sunaina and Jaspreet brought different **vessels** from the kitchen. They had a jug, a glass, a mug, a pot and a bowl.

They filled each of these with a cup.

Guess which vessel holds the least water. _____

Which vessel holds the most water? _____

Now, you collect different vessels from your kitchen.

Use the same cup to fill each of them.

Count the number of cups of water each of them can hold.

First guess and then do it.

The vessel you used	*Cups of water to fill it*

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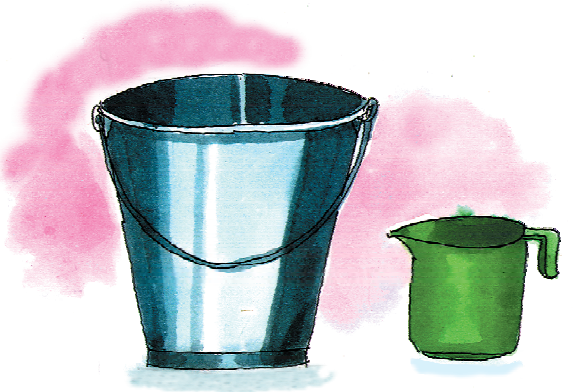
Ring the one which holds more water.

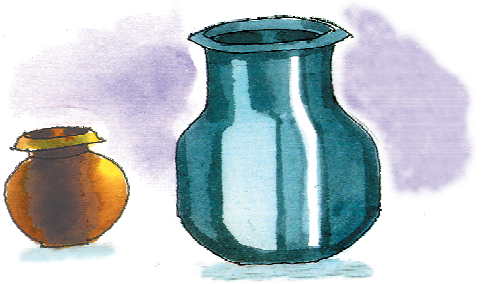
(a)



(b)

(c)

(d)



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Rani and the Milkman

Anil is a milkman. He gives the same amount of milk at Rani's house every day. He uses a mug three times to fill Rani's milk pot .

One day Rani's mother gave her a different pot to take milk. Every day Rani's pot would fill to the top. But today Rani found that the pot was not filled completely.

Do you think Anil has given Rani less milk? Help her.

Find out

How much milk does your mother buy every day? _____

Try Yourself

Take five different types of big vessels from your kitchen.

Fill all of them one by one with one jug full of water.

What do you see? Why?

Talk to your friends about it.

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Thirsty Crow

Chirpy crow was very thirsty. It looked everywhere but could not find water. Suddenly it saw a pitcher (*matka*).

When it tried to drink water, it found there was very little water in the pitcher.

It saw pebbles lying nearby.

It put the pebbles into the pitcher one by one.

The water came up .

Chirpy drank water and flew away.

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Do You Want to Be Like Chirpy?

Do you want to know how the water in the pitcher came up?

Take two glasses of the same size.

Fill half of each glass with water.

You have to put tamarind (*imli*) seeds in the first glass to raise the water to the top. Guess how many seeds you will need to put in.

Now, do it.

Count the number of seeds used. _____

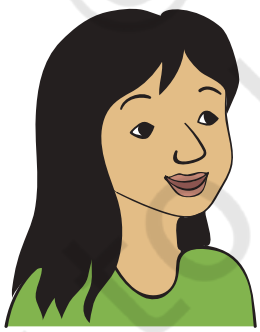
Now put the same number of marbles in the second glass.

What happens?

Repeat it with stones.

What happens now? Why?

Talk about it in the class.



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Water is Useful

Find out how much water (in mugs or buckets) is used in your house for each of the following.

_____

_____

_____

_____

Guess and then find out:

a) How many mugs of water fill one bucket? _____

b) How many buckets of water do you use to take a bath? _____

c) How many mugs of water do you use to take a bath? _____

How much water will fill a balloon? _____

How much water is needed to fill a water gun (*pichkari*)? _____

I can drink 9 buckets of water at once. How many buckets can two camels drink at once?

Children should be encouraged to do the activity at home and note the observations. A discussion can be held in the class to compare the volumes of various vessels used by children.

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8 Tens and Ones

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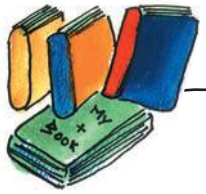
Can you do this without Uncle's help? Draw the10-rupee notes and 1-rupee coins you will give for these things.



Rs 20 _____

Rs 32 _____

Rs 55 _____

✪ How much money do the notes and coins make?

= Rs 30

= Rs _____

= Rs _____

= Rs _____

= Rs _____

Do similar exercises in the class with the help of play money.

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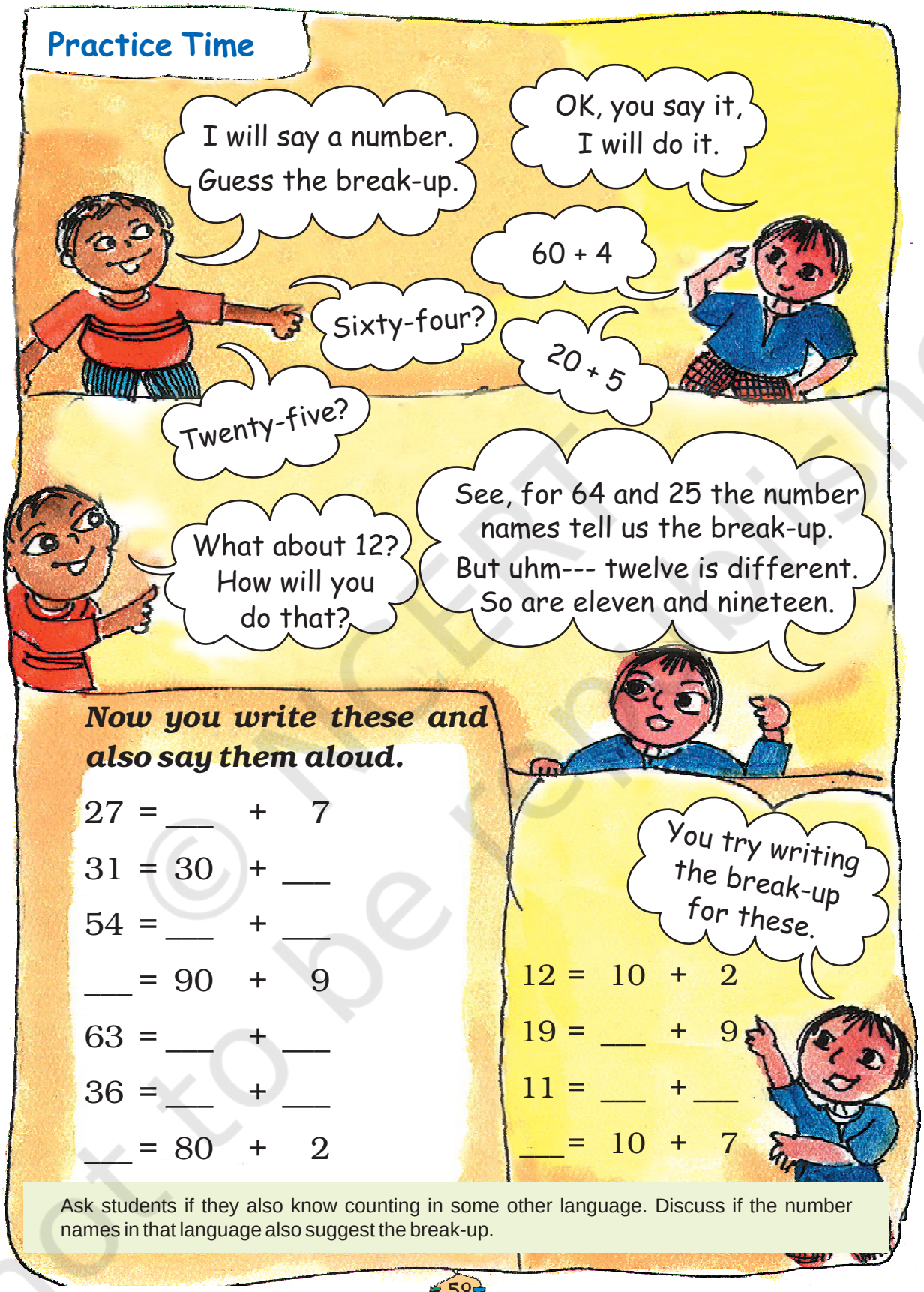
Practice Time



Now you write these and also say them aloud.

27 = ___ + 7

31 = 30 + ___

54 = ___ + ___

___ = 90 + 9

63 = ___ + ___

36 = ___ + ___

___ = 80 + 2

12 = 10 + 2

19 = ___ + 9

11 = ___ + ___

___ = 10 + 7

Ask students if they also know counting in some other language. Discuss if the number names in that language also suggest the break-up.

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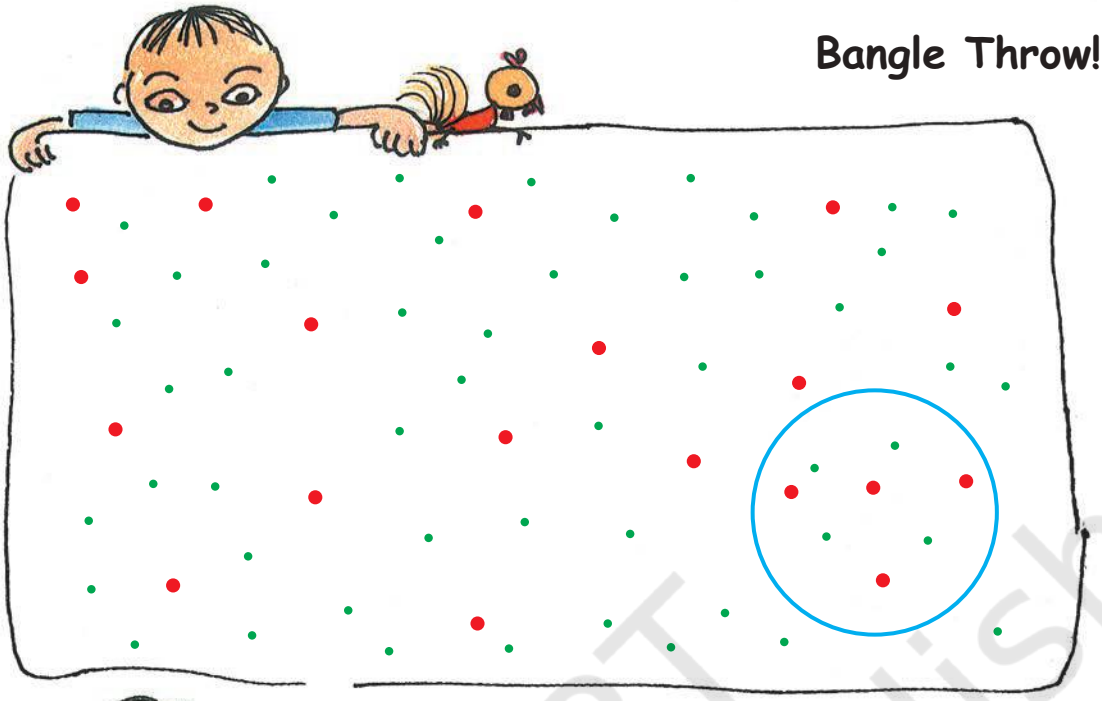
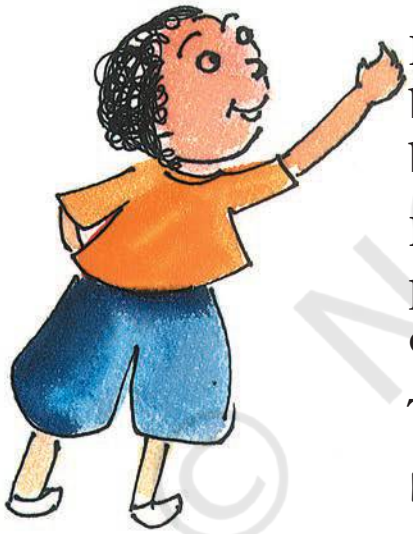
Bangle Throw!





Karma and Gesar are playing a bangle game. Karma has thrown the bangle on the dots.

Each big red dot is equal to 10 points. Each small green dot is equal to 1 point.

The dots inside the bangle are

Dots —

Points — 40 4

So, Karma has got 44 points.

They throw the bangle twice each. Here are their points.

Throw	*Karma*	*Gesar*	*Winner*
First	44	13	Karma
Second	16	32	Gesar

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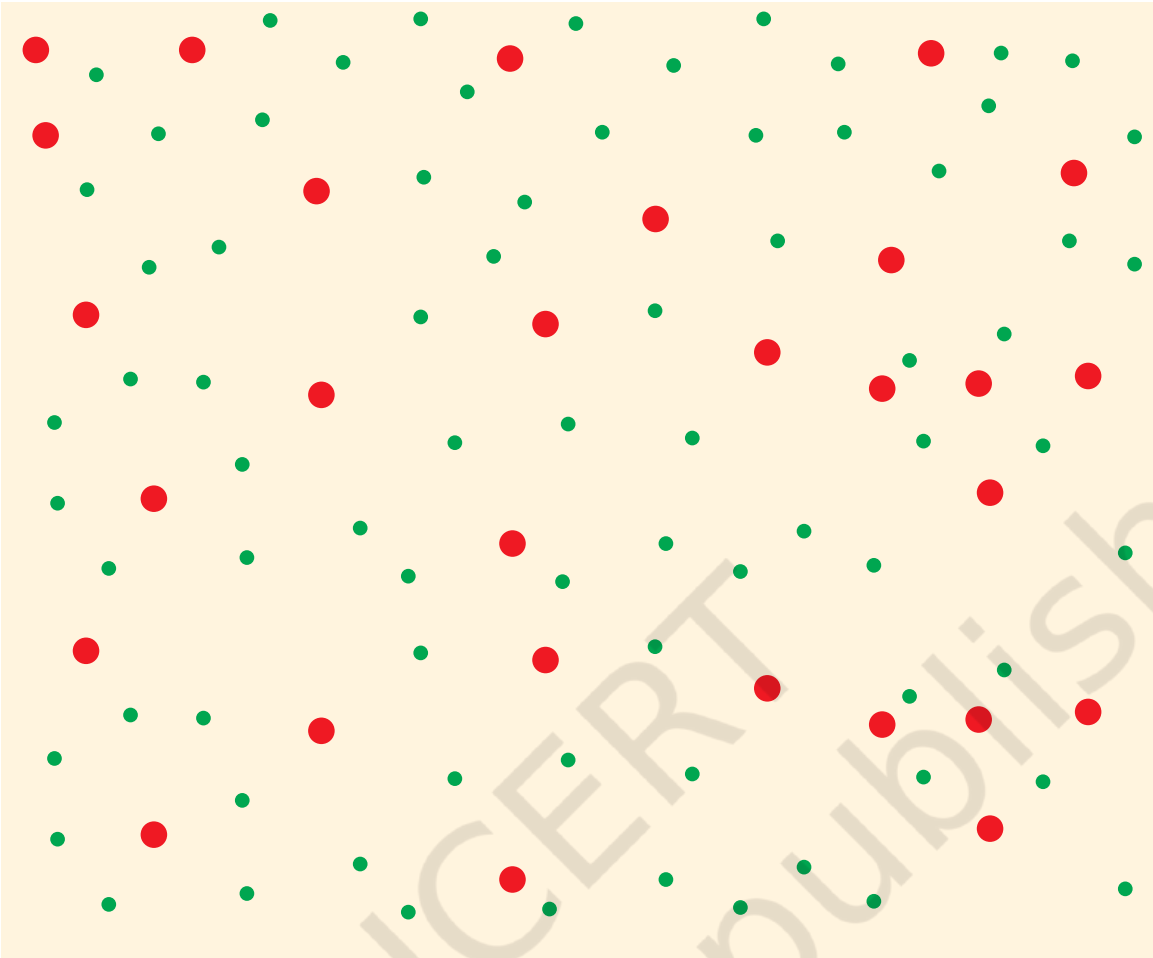

You can play this game with your friend using the board above. Write your points for each throw.

Throw	*My points*	*My friend's points*	*Winner*
First			
Second			
Third			
Fourth			
Fifth			
Sixth			

Encourage children to mentally compute the score.

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The Flute Man and the Rats

Simple! I used these cards.

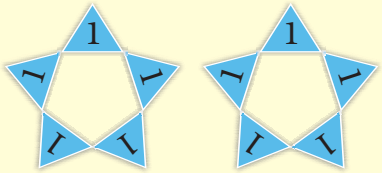
I counted one rat and kept one 1 card in my pocket.

1 for one rat

1 1 for two rats

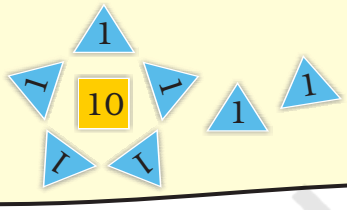
1 1 1 1 1 for how many rats? _____

When I had 10 cards, I changed it with this card 10 in my pocket.



10

Then came 7 more rats. I then had in my pocket



for 17 rats.

✪ Which cards will he have in his pocket if he has counted up to

a) 23 → 1 10 1 10 1

b) 47 →

c) 55 →

d) 63 →

e) 72 →

f) 80 →

Encourage children to make token cards and use them in different exercises.

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The King gave him gold coins.

- Can you guess what happened next?
- Now act out the story in class.

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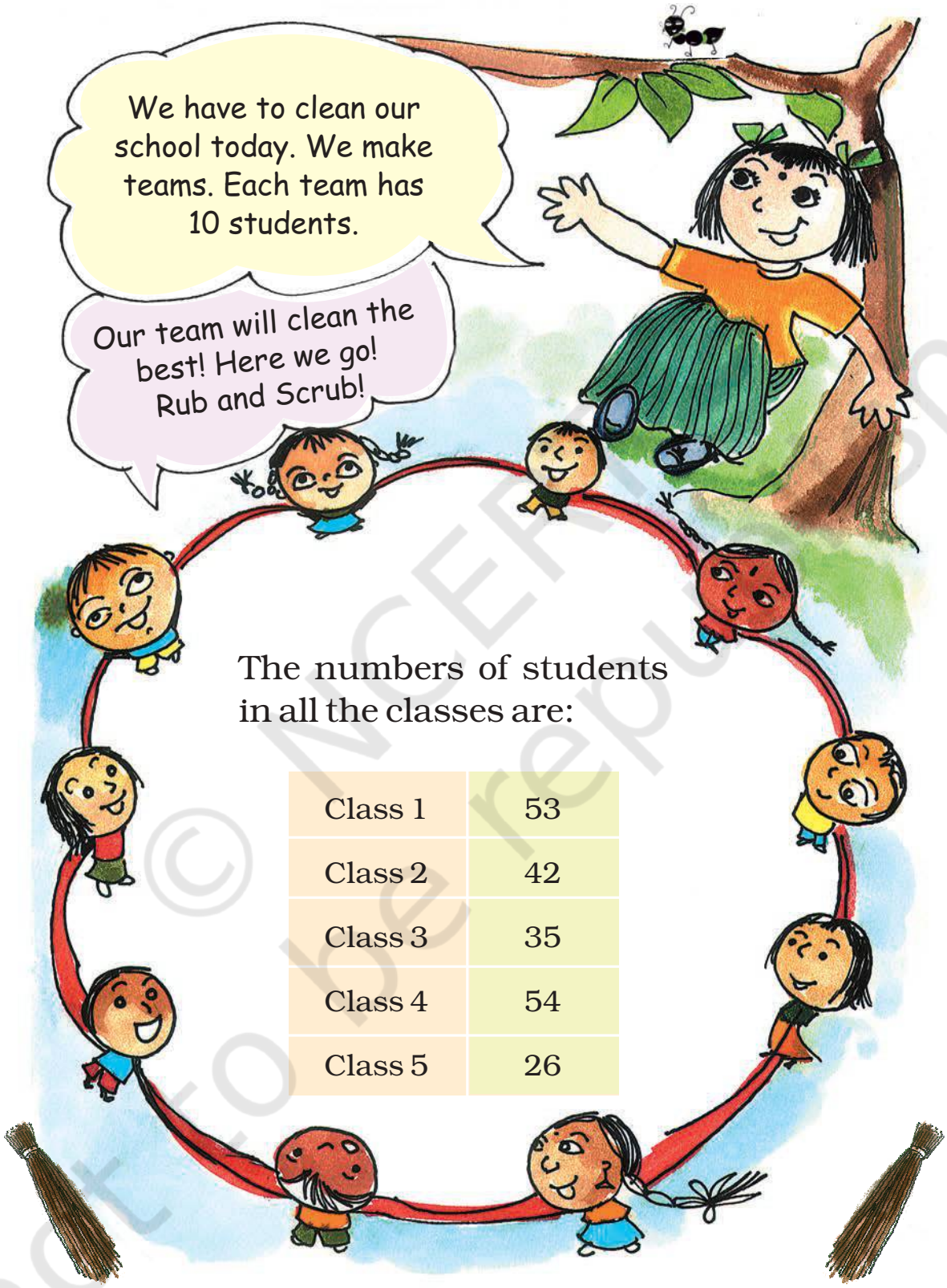
Clean School Day



The numbers of students in all the classes are:

Class 1	53
Class 2	42
Class 3	35
Class 4	54
Class 5	26

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- How many teams will there be in each class? How many students will be left? Write here.

	How many teams?	*Students left*
Class 1		
Class 2		
Class 3		
Class 4		
Class 5		

- How many students are left in all? _____
- How many more teams can be made with all these students left? _____

Practice Time: Teams of Ten in Your School

- Find out the number of children in each class of your school.
- Make teams of ten for each class.
- How many children are left in each class?

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9 My Funday

One day Monday
went to Tuesday
to see Wednesday
and ask Thursday
to tell Friday
and also Saturday
that Sunday is Funday!

- Is Sunday a funday for you?
- Monday is happy to be the first day of the week. Now you tell —
  - a) The third day of the week is _____.
  - b) The fifth day of the week is _____.
  - c) The second day of the week is _____.
  - d) The last day of the week is _____.
- Which day will come
  - a) After Sunday? _____
  - b) Before Sunday? _____

While doing this chapter, the use of a calendar would be helpful. Encourage children to refer to a calendar to identify the order of days in sequence.

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c) After Wednesday? _____

d) Before Wednesday? _____

e) 2 days after Sunday? _____

f) 4 days after Wednesday? _____

g) 7 days after Monday? _____

- Which day do you like most? Why?
- What is the day today? _____
- Which day was it yesterday? _____
- Which day will it be tomorrow? _____
- Which day will it be the day after tomorrow? _____
- Which day was it the day before yesterday? _____

Teacher-Teacher

Some children of Class II–A love to play "Teacher-Teacher". They have decided to take turns in playing the teacher's role.

Day	*Who will play teacher's role*
Monday	Vaibhav
Tuesday	Alpana
Wednesday	Gaurav
Thursday	Gurpreet
Friday	Deepak
Saturday	Rehnuma

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Now fill in the blanks –

a) _____ will be the teacher the day after Friday.

b) _____ will play the teacher's role on the day before Tuesday.

c) Gaurav will play the teacher's role on the day after _____.

d) Deepak will play the teacher's role on the day before _____.

Games Every Day?

Time Table of II-A

Day \ Period	1	2	3	4	5	6
Monday	Hindi	Maths	Games	English	E.V.S	Music
Tuesday	Hindi	Maths	Drawing	English	E.V.S.	Library
Wednesday	Hindi	Maths	Games	English	E.V.S.	Library
Thursday	Hindi	Maths	Drawing	English	E.V.S.	Music
Friday	Hindi	Maths	Games	English	E.V.S.	Music
Saturday	Hindi	Maths	Drawing	English	E.V.S.	Library

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Look at the time table of Class II-A and fill in the table:

Period	*On which days?*
Drawing	
Music	
Games	
Library	

✿ *In Your Class*

a) On which days do you have a games period? _____

b) How many children would like to have a games period every day? _____

c) What games do you play in your games period? _____

d) On which days do you have a drawing period? _____

e) Do you have a music period? _____
If yes, on which days? _____

f) Which day of the week do you like best at school? _____

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Favourite Month

One day Sona, Arjun and Zeba were talking about their favourite months.

- Which month do you like best? _____

  Why? _____

- Draw what you like to do in your favourite month.

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What I like best	*Months in which it comes*
Fruit _____	_____
Vegetable _____	_____
Flower _____	_____

✿ Write the names of five festivals that you or your friends celebrate. Also, write the months in which these festivals come.

Name of the festival	*Month in which it comes*

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✿ Draw a scene of any of the festivals.

✿ Names of some of the months are missing in the list given below. Fill in names of those months.

January, February, _____, April, _____, June, _____, August, September, October, _____, December.

✿ Look at the calendar to find out

a) Which is the first month of the year? _____

b) Which month comes after March? _____

c) Which month comes before August? _____

d) Which is the last month of the year? _____

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February is Different

4 months have thirty days

7 months have thirty-one

February is the shortest month

In some years it jumps for fun.

Look at a calendar to find out:

- Which months have 30 days?

  _____

- How many months have 31 days? _____
- How many days are there in February? _____
- How many days together are there in May and June?

  _____

- How many Sundays are there in July? _____
- What is the day on your birthday? _____

Find Out

How many days do you get for your summer holidays?

_____

How many winter holidays do you have? _____

The picture shows a popular way to remember long and short months. Starting with January, the long months sit on the knuckles, while short months are in the spaces between.

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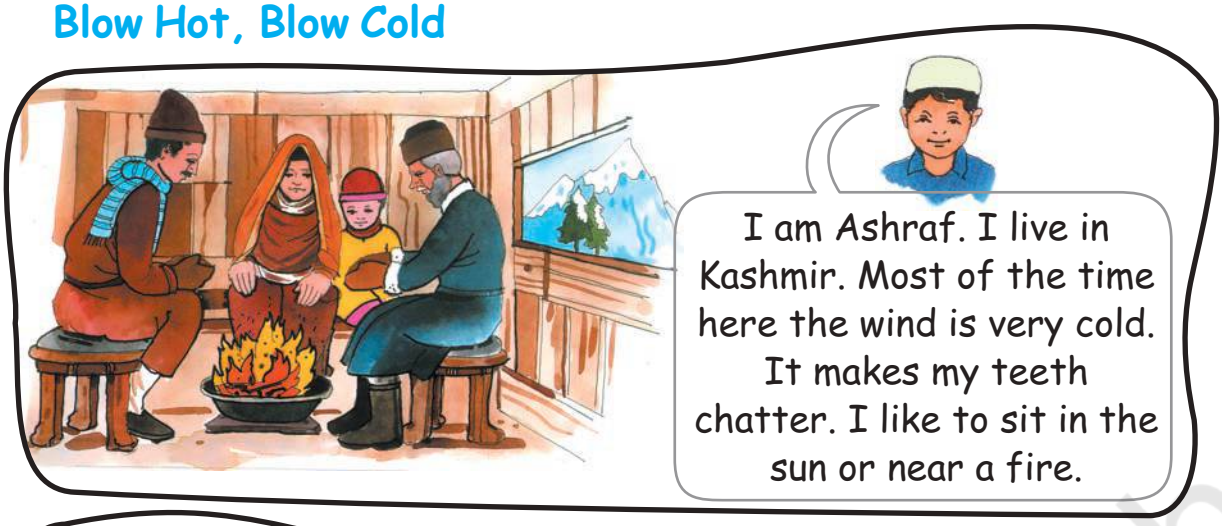
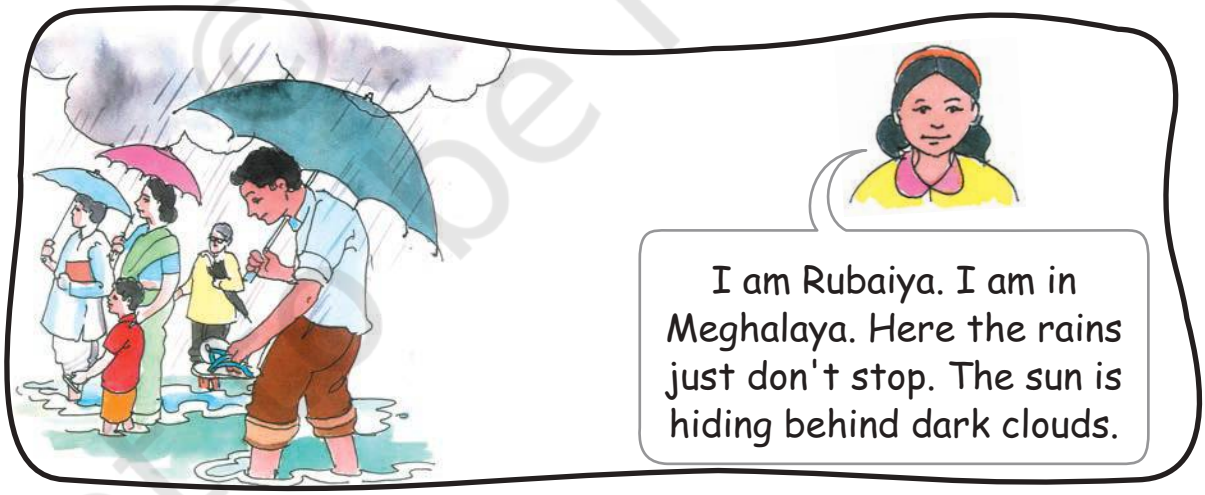
Blow Hot, Blow Cold





Encourage children to share their own experiences about different seasons.

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1) Have you ever felt —

a) Your teeth chattering due to cold? Yes/No

b) Your feet feel hot on walking barefoot? Yes/No

c) Name one month when you can easily walk barefoot. _____

2) a) Have you seen it raining for many days? Yes/No

b) In which month does it rain the most in your area?

_____

3) a) Which are the hottest months in your area?

_____

b) Which are the coldest months in your area?

_____

4) Which fruits and vegetables are seen a lot in the market in these months? Write or draw:

May-June		*December-January*	
Fruits	*Vegetables*	*Fruits*	*Vegetables*

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Add Our Points

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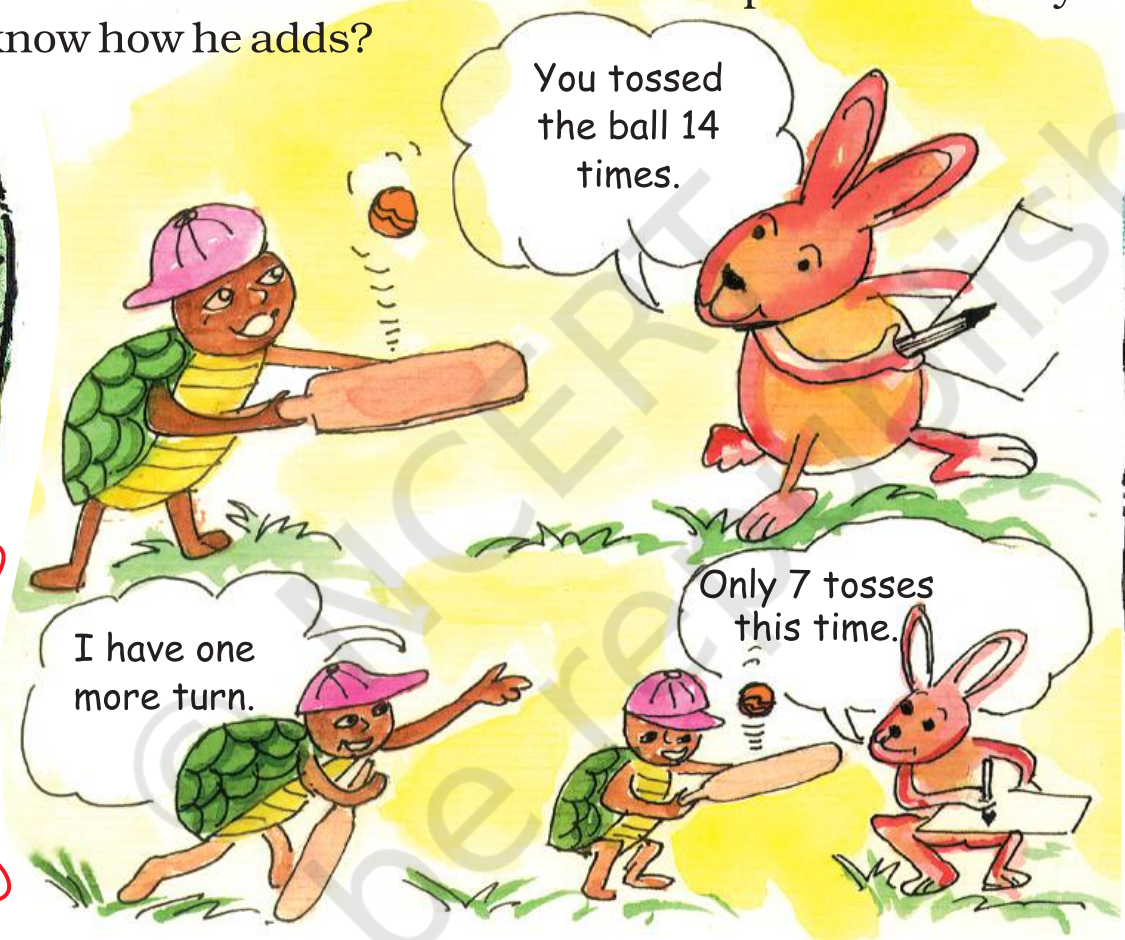
Toss the Ball

Animals of the forest are playing. Turn by turn, they toss the ball on their bats until it falls. Each player gets two turns and Bunnoo rabbit adds their points. But do you know how he adds?



Bunnoo adds on the snake. To add 14 and 7, Bunnoo stands on 14. He jumps 7 steps forward. He reaches 21.

You can also add points on the snake.

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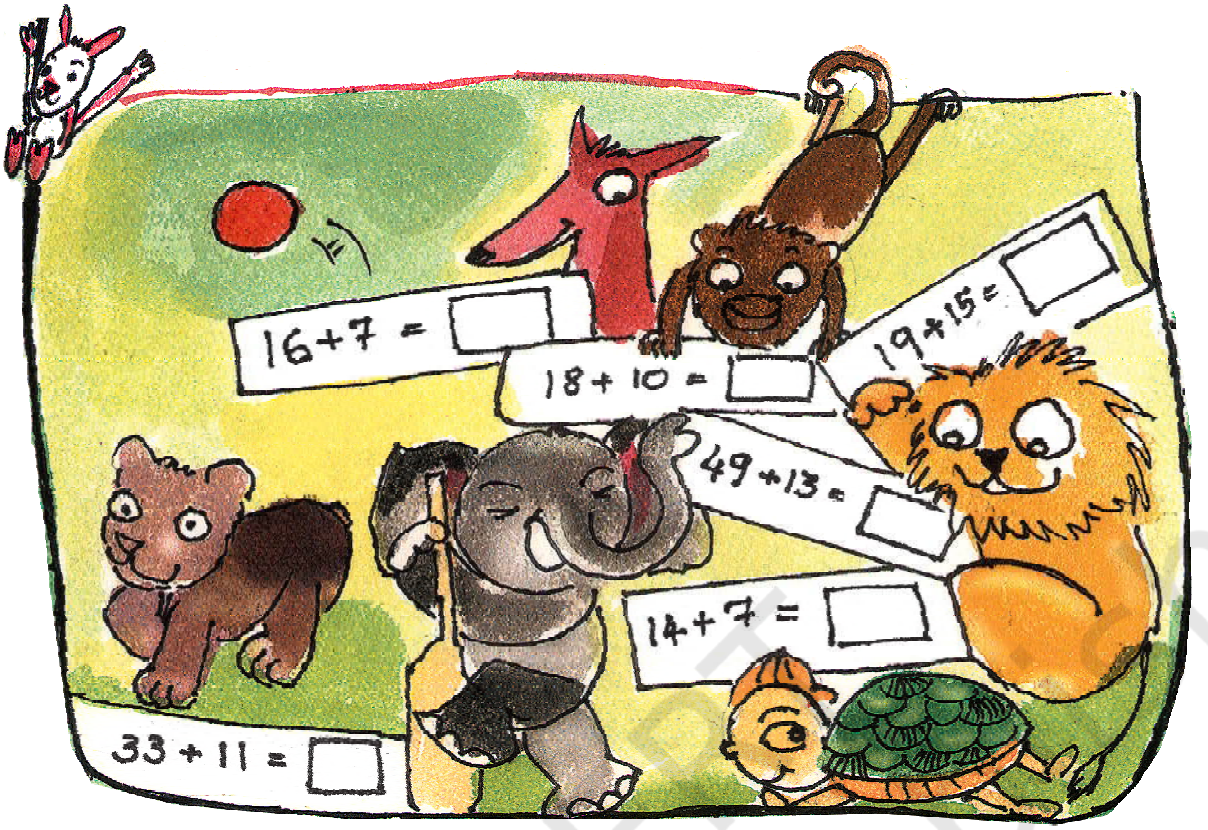


★ Who won the game? _____

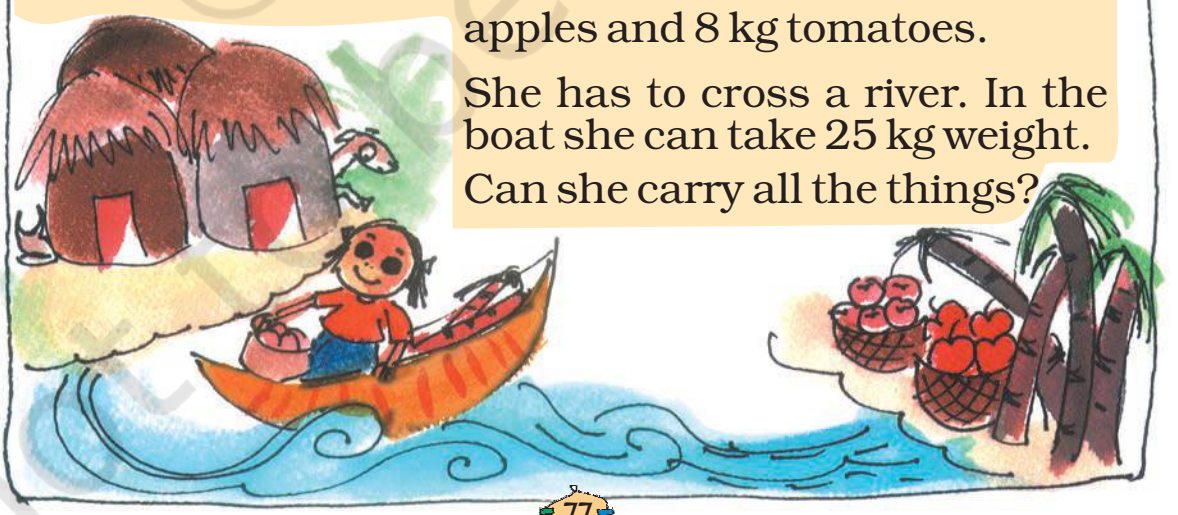
★ Who lost the game? _____

The winner got bananas from Bunnoo.

Guess and Tell

Prabha is going to her grandmother, who lives in the next village. She wants to take 15 kg sugar cane, 7 kg apples and 8 kg tomatoes.

She has to cross a river. In the boat she can take 25 kg weight. Can she carry all the things?



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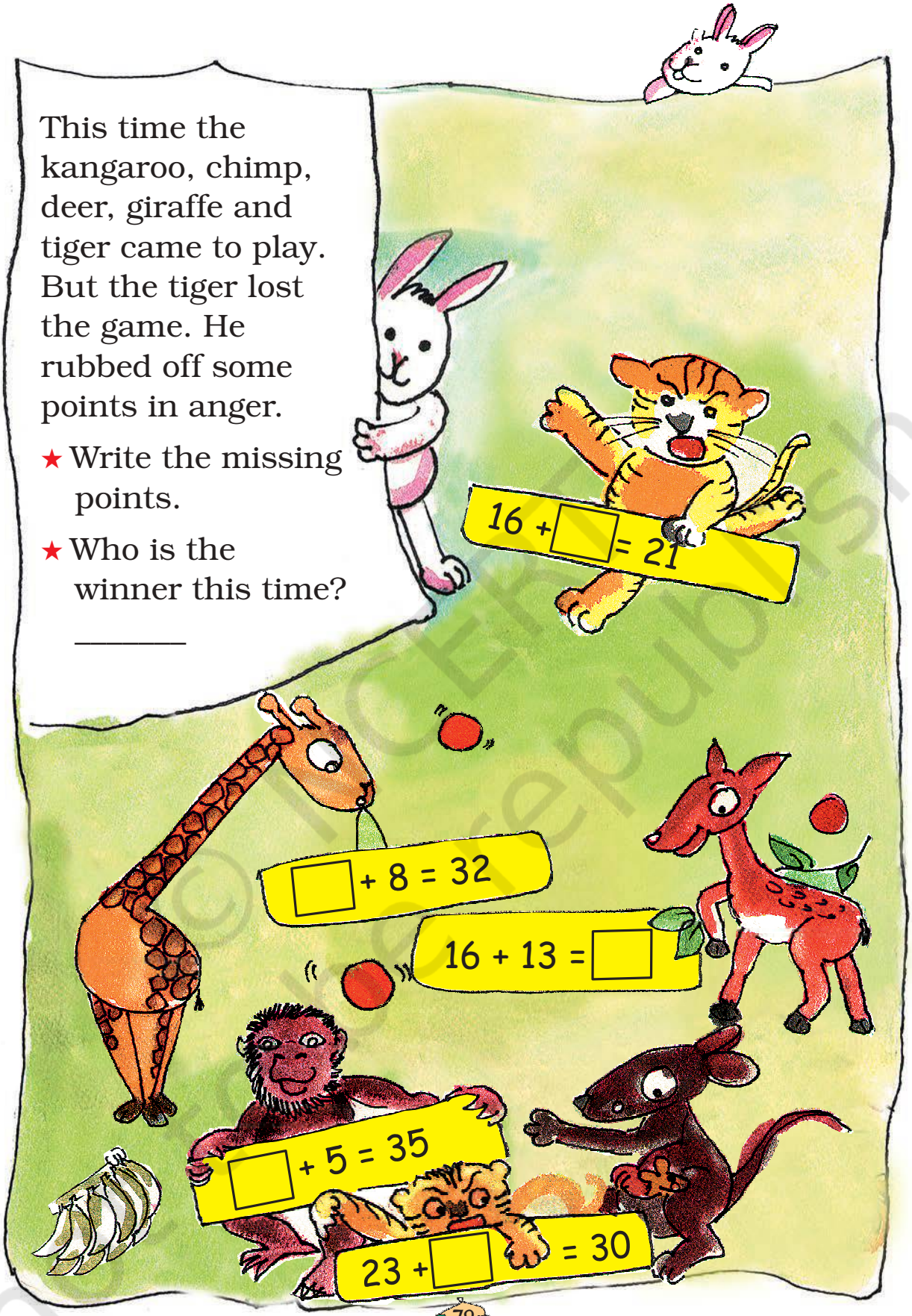
This time the kangaroo, chimp, deer, giraffe and tiger came to play. But the tiger lost the game. He rubbed off some points in anger.

★ Write the missing points.

★ Who is the winner this time?

_____



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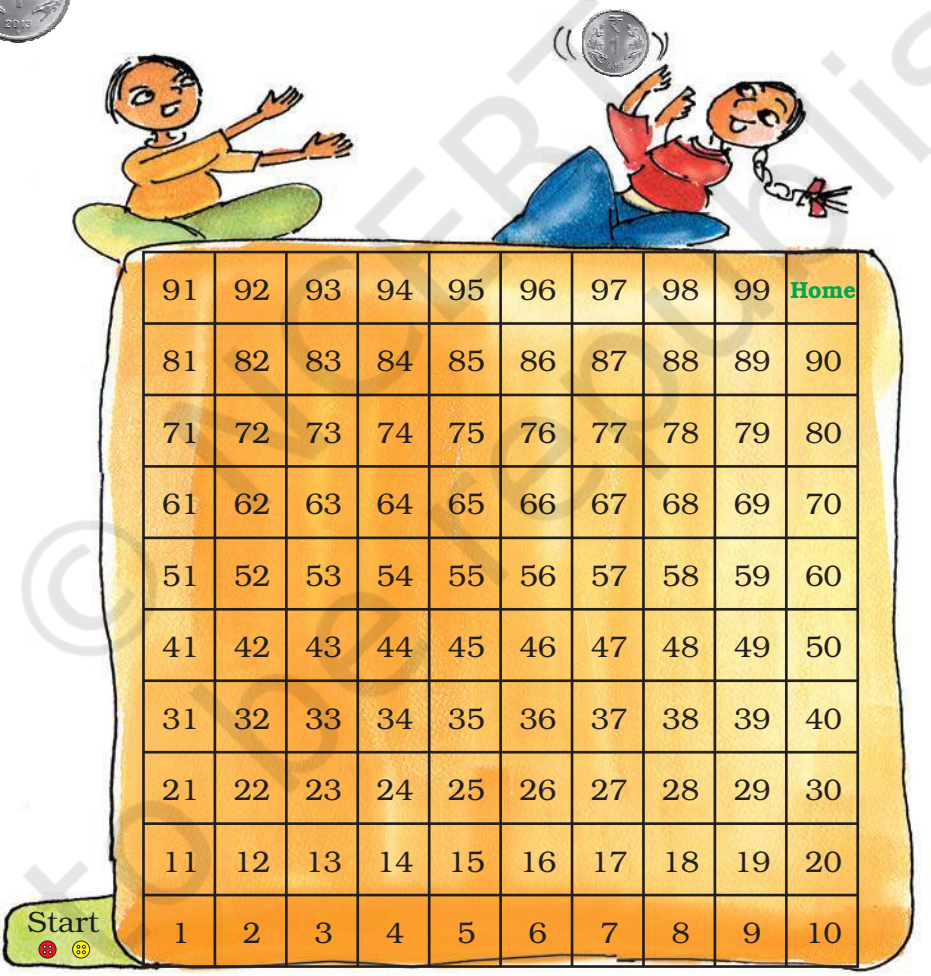
Heads and Tails

Have you seen the two sides of a rupee coin?

Which side has 1? Heads/Tails

Sameena and Sadiq are playing. The board has numbers from 1 to 99. Each player has a button.

They toss a coin. If it is 'Heads', the button moves 10 steps. So, if Sameena is on 6, she moves to 16. If she gets 'Tails', she moves only one step.



Now you also play this game. The one who reaches home first, wins the game. Is there a short cut for 10 steps?

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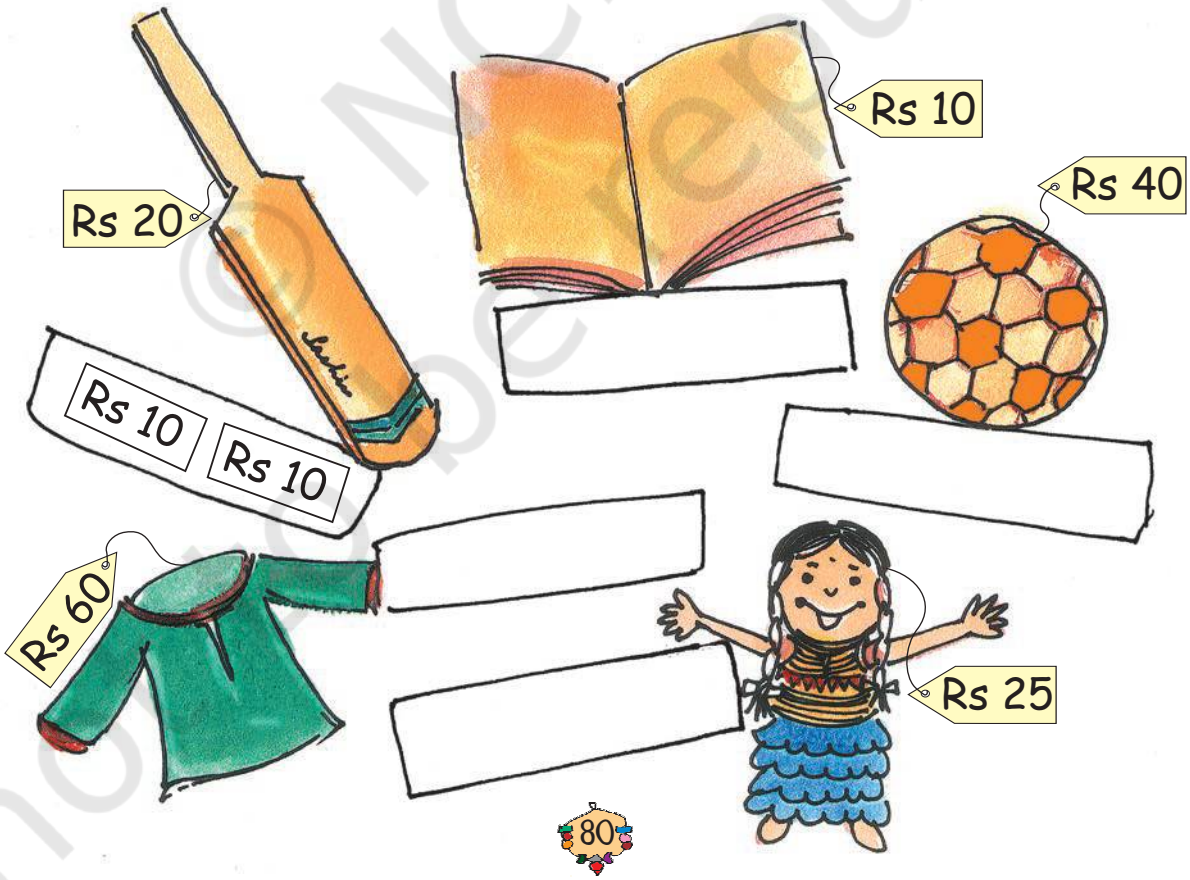
Two at a Time

Chintu and Mintu went shopping. They bought some things. To pay they used notes and coins, but only two at a time.

* Out of these, which two can they use to buy the things below? They can use the same note or coin more than one time.



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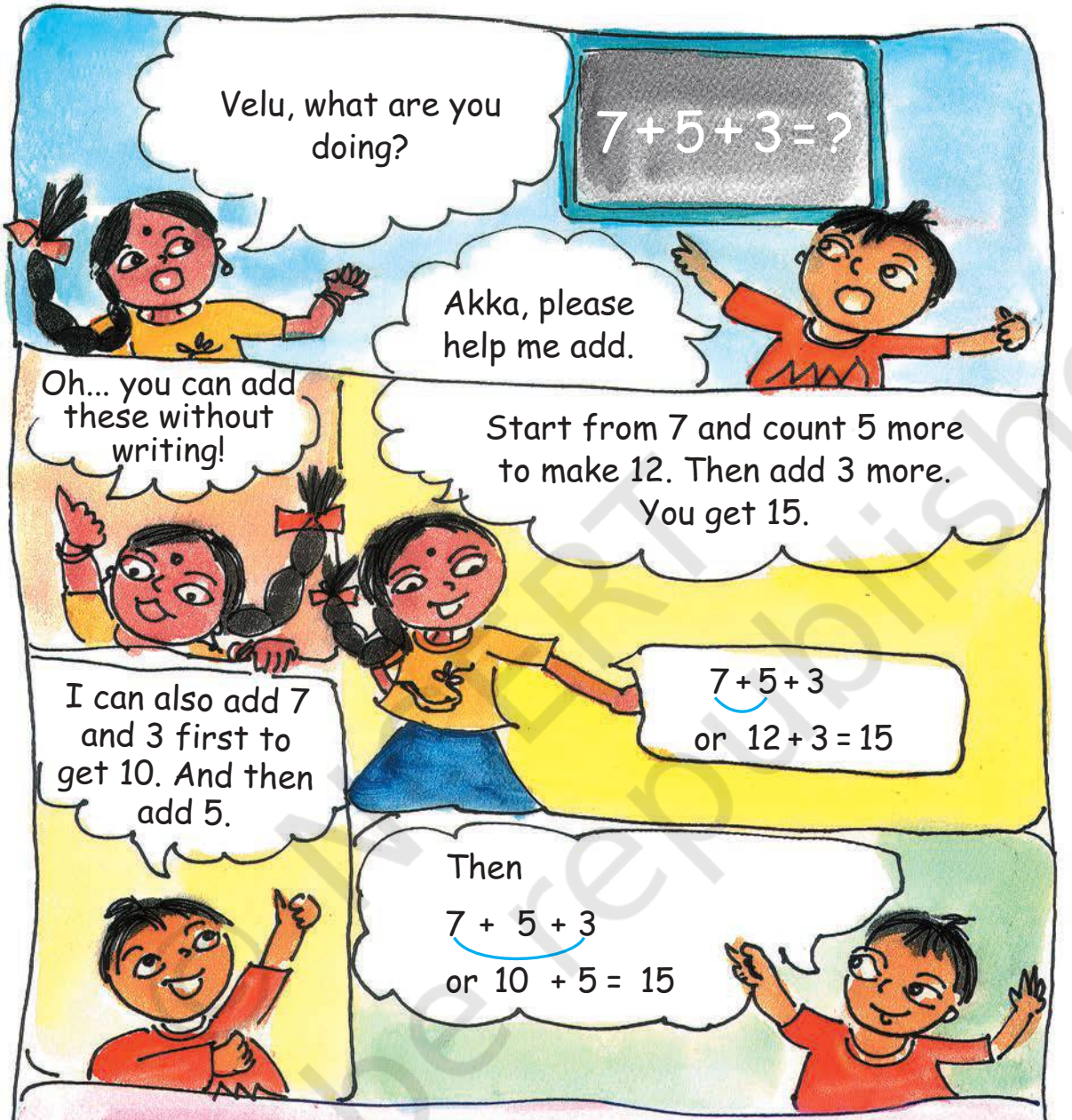
How Fast Can You Add?



Do These

5 + 5 + 7 = ☐

6 + 5 + 4 = ☐

9 + 4 + 1 = ☐

7 + 3 + 8 = ☐

8 + 3 + 2 = ☐

Let children do these sums by adding mentally. If some are not yet able to do so, encourage them to use the snake or the hundred chart. They can also be helped to find different combinations in order to add fast.

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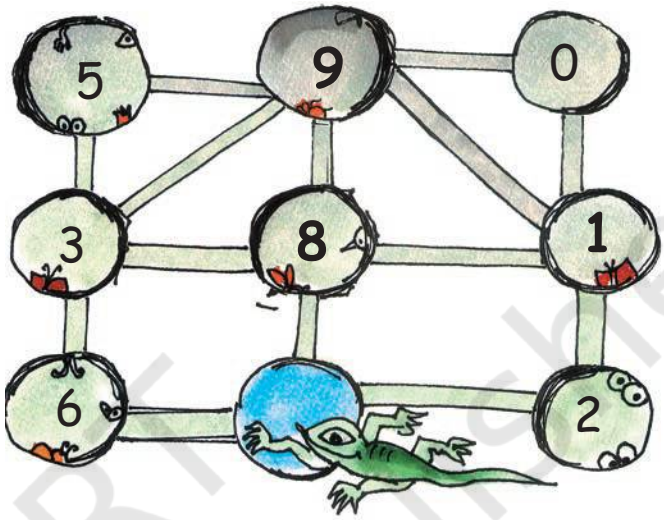
Killer Lizard

A lizard moves from one hole to another. As it moves, it eats insects hidden in the hole. The number of insects in each hole is shown.

The lizard can move only along the lines.



Starting from the blue hole in the picture, the lizard goes to three holes to eat 18 insects.

This is the path the lizard takes —

8 + 1 + 9 = 18

- What path can the lizard take to eat 12 insects?

  ◯ + ◯ + ◯ = 12

- What path can the lizard take to eat 20 insects?

  ◯ + ◯ + ◯ = 20

This time the lizard goes to four holes to eat insects.

- What path does the lizard take to eat 18 insects?

  ◯ + ◯ + ◯ + ◯ = 18

- What path does the lizard take for 12 insects?

  ◯ + ◯ + ◯ + ◯ = 12

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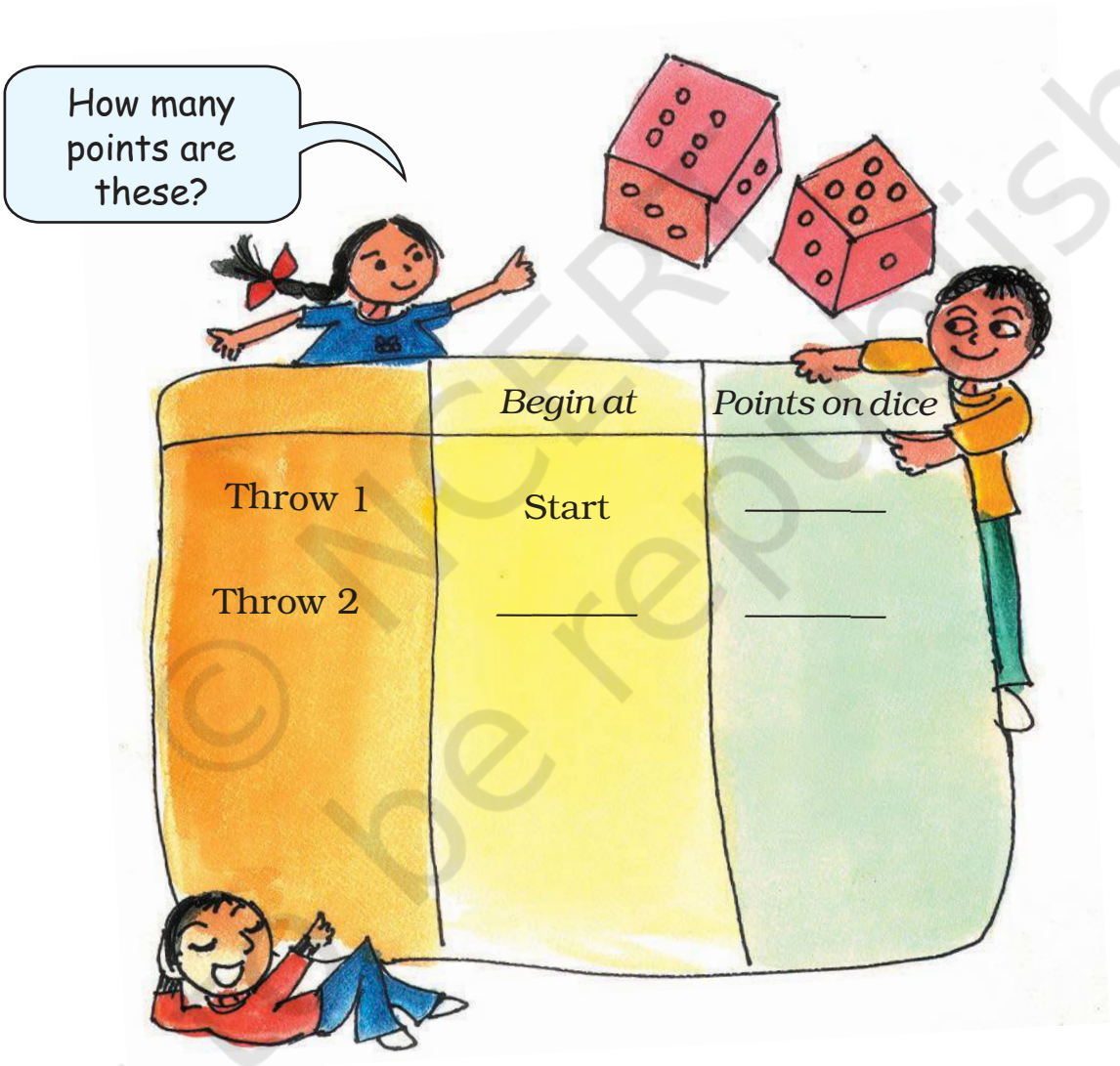
Play Time

Sameena and Sadiq are now playing another game on the board of Heads and Tails. They throw two dice and add the numbers to get their points.

You too can play this game. Throw your dice and write your points. See who is the first to reach home.



	Begin at	*Points on dice*
Throw 1	Start	_____
Throw 2	_____	_____

This record could help children check their moves. For instance, they could see that, starting from one number in the left column, they get to the next by adding the points in the right column. Use the board on page 79.

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11 Lines and Lines

0219CH11

Whose Line is It?

Fatima

Jasbir

Raima

Today, there is a cricket match in Fatima's school. Fatima, Jasbir and Raima have each brought their own stump from home.

They keep these in a corner of the room.

Fatima keeps her stump in **standing** position.

Jasbir keeps his stump in **slanting** position.

Raima keeps her stump in **sleeping** position.

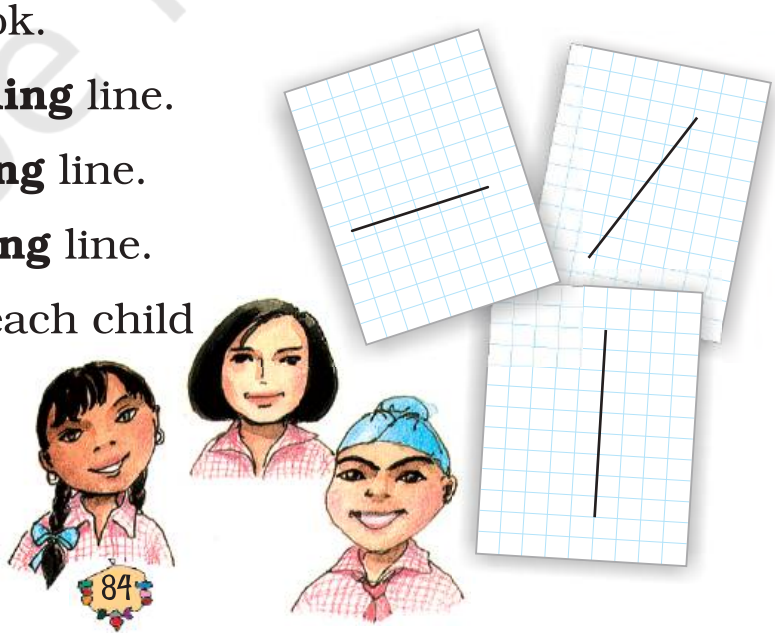
To show others how they have kept their stumps, they draw lines in a notebook.

Fatima draws a **standing** line.

Jasbir draws a **slanting** line.

Raima draws a **sleeping** line.

Match the picture of each child with the correct line.



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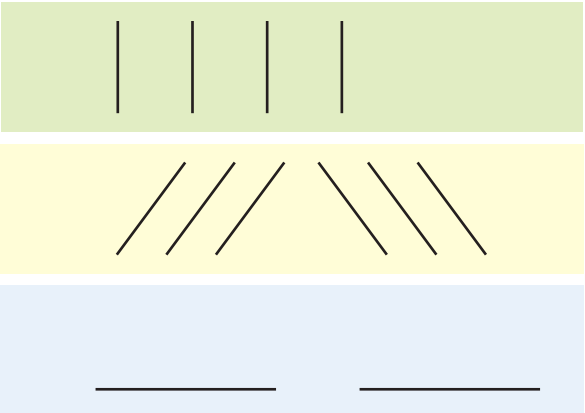
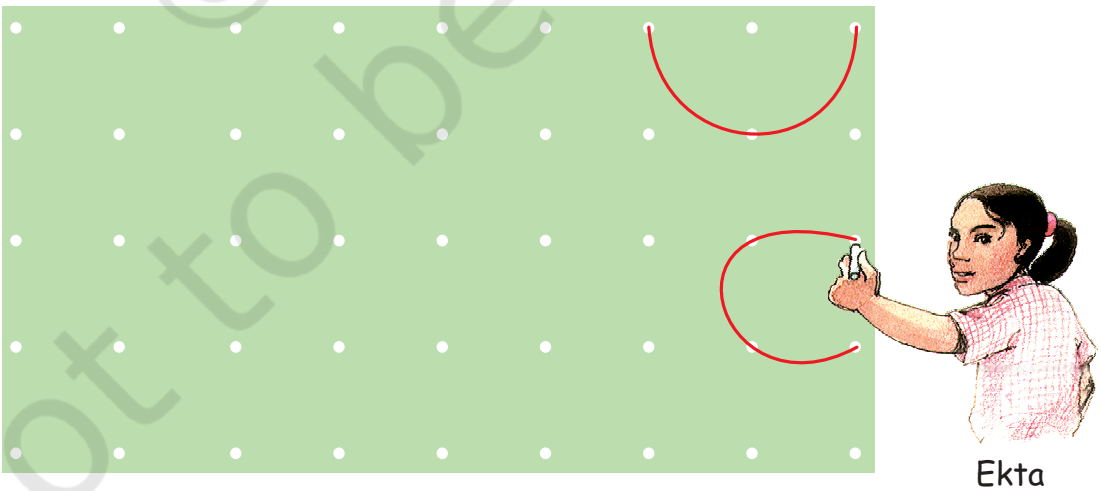
Here are some **standing** lines, **slanting** lines and **sleeping** lines. Now draw some more such lines.



Ekta's lines are not straight. These are **curved**.

Draw more **curved** lines by joining the dots.



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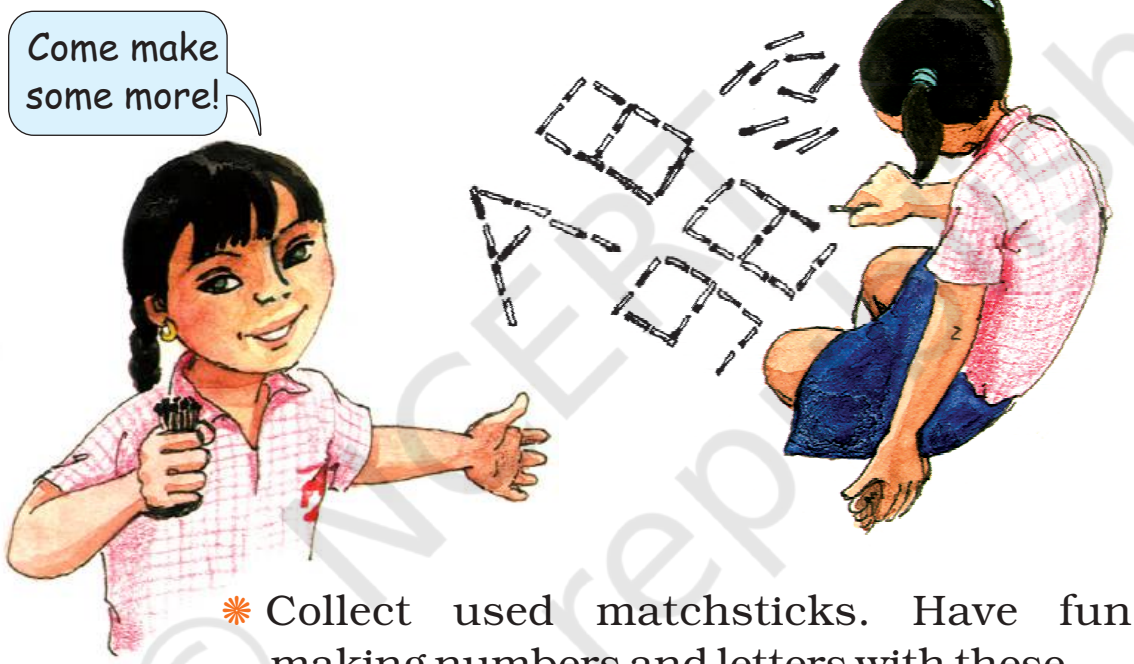
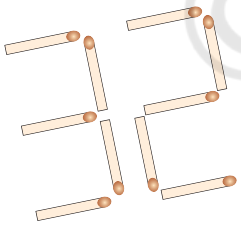
Fun with Lines

Jigyasa has a clock. She can read the time written in numbers and also the day of the week. The numbers and letters are made with straight lines.

Jigyasa made more numbers and letters with used matchsticks.





- Collect used matchsticks. Have fun making numbers and letters with these.
- Is there any number or letter that you cannot make with matchsticks?
- Now write some numbers using straight lines.

- What about writing letters using straight lines? Which ones are easy?
- Find out where else numbers and letters are written with straight lines.

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Dancing Lines

Remya saw a traffic policeman giving directions to vehicles.

- Does a traffic policeman sometimes make curved lines? _____

Remya tried to act like a traffic policeman. She made many straight and curved lines. It was fun. It looked like dance.

Try the dance steps given below and enjoy like Remya.

Several classical dance forms such as Bharatanatyam and Odissi use geometrical movements. Children can be encouraged to look for different lines or shapes in pictures or T.V. programmes.

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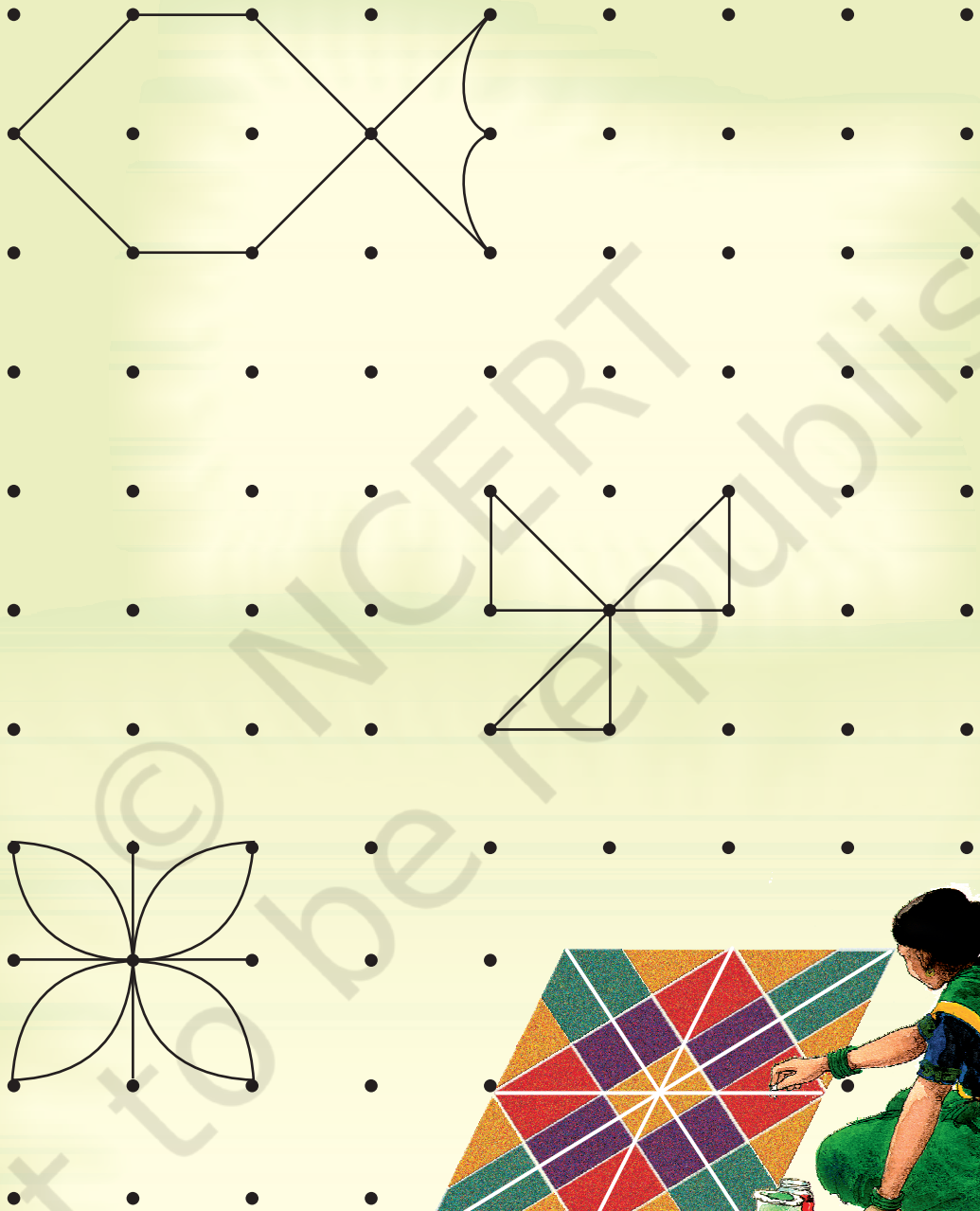
Designs with Dots

❋ Join the dots with curved or straight lines.

Make your own designs.



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Lines in Pictures

Nancy saw these pictures made by folk artists.

- Look for different types of lines — curved, standing, slanting and sleeping.

- Draw some more pictures like these.

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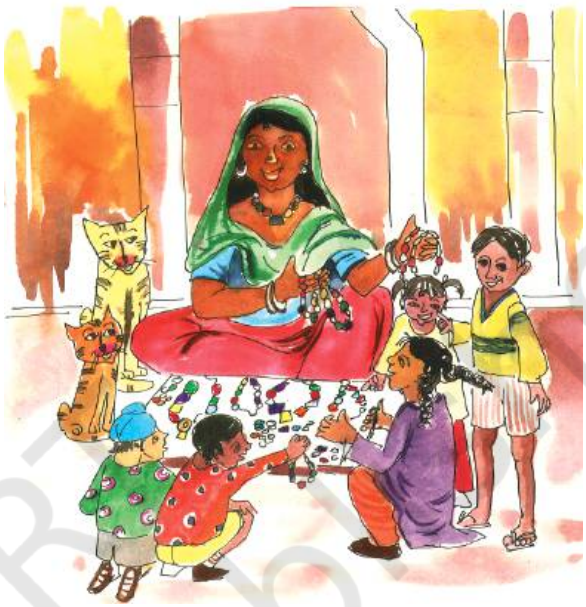
12 Give and Take

0219CH12

Kinnaree sells beads in the bazar. She sells loose beads and necklaces of 10 beads each.



Razia wants 12 beads. So Kinnaree gives her one necklace and two loose beads.

Now you find how many necklaces and loose beads the other children take.

	Beads	*Necklace of 10 beads*	*Loose beads*
Razia	12		
Reema	17		
Aarif	24		
Sonu	35		
Simar	31		

How many beads are taken by Razia and Reema together?

Encourage children to make groups of 10 using materials like beads, matchsticks, buttons etc. These concrete experiences will help develop their understanding.

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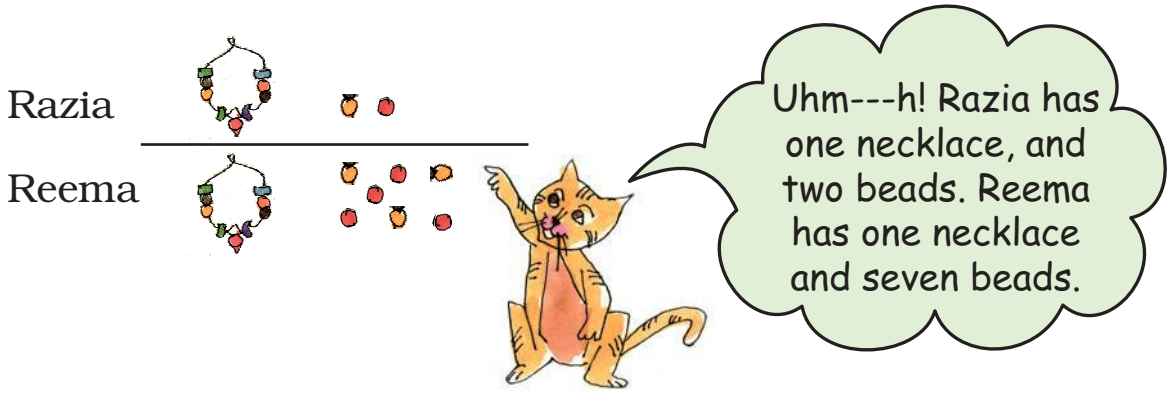
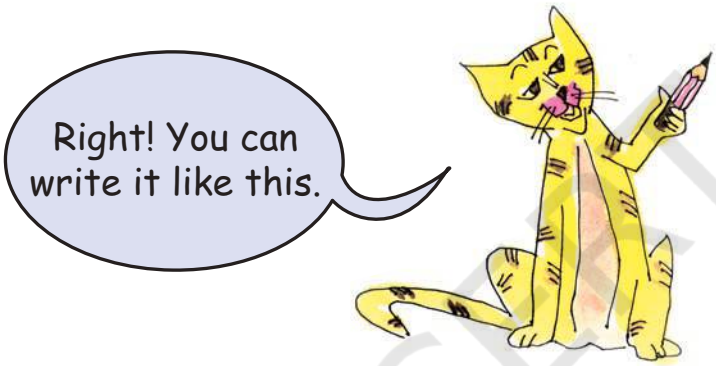
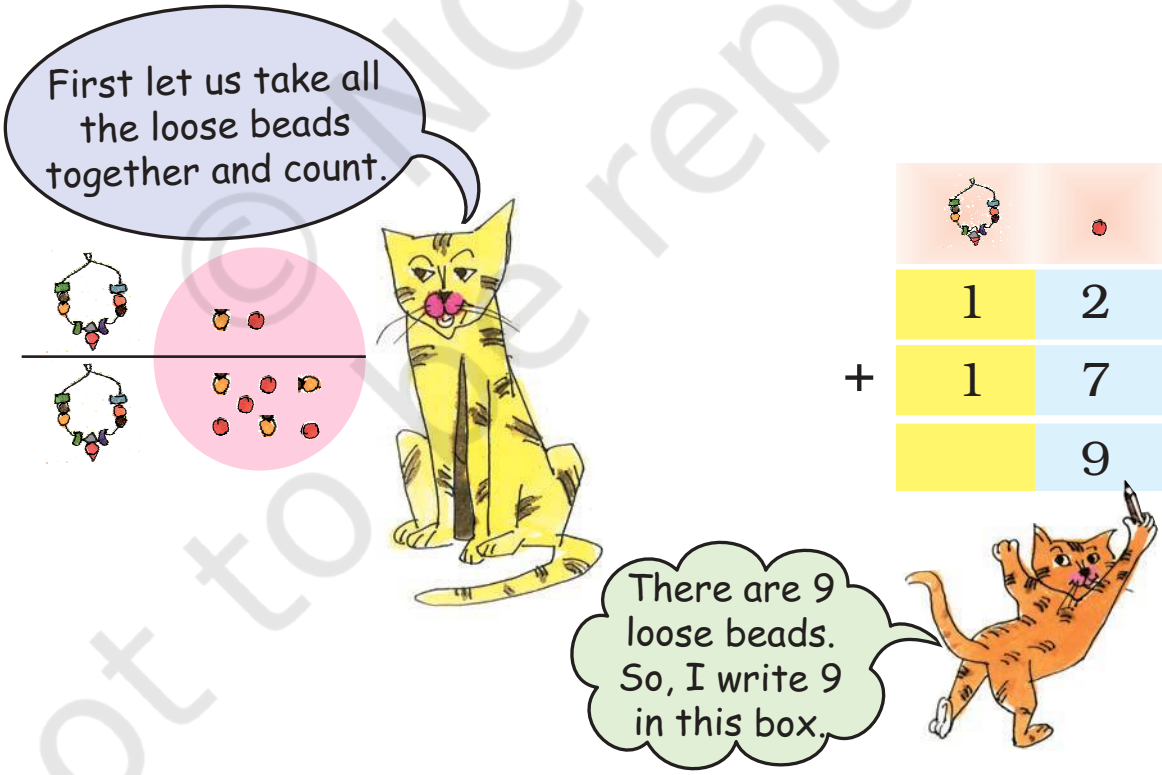




	1	2
+	1	7



	1	2
+	1	7
		9

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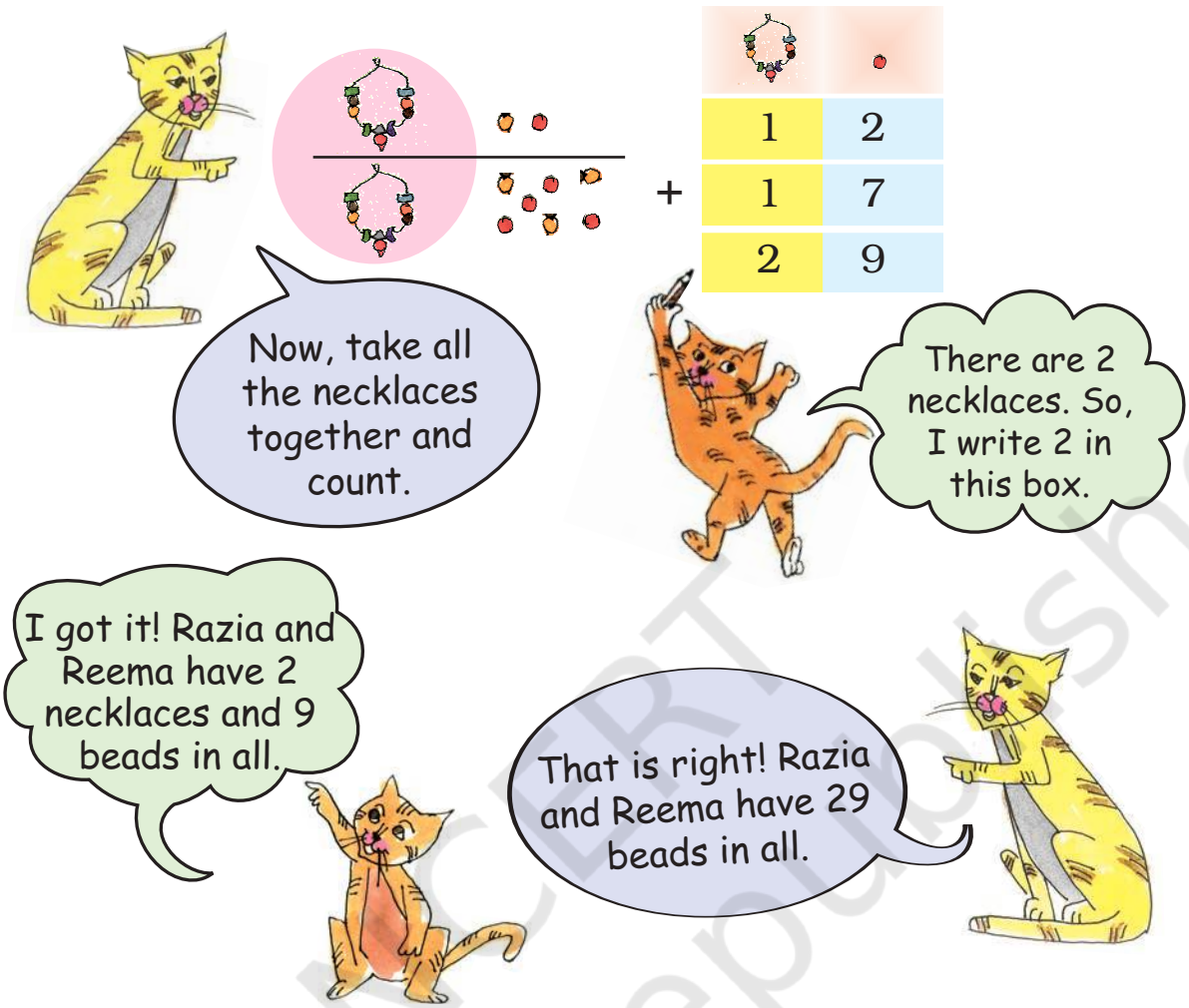

	1	2
+	1	7
	2	9

Practice Time

❊ How many beads are taken by Razia and Sonu?

	1	2
+	3	5

_____ beads are taken by Razia and Sonu.

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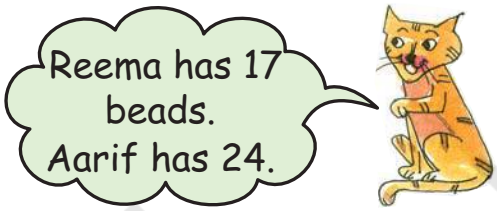
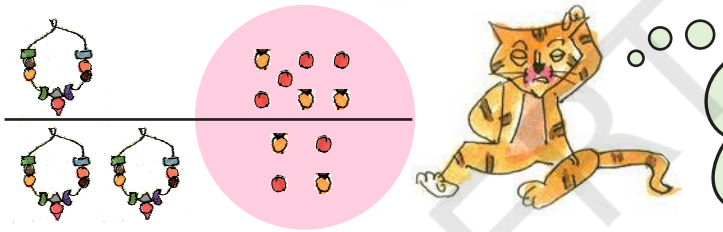
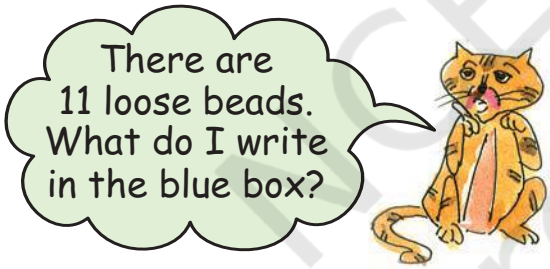
One Extra Necklace

Beads taken by Reema and Aarif –

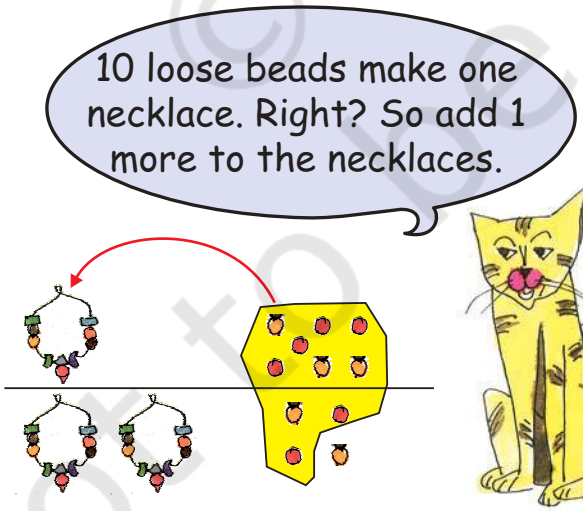
	1	7
+	2	4

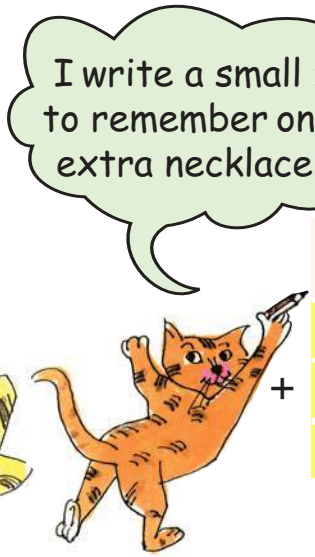






	1	7
+	2	4





	1	7
+	2	4

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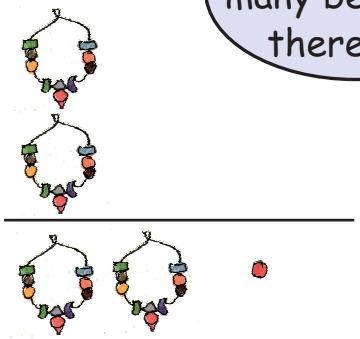
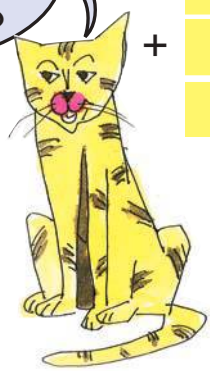
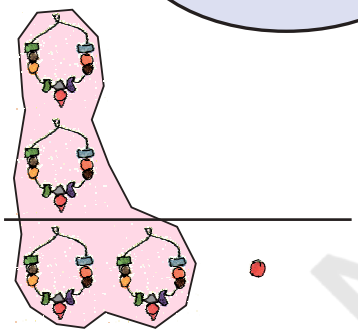
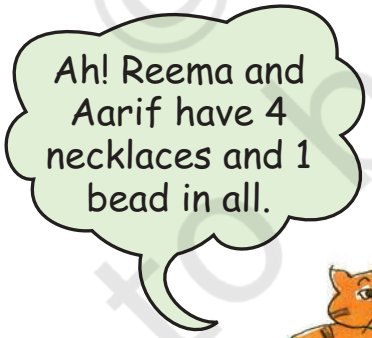


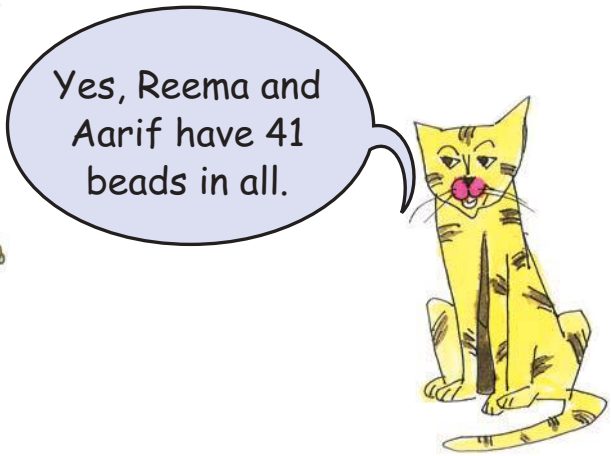


1	7
2	4
	1



1	7
2	4
4	1





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I can do it very fast in another way. Simple!
If Aarif gives 3 to Reema,
Reema will have 20.
Aarif will have 21.
So 20 + 21 = 41.

Can you do it some other way?

Add by writing and also without writing

How many beads do they have together?

A)

			•
Reema		1	7
Sonu	+	3	5

_____ beads

B)

			•
Aarif		2	4
Razia	+	1	2

_____ beads

How Many More Beads?

A)

			•
Sonu		3	5
Aarif	–	2	4

Sonu has _____ more beads than Aarif.

B)

			•
Aarif		2	4
Razia	–	1	2

Aarif has _____ more beads than Razia.

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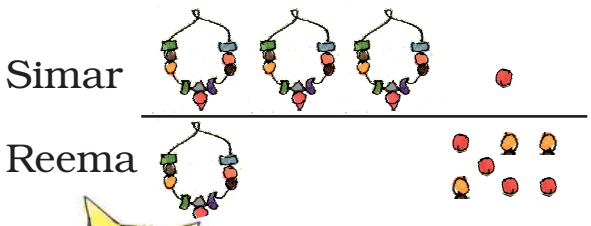
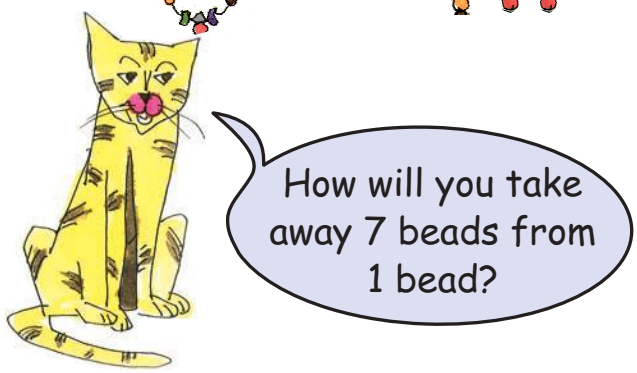
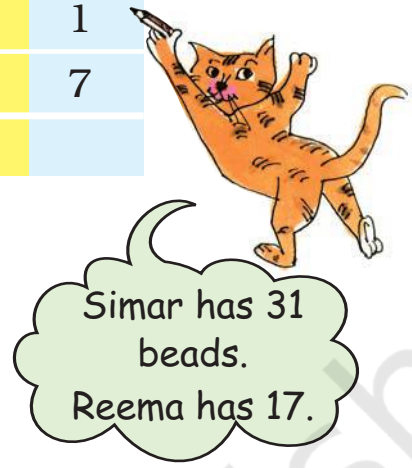
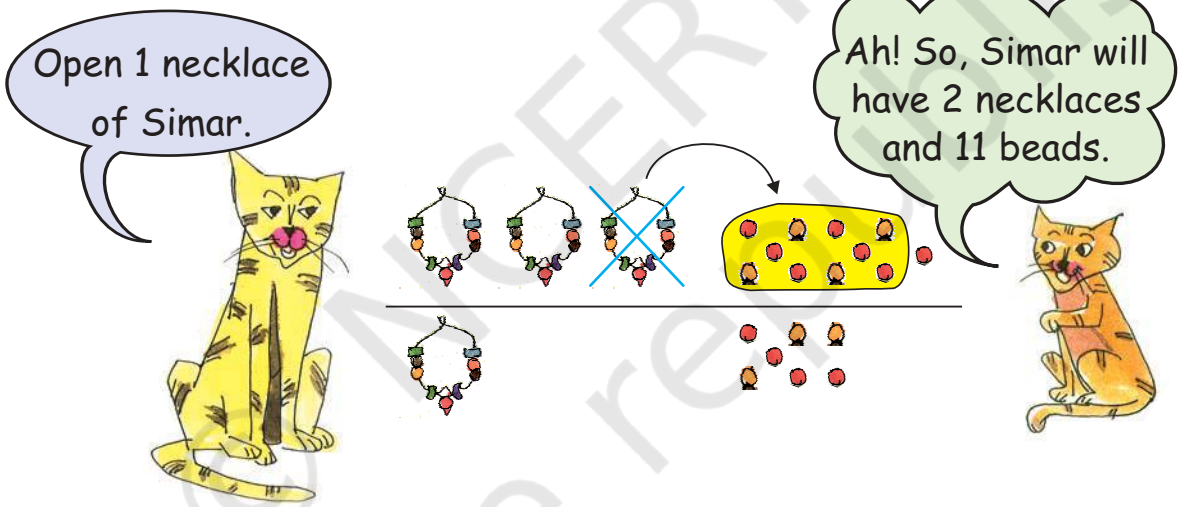
C) How many more beads does Simar have than Reema?

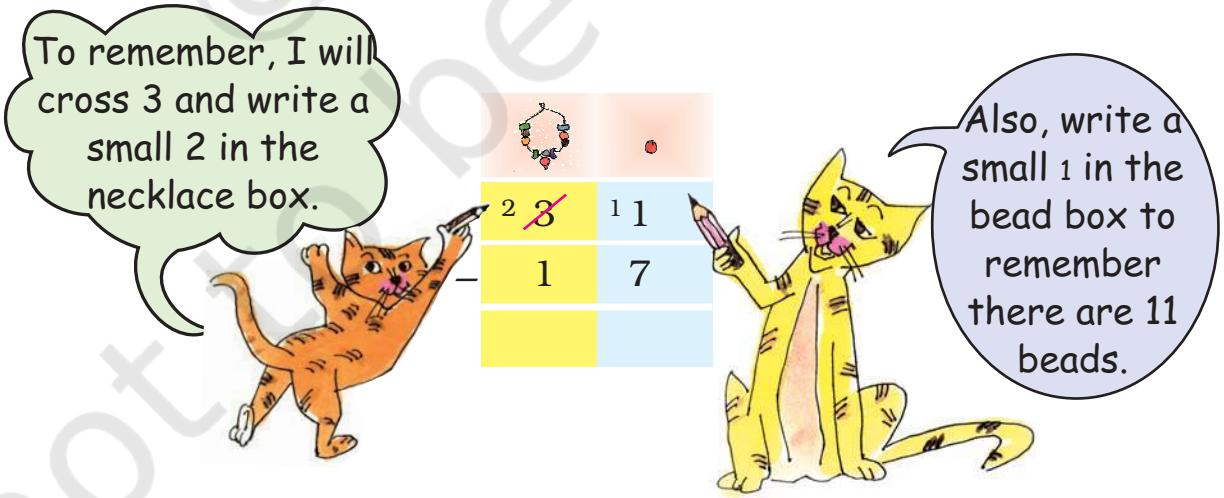


	3	1
–	1	7









	$^{2}\cancel{3}$	$^{1}1$
–	1	7

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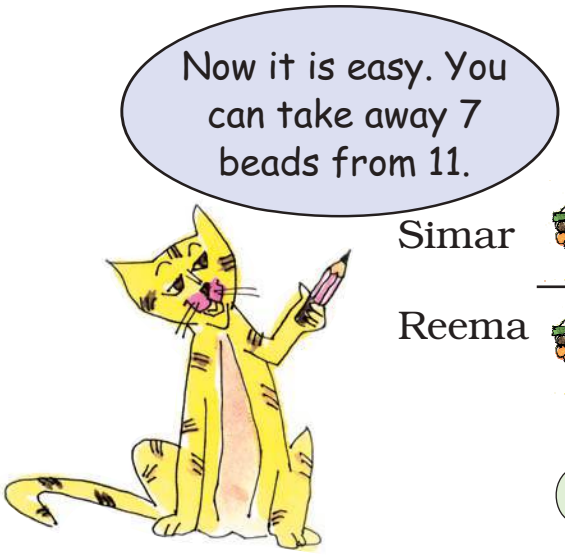
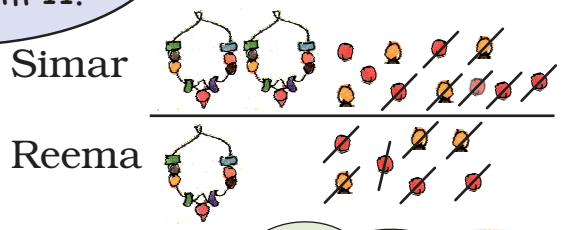
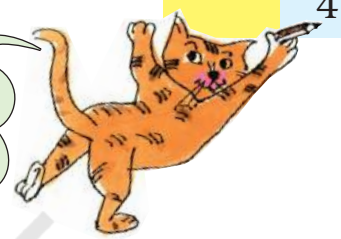
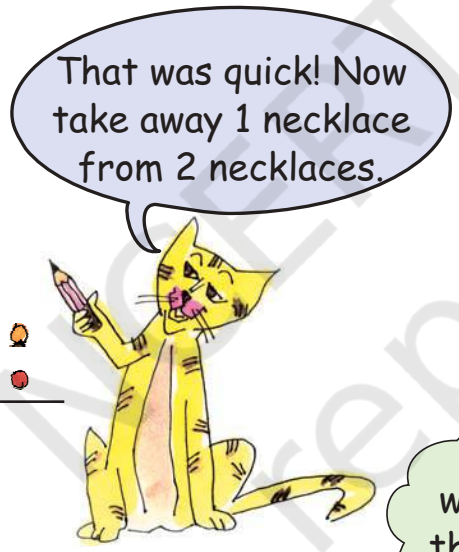
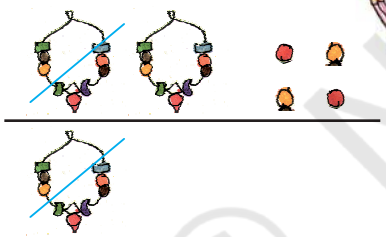




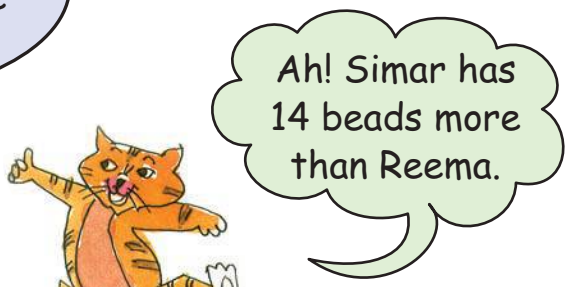
	$^{2}\cancel{3}$	$^{1}1$
−	1	7
		4







	$^{2}\cancel{3}$	$^{1}1$
−	1	7
	1	4



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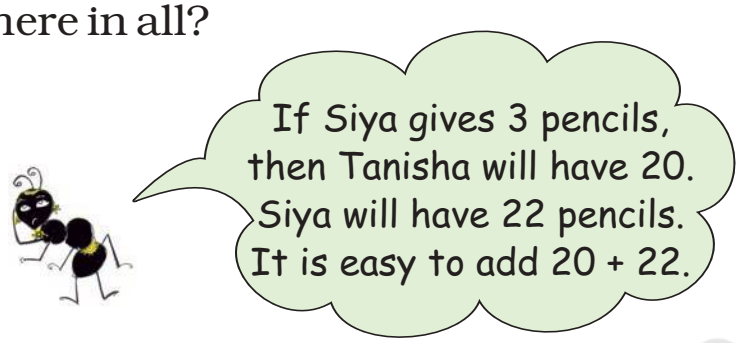
Practice Time: Also do it in your mind

- Tanisha has 17 pencils. Siya has 25 pencils. How many pencils are there in all?

Tanisha		1	7
Siya	+	2	5



- In Muneeza's class, there are 13 English story books and 22 Hindi story books. How many story books are there in all?

	1	3
+	2	2

- Sakshi had 23 fruits. She ate 15 fruits. How many fruits are left?

	2	3
−	1	5

- Daljeet has 35 marbles. Arvind has 25 marbles. How many marbles do they have in all?

	3	5
+	2	5

- Nisha has 32 bangles. Sukhi has 16 bangles. How many more bangles does Nisha have?

	3	2
−	1	6

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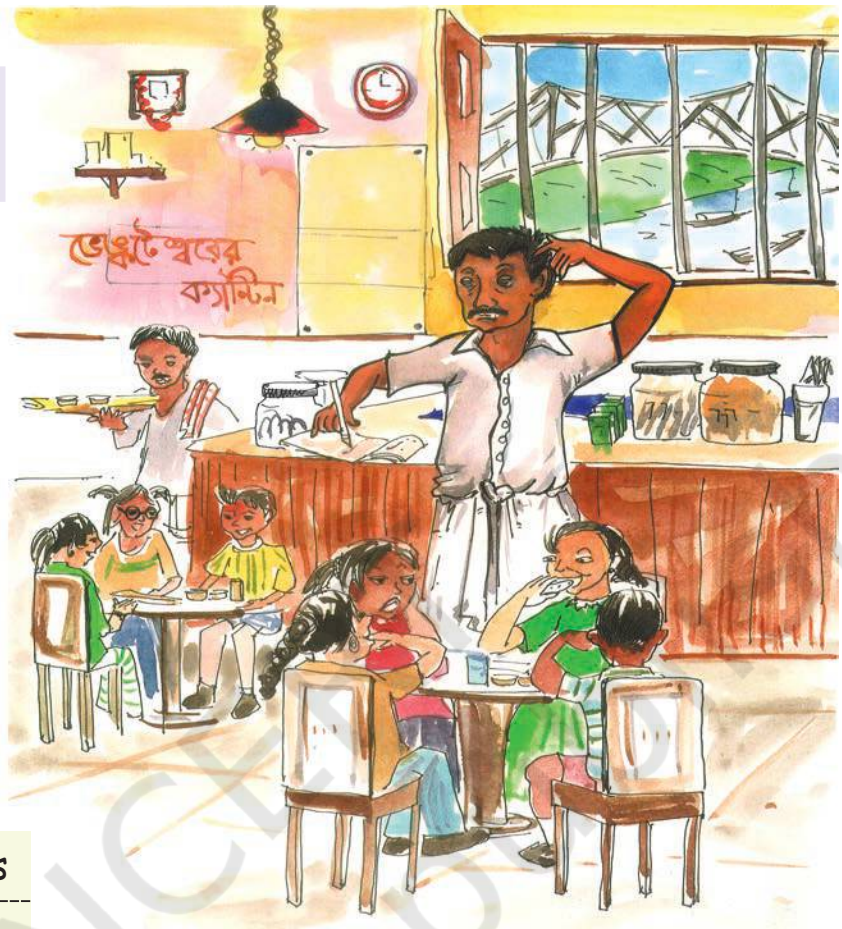
Venkatesha's Canteen

Help Venkatesha to make the bills.



	Rupees
Dosa	2 3
Uthappam	2 8
Total	

	Rupees
Idli	1 5
Coffee	8
Total	

	Rupees
Dahi Vada	2 5
Chilli Rice	1 8
Total	

	Rupees
Soup	2 7
Noodles	1 5
Total	

In this chapter, the standard algorithms for addition and subtraction have been explained using some examples. However, it should be emphasised that learning only algorithms does not help to develop children`s conceptual understanding of the operations. For this, it is important to give them many word problems and encourage them to find out alternative ways to solve them.

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It's Time to Buy!

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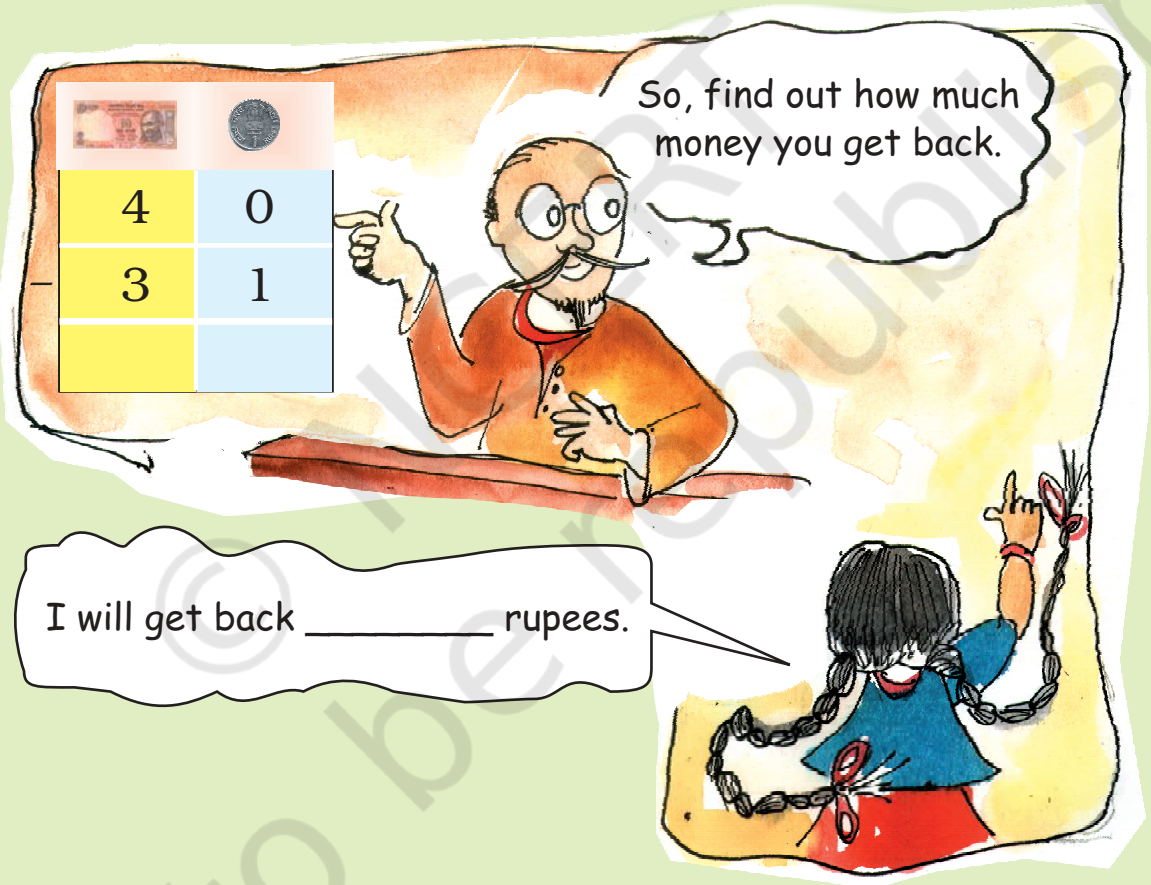

Children should draw and make their own play money. They could be given different exercises and games which involve simple calculations.

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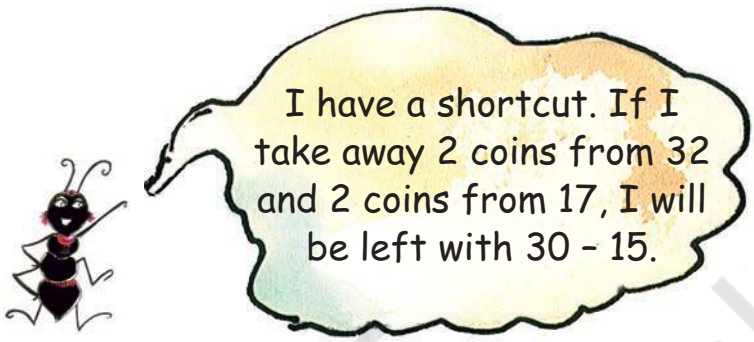
Practice Time

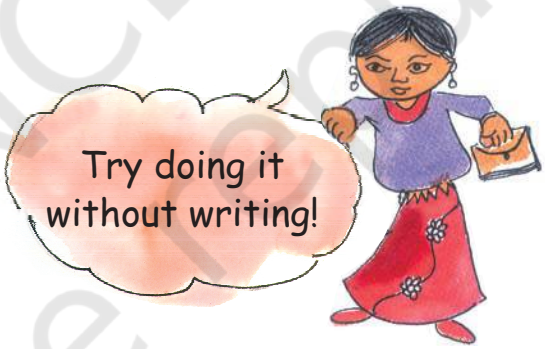
❋ Shekhar has 32 rupees. He bought a ball for 17 rupees. How much money is left with him?

	3	2
–	1	7



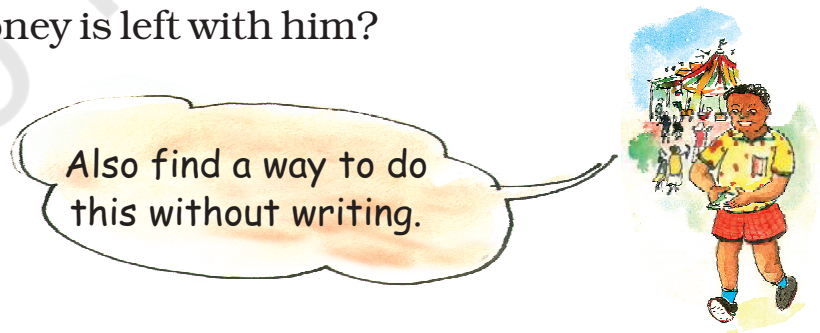
❋ Soni bought biscuits for 24 rupees and a packet of chips for 16 rupees. How much money will she pay?

	2	4
+	1	6



❋ Fantoosh had 64 rupees. He spent 39 rupees at the fair. How much money is left with him?

	6	4
–	3	9



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0219CH13

13 The Longest Step

Three friends – a rabbit, an elephant and a deer – were playing together in a park.

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They started the game.

Surprisingly, at the end, the elephant won.

- Can you tell why the elephant won?
- Who takes the biggest step?
- Act out this story.

Activity

- Make a group of 3-4 friends. Find out by drawing lines whose step is the longest.
- Find the distance between
  a) the door and any window of your class.
  b) the blackboard and where you are sitting.

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Hand or Fingers?

Rajat wants to find out the **length** of a few things using his **handspan.** These are shown in the picture.

★ Can he use a handspan to find the length of all these ?

★ Which things around you are less than your handspan? Name them.

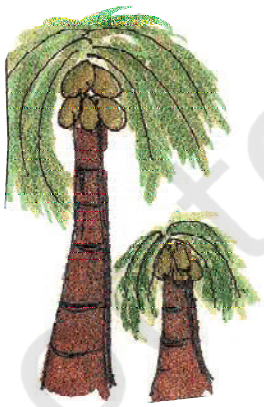
★ What would you use to find the length of those things?

Activity

Make a mud house. See whose mud house is higher. You can use your fingers to find how high your mud house is.

★ Who made the highest mud house?

★ Whose mud house is the smallest?



Make a Guess

See these two coconut trees. If the bigger tree is 6 metres high, about how high is the smaller tree?

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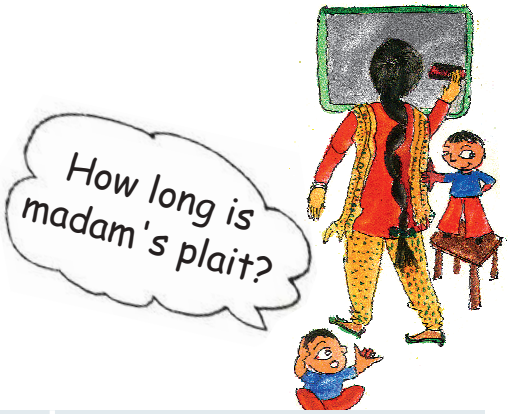
Check Your Guess

Guess the length or height of the things shown below. Find the length to check your answer.



Name of the thing	*My guess*	*My result*
Glass	_____ fingers	_____ fingers
Bucket	_____ handspans	_____ handspans
Your hand	_____ matchsticks	_____ matchsticks
Teacher's table	_____ handspans	_____ handspans
Your nose	_____ fingers	_____ fingers
Water bottle	_____ fingers	_____ fingers
Your hair	_____ handspans	_____ handspans

Demonstrate the correct use of units like fingers, handspans and matchsticks. Ask children to take an object and measure it using different units.

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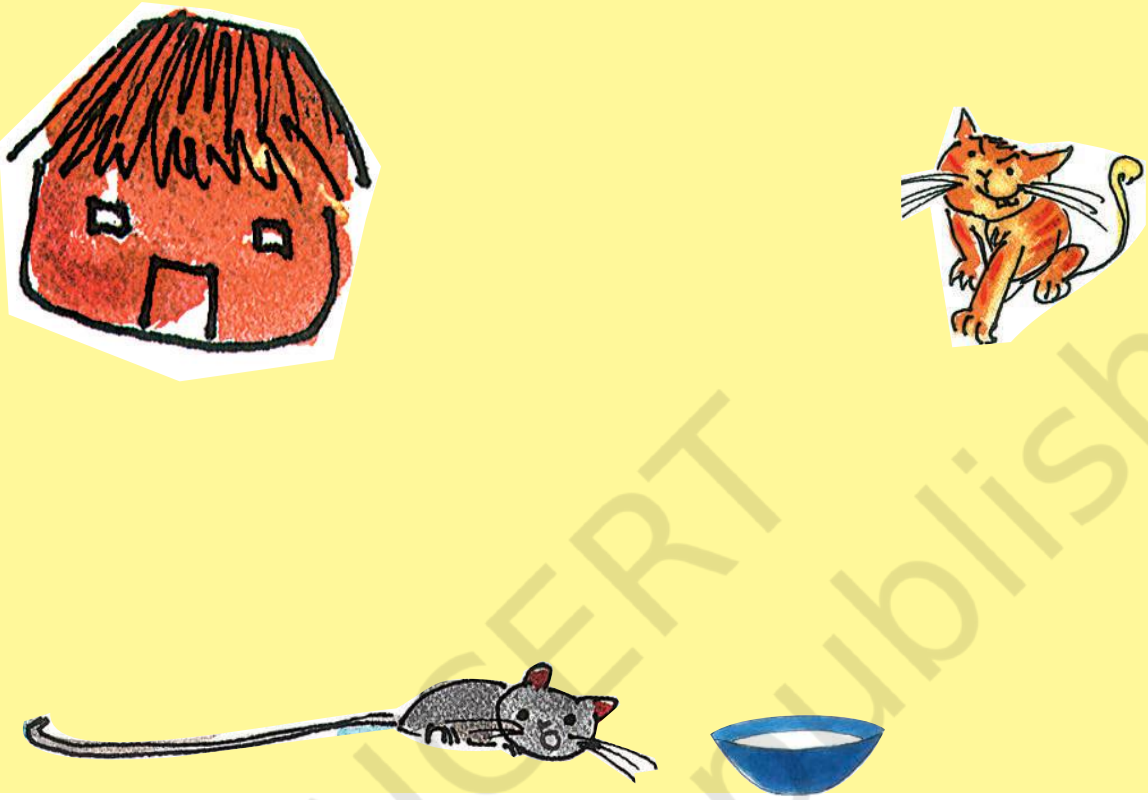
Cat's Food – Rat or Milk?



- Use your fingers to find out the distance between the rat and the milk. _____ fingers
- How far is the cat from the rat? _____ fingers
- How far is the cat from the milk? _____ fingers
- What will the cat reach first — the rat or the milk?
- Can the rat save itself ? How?
- Tell a story using this picture.
- How long is the rat's tail? _____ fingers
- Who has longer whiskers? The rat or the cat?

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Measure and Draw

- Draw a leaf 2 fingers away from the stone.
- Draw a banana 5 matchsticks away from the monkey.
- Draw a kite 7 fingers away from the stone.
- Draw a cloud 3 matchsticks away from the kite.
- Draw a bird 4 fingers away from the banana.

Draw yourself anywhere on the page. Find how far you are from the monkey's nose.

Let children measure and draw in any direction from the given reference object. They will measure distances in different directions. This can form the basis for a discussion on directions.

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Is That So?

Sanju and her friends were trying to find out the length of their different body parts. Here is what they found out —

a) Do you agree with what they said?

b) Check how many of your friends have —

1) a face one handspan long _____

2) the arm as long as the leg _____

3) a forehead 4 fingers wide _____

c) You can try and measure other body parts with your fingers and write their length.

1) Your nose is _____ fingers long.

2) Your ear is _____ fingers long.

The estimates of body proportions given here are rough. This exercise is only to carry out measurement using body parts, and not to make any general claims about body proportions.

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14 Birds Come, Birds Go

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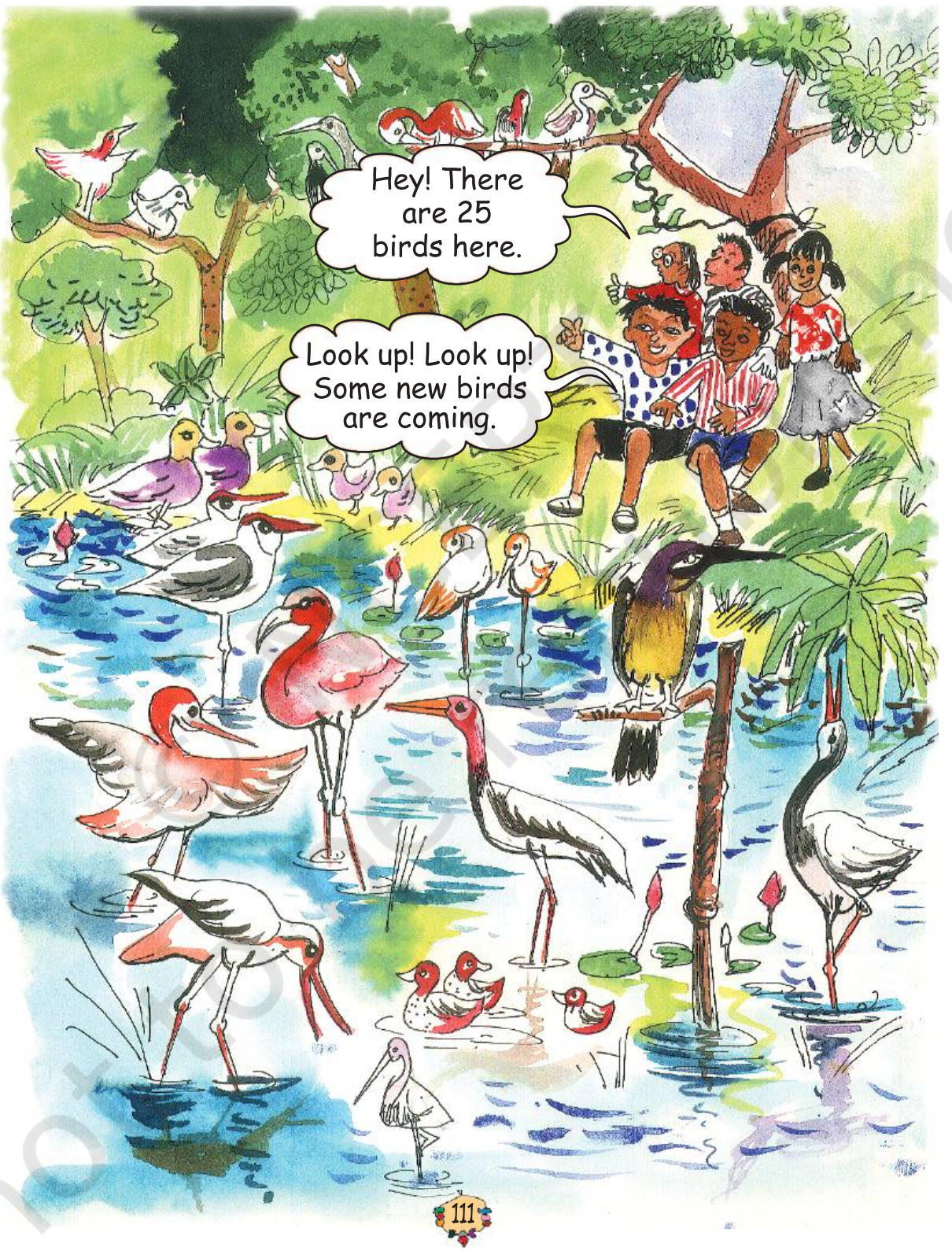
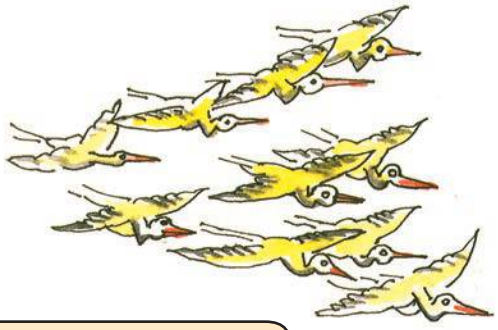
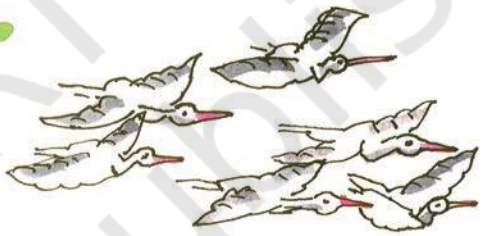


Let us count them using our cards.

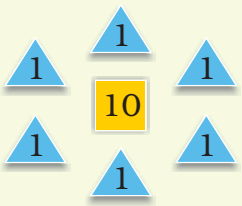


Uhm---m! One 10 card for this whole group!



And six 1 cards for this group of birds.

So, these cards show 16 birds.



But where did they all come from?

This could be a good chance to initiate a discussion about migrating birds coming from far- off places. Also encourage and help children to recognise patterns in which different birds fly.

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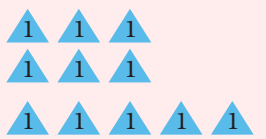
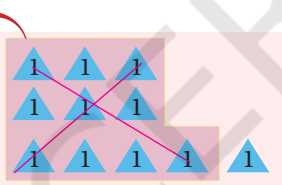
✤ Soon 25 more birds flew in. Let us add to see how many birds in all there are now.

For 16 + 25 we write:

	10	1
	1	6
+	2	5



	10	1
	1 (1)	6
+	2	5
		1



Putting all the 1 s together, we get eleven 1 s. Of those, ten 1 s make one 10 . And we are left with one 1 .

	10	1
	1 (1)	6
+	2	5
	4	1

Now putting together all the 10 s, we get four 10 s.

So, the total number of birds is 41.

In chapter 8, children would have made token cards. The same token cards should be used before children do written sums.

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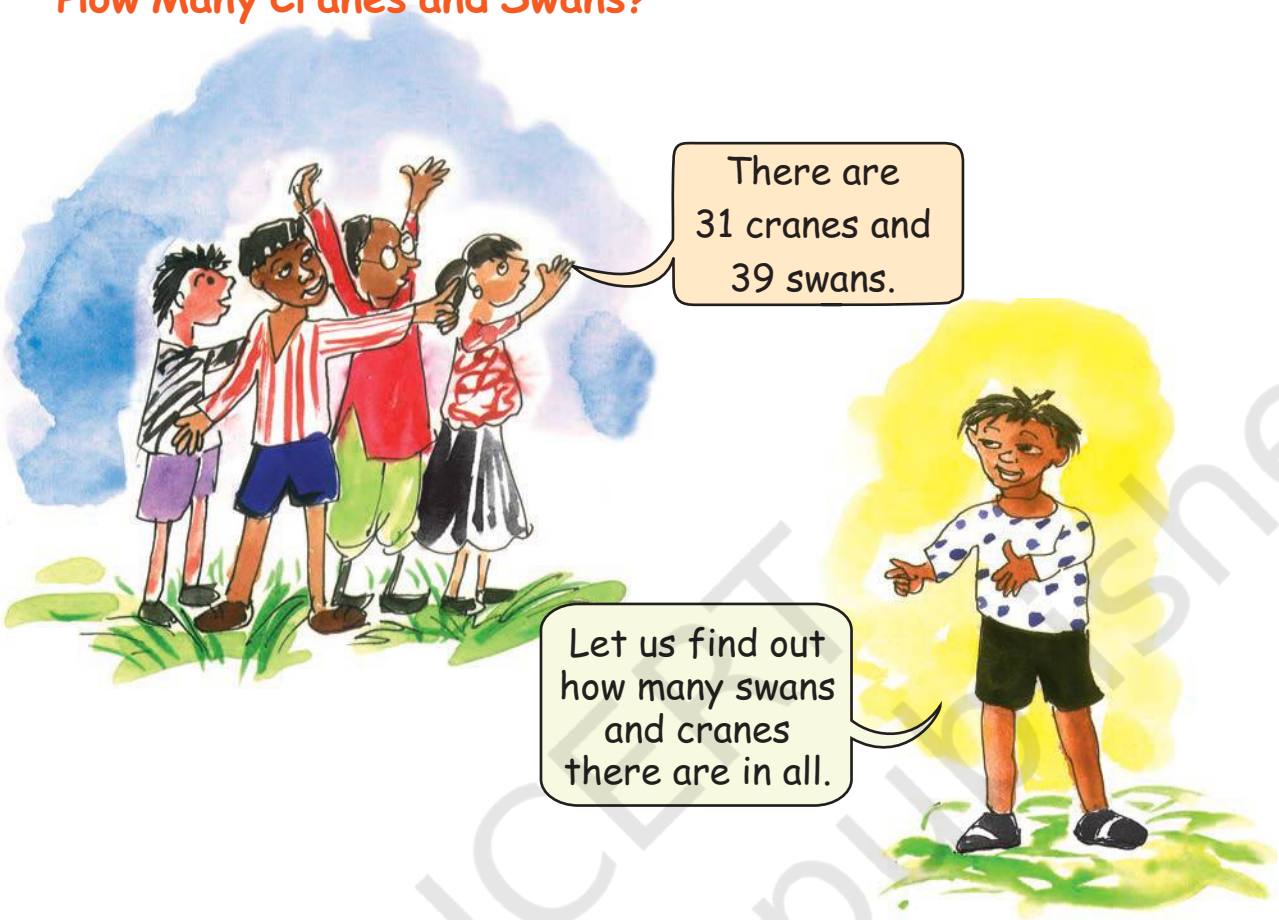
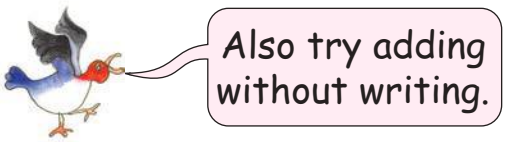
How Many Cranes and Swans?



In the same way, we will add the number of swans and cranes.

	10	1		
Number of Swans	3	9	10 10 10	1 1 1 1 1 1 1 1 1
Number of Cranes +	3	1	10 10 10	1



The total number of swans and cranes is _____.

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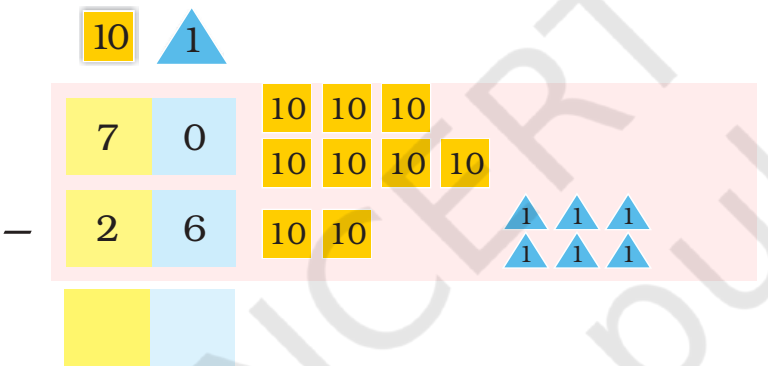
One morning, Suraj saw that out of 70 birds only 26 birds were left. The rest had gone away.

✤ How many birds have gone away?



_____ birds have gone away.

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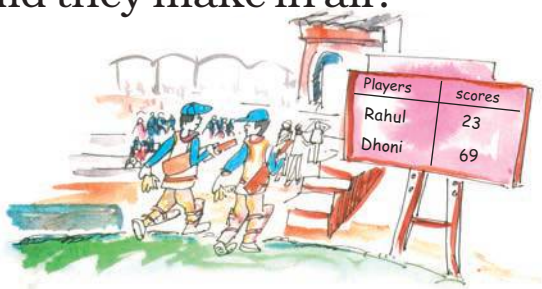
Practice Time

✤ Rahul scored 23 runs in a cricket match and Dhoni scored 69. How many runs did they make in all?

	10	1
	2	3
+	6	9



They made _____ runs in all.

✤ Dema sold 48 shawls in a fair. Next day he sold 17 more shawls. How many shawls in all did he sell?

	10	1
☐		

Dema sold _____ shawls in all.

✤ Bunnu rabbit can eat 29 carrots in one week. Munnu rabbit can eat 42 carrots in one week. Who eats more in a week, and by how much?

	10	1
☐		

_____ eats _____ more carrots.

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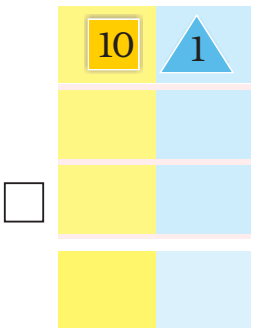
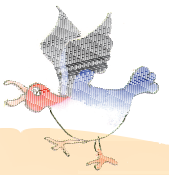
✤ Neha is 29 years old. Her mother is 58 years old. How many years older is Neha's mother?



Mother is _____ years older than Neha.

Find the Answer



	2	4		3	2		6	8		1	9
+	1	7	−	2	7	+	1	3	+	3	9

	5	4		7	3		8	0		4	3
+	4	3	−	5	9	−	6	7	−	2	7

	3	9		4	8		9	4		7	6
−	2	5	+	3	8	−	8	7	−	2	8

More such examples may be set for practice.

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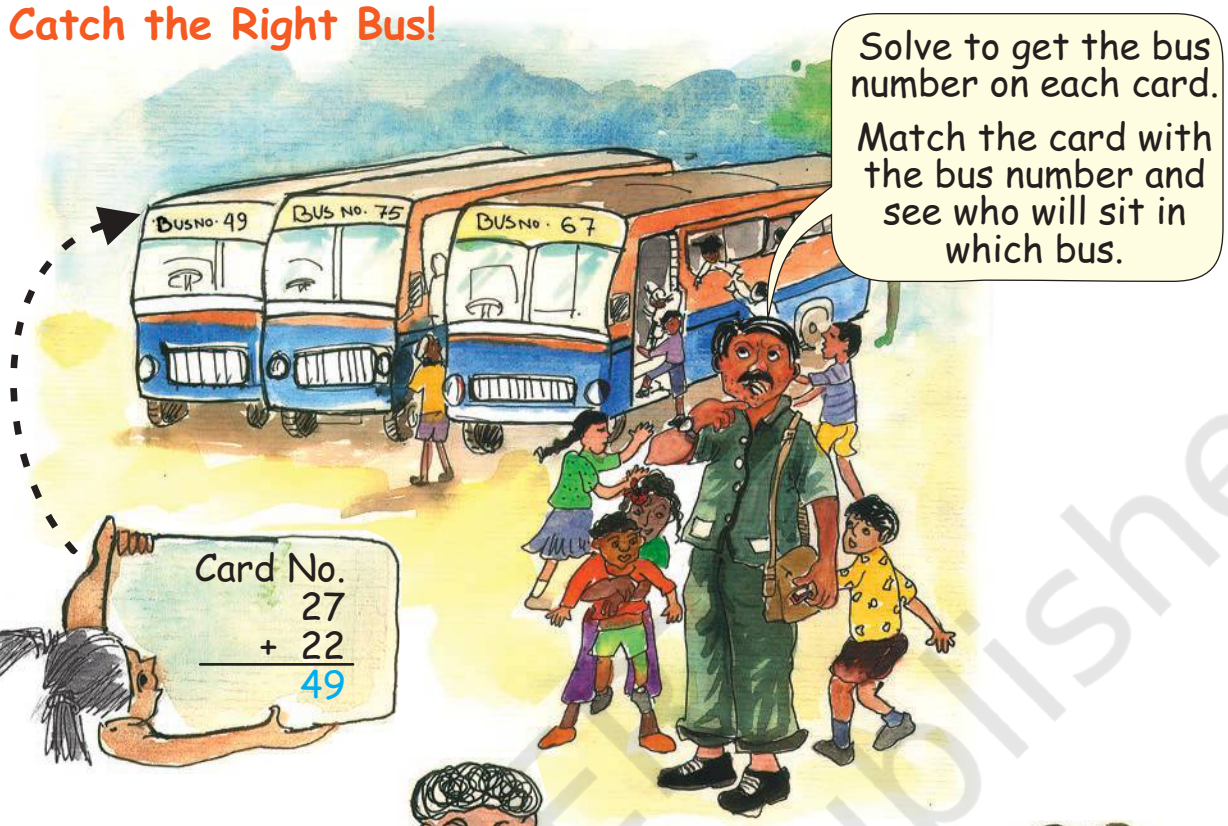
Catch the Right Bus!



Card No.
27
+ 22
49

Card No.
48
+ 19

Card No.
88
- 21

Card No.
47
+ 28

Card No.
93
- 18

Card No.
37
+ 12

Card No.
38
+ 37

Card No.
25
+ 24

Card No.
99
- 32

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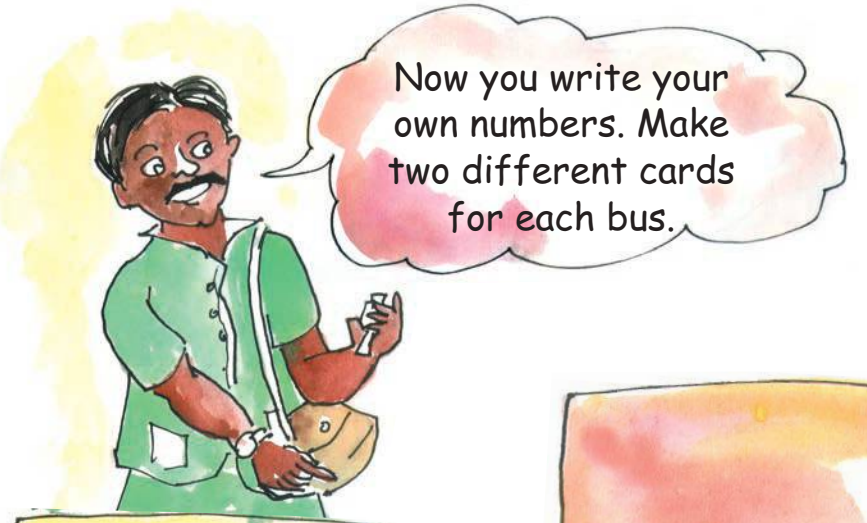

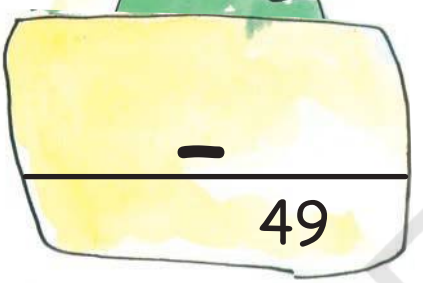

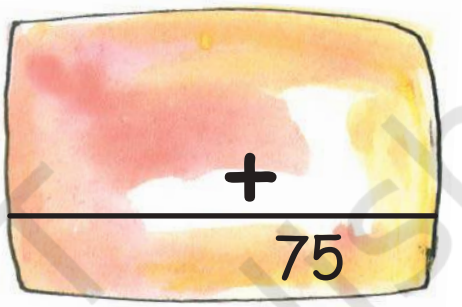

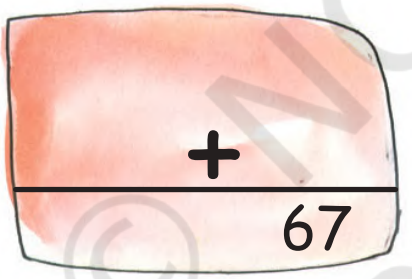

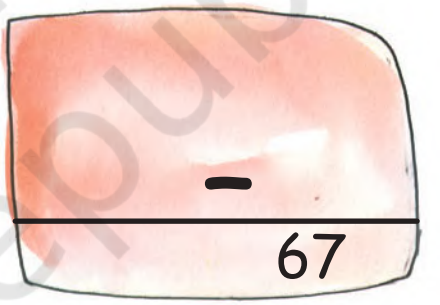

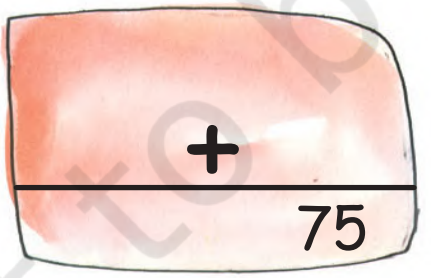

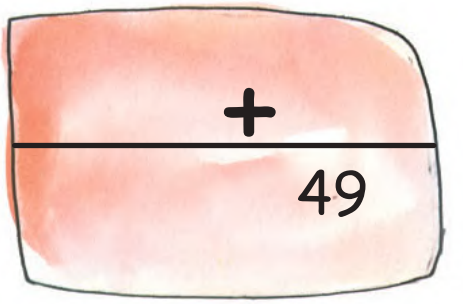

More such exercises can be done to make children see how any number can be made using different combinations of numbers by addition and subtraction.

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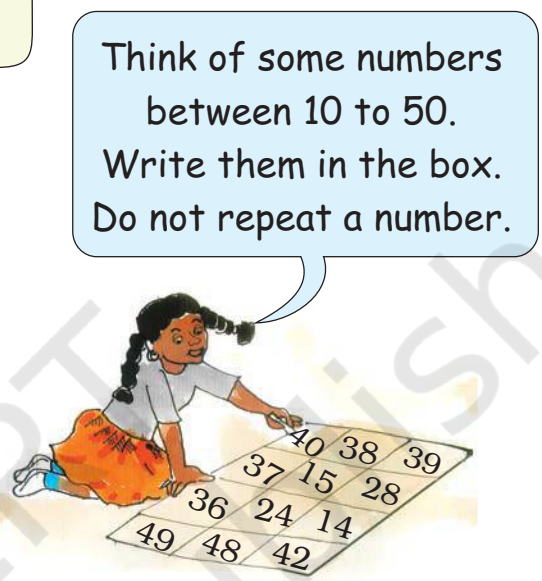
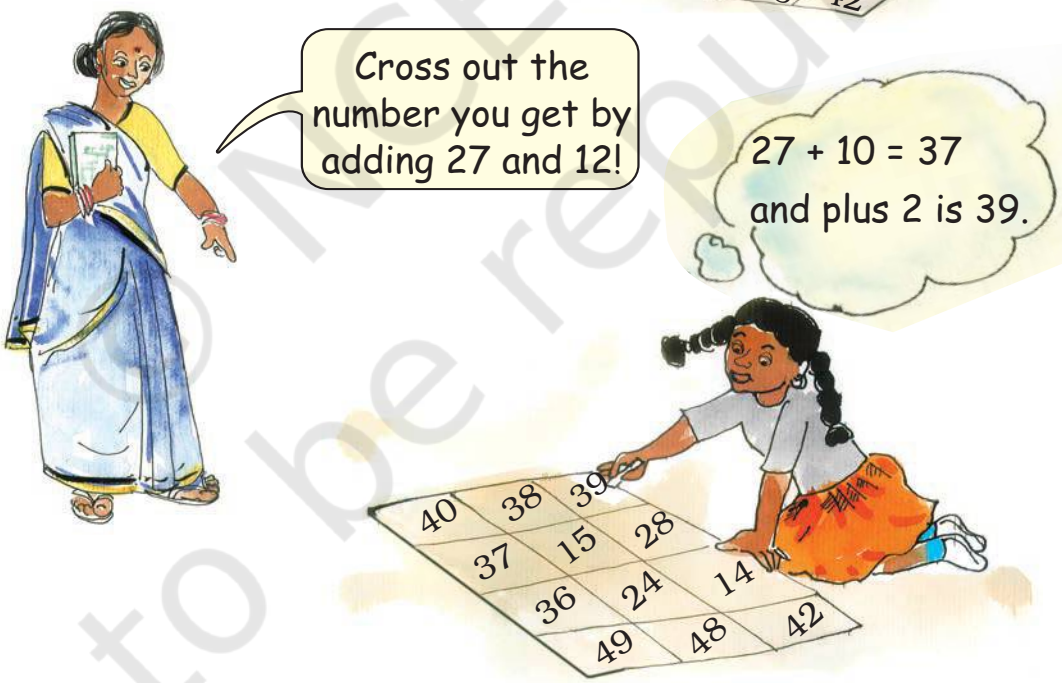
Cross Me Out!





Parents can help children in playing this game. Call out simple addition sums like 18 + 4. Gradually proceed to more challenging additions. Also give children turns to speak out numbers while parents do the crossing out. Similar games can be used for subtraction as well.

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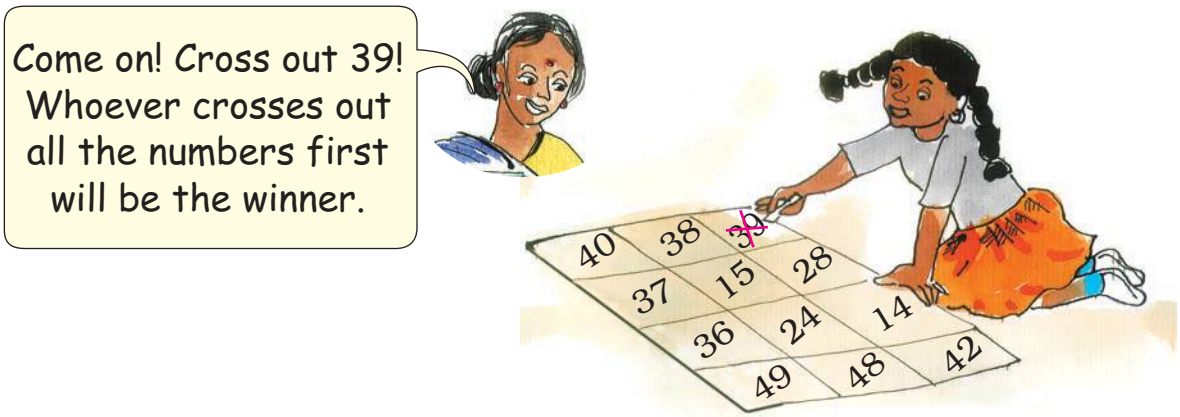

Now you can finish this game for Razia. Ask your teacher or friend to speak out two numbers to add.

Chakachak Toli

Chakachak in Hindi means clean and shining. *Chakachak Toli* is the name of a group of children who work to clean their park.

2021-22

Shreya collects the money and writes it in her diary. Help Shreya to find how much money is left at the end of the month.

Diary

October

October 3 — collected Rs 60

October 7 — bought a broom for Rs 18

October 12 — bought a phenyl bottle for Rs 25

October 25 — collected Rs 27 from the cards we made

Total money collected —

Total money spent —

Money left at the end of October —

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Children of *Chakachak Toli* counted the number of trees in the park.

Trees	*Number of trees*
	90
	75
	82
	68
	94

- trees were more than trees. How many more? _____

- Draw the tree which is least in number.

- Draw the tree which is most in number.

- Children planted some more trees to make 100. How many more did they plant? _____

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How Many Ponytails?

Letters in Names

Ask your friends to write their names on a paper.

Find out

a) The number of names ending with the same letter. _____

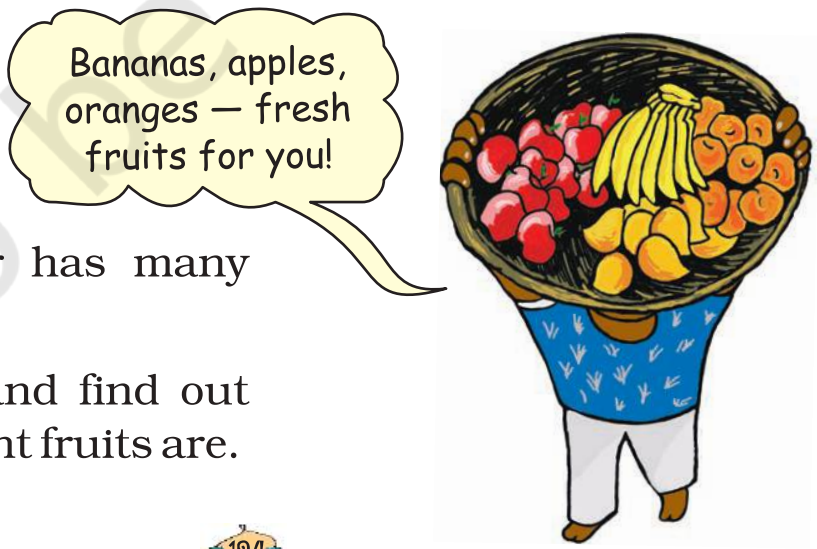
b) One letter with which no name starts. _____

c) The number of names starting with the same letter. _____

Fruit Seller

The fruit seller has many fruits for you.

Look at them and find out what the different fruits are.



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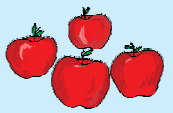
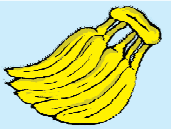
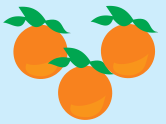
Count and write

Fruit	*Number of fruits*
	
	
	

Hair Styles

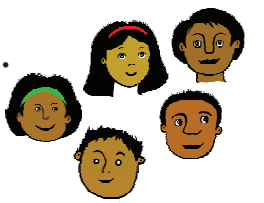
Mala is going to school.

Her mother has combed her hair.

Mala has two ponytails.

Look at the children in your class.

All children comb their hair in different ways.



Look and write down.

Hair style	*Number of children*

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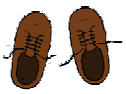
Find out and fill in the blanks.

a) The number of children with is _____ than the number of children with . *(more/less)*

b) _____ children have .

Shoe Numbers

Look at the feet of children in your class. Everybody is wearing  shoes, chappals or sandals.

Look at the sole of the shoes or chappals .

If there is a number on the sole, it is your shoe size.

Fill this table:

Shoe size	*Number of children*
9	
10	
11	

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Find out

a) How many have 9 size shoes? _____ children.

b) The number of children with 11 size shoes is _____.

c) The largest number of children have ◯ size shoes.

d) The smallest number of children have ◯ size shoes.

Water We Drink

We drink water every day.

Ask your friends how many glasses of water they drink in a day and write below.

How many glasses?	*Number of children*

Find out

a) The number of children who drink glass of water is _____.

b) glasses of water is drunk by _____ children.

c) The number of children who drink glasses of water is _____ than children who drink glasses of water. *(more/less)*

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The Colour You Like

There are many colours around you.

Ask your friends about the colour they like most.

How many children like yellow? Write the number in the table. Fill the table for other colours.

Colour liked	*Number of children*
Yellow	

Find out and colour the box

a) Most children like ☐ colour.

b) Children who like ☐ colour are more than children who like ☐ colour.

c) Children who like ☐ colour are less than children who like ☐ colour.

Encourage children to interact with one another in small groups and collect information as required. Let them fill information in the tables and attempt to answer the "find out" questions.

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