



Playing Mathematics

Textbook for Class II



Education Department
Government of Sikkim



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Foreword

Since the development of the primary level state term books in the year 2012 and subsequent revisions, a need to revisit our books was felt to align with the developments that have emerged in the ensuing years. For this, a series of intensive exercises were initiated by SCERT which included consultative engagements with practicing teachers and users of the textbooks; strengthening of a core textbook writing team and collaborating with external academic partners. The revised textbooks of Math, Language and Environmental Studies (EVS) are the successful outcome of these initiatives.

A pilot study of the textbooks was also carried out in 40 government schools from four districts in the academic session of 2019. An orientation of all the teachers was conducted prior to its implementation. Learning experiences from the pilot study was used to further improve the new revised textbooks.

The new textbooks are aligned to the following:

- the Learning Outcomes of the National Council of Educational Research and Training (2017)
- the integration of education for sustainable development (ESD) for the implementation of UN's 2030 agenda for sustainable development goals of education for peace and sustainable development
- the integration of environmental studies in language and mathematics in class I and II with the introduction of the subject of EVS from Class III.

The content of the books is embedded in the socio-cultural context and experiences of the children who come to our government schools. Care has been taken to represent the social, cultural and linguistic diversity of Sikkim. The National Curriculum Framework 2005 emphasizes the need for connecting school learning to the real lives of children and providing a fearless environment where every child feels safe to ask questions, explore and experiment without the fear of being wrong or judged. It is hoped that the schools will nurture this while providing opportunities to work collaboratively with each other.

From the perspective of education for sustainable development, the lessons encourage children to care for and respect the natural environment and people. It encourages children to think critically and creatively about what is happening in their local as well as the global community, connect with their community and to take action for improving it.

SCERT thankfully acknowledges the successful effort of the text book development team of writers, academic partners and reviewers. It also thanks the school heads and a from Education Department, Govt. of Sikkim for their continuous support.

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It also thanks the team from UNESCO, MGIEP, New Delhi for their contribution in the capacity development of authors for embedment of the concept of peace and sustainable development in textbooks and online support. It owes special thanks to David Richard Wagner, Professor, University of Brunswick, Canada.

SCERT would also like to thank the following for their resources and content: NCERT for their reference materials and documents; UNESCO MGIEP for their publication Textbook for Sustainable Development (www.mgiep.unesco.org) which was used as a key resource for embedding of Sustainable Development.

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It also acknowledges the contribution of Echostream Design Pvt. Ltd. for designing the textbooks and providing suitable illustrations.



Note to Teachers and Parents

This textbook is based on the recommendations of National Curriculum Framework (NCF) 2005 and the Learning Outcomes suggested by the NCERT. It is heavily inspired by the NCERT textbook. This textbook embeds mathematics in the world of the child, inside and beyond the school. It aims to help children engage with mathematics, construct their own knowledge and think mathematically. Topics are introduced with contexts so that children can see the need and benefit of learning something new. Illustrations, dialogs, activities, games, puzzles and stories have been used to engage children in discovering mathematics around them, figuring out rules (rather than prescribing them), finding alternate ways and having fun. The focus is on developing conceptual understanding rather than only drill and practice. The chapters and the teacher pages include examples of suitable manipulatives and materials to help children play with mathematics and have better grasp on this subject. A strong foundation of conceptual understanding in mathematics at primary level will pave the way for future learning.

The textbook provides autonomy to the teachers to design activities and suitable assessment methods and tools. The teacher pages for selected chapters provide suggestions for the same as well as guidance for suitable materials and manipulatives. The teacher pages provide suggested activities that foster conceptual understanding in children.

This new set of textbooks for Classes 1-5 guide children to find and develop mathematics through their experiences. The books focus attention on local culture and environment in Sikkim. They use stories and contexts relating to sustainable development following the United Nations' Sustainable Development Goals (SDGs). When children's understanding of mathematics develops through problems relating to peace, health, hygiene, food security, and other social and environmental concerns, they learn that mathematics is a set of tools developed and used by humans to address their concerns.

Children will develop familiarity with rural and urban life (including local plants, animals and human activity) by observing, collecting data, and processing these things mathematically. They will use local games, celebrate special days, notice mathematics done traditionally (e.g., local forms of measurement), and use local materials to extend their understanding of mathematics. They will develop sensitivity to the needs and practices of diverse people in Sikkim (gender, religion, etc.) and honour the dignity of labour through stories of real people who do mathematics. Children will learn to take responsibility in their communities and their environment through dialogue and problem solving.

This textbook's focus on local context and experiences of children addresses concepts and skills of EVS.

In most chapters, various mathematical concepts are introduced through contexts. However any real life context, involves multiple mathematical concepts. The theme chapter in this book brings concepts related to a single theme together. So children can see and do a range of mathematics in one context.

The authors of this book would like to express their deep gratitude to Jodo Gyan (<http://jodogyan.org/>), Padmapriya Shirali for her Pullouts in At Right Angles (<http://azimpremjiuniversity.edu.in/SitePages/resources-at-right-angles.aspx>) and Prof. Rohit Dhankar and Digantar. Several aspects of this textbook was also influenced by Maria Montessori and her work.

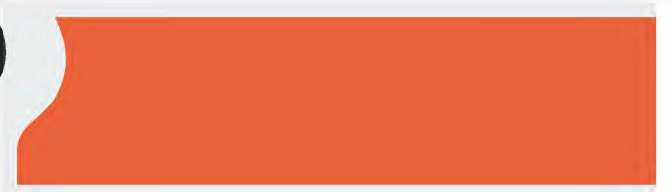
Class 2: Learning Outcomes

The child will be able to:

1. Read and write numerals for numbers up to 100
2. Use place value in writing and comparing two-digit numbers
3. Form the greatest and smallest two digit numbers (with and without repetition of digits)
4. Sequence numbers up to 100 on an empty number line and distinguish between greater and smaller numbers in numeral form
5. Solve simple daily life problems/situations based on addition/subtraction of two-digit numbers
6. Do mental arithmetic up to a total of 50
7. Skip count in 2s, 3s, 5s and 10s
8. Describe basic 3D and 2D shapes with their observable characteristics
 - a. Classify shapes based on physical attributes
 - b. Identify basic 3D shapes such as cuboid, cylinder, cone and sphere and name them
 - c. Trace 2D outline of 3D objects
9. Distinguish between straight and curved lines
10. Draw/represent straight lines in various orientations (vertical, horizontal, slant)
11. Estimate and measure length/ distances using uniform and non-standard units such as a rod/pencil/cup/ spoon/bucket
12. Compare heavier/lighter objects by holding them in their hands
13. Sequence the events occurring according to their duration in terms of hours/ days, for example: Does the child remain in school for longer than at home
14. Identify days of the week, months of the year, seasons
15. Represent an amount up to ₹100 using three or four notes and coins (of same / different denominations)
16. Identify the values of Indian currency up to ₹100 and perform addition and subtraction operations
17. Draw inference based on data that is either collected or given
18. Identify and continue repeated patterns with either shapes and numbers

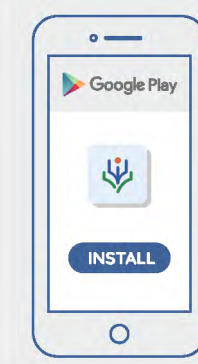


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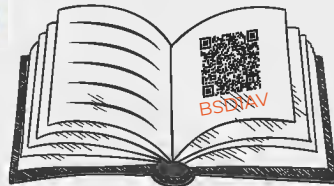
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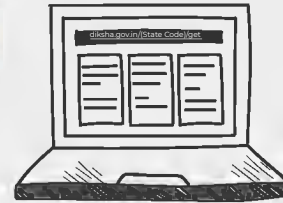
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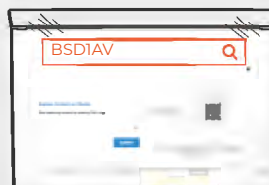
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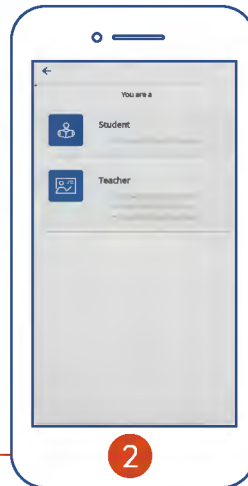
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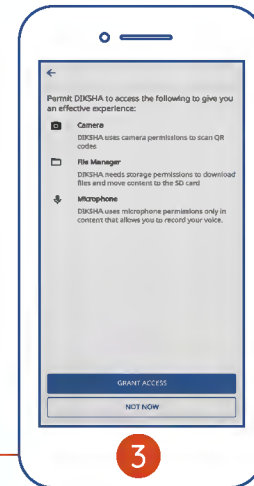
1

Select preferred language



2

Choose your role: Student or Teacher



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Grant access and allow app permissions



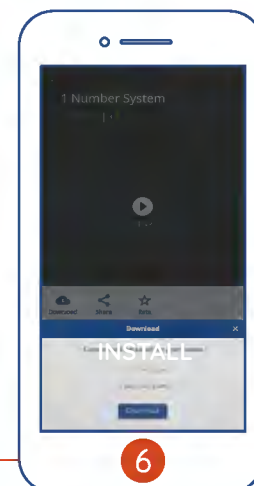
4

Tap to scan the QR code



5

Focus camera on the QR code in textbook




6

Click to Play QR code specific content

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1. Bundles and Sticks



Our mother picked thirty one oranges from the thirteen trees in our yard.



67 is sixty-seven, but why?



While writing fourteen, the four could have come first... but why 1 first?



Hmmm... confused? Pema, put this clip at thirteen on ganitmala.



How many tens?

one ten and three ones in thirteen.

Where is 1-ten in 13?

It is on the left.

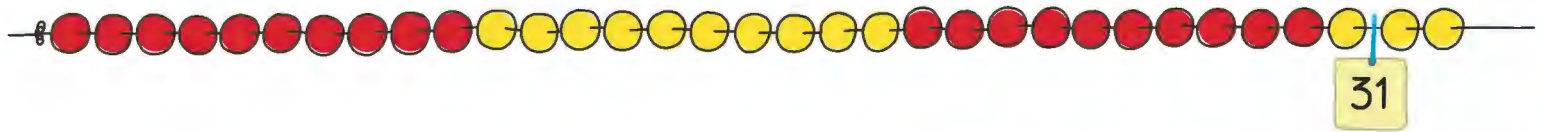
Where is 3 in 13?

It is on the right.

So we write number of tens on the left and number of ones on the right.

Tens	Ones
1	3

Rohit, what is the number on ganitmala?



3 tens and 1 one

How many is 3 tens?



3 tens is thirty. So, 3 tens



and

1 one



is thirty-one



, that is



and



So we can write

Tens	Ones
3	1



So, 31 is thirty one.

Shima, how many tens and ones in fourteen?



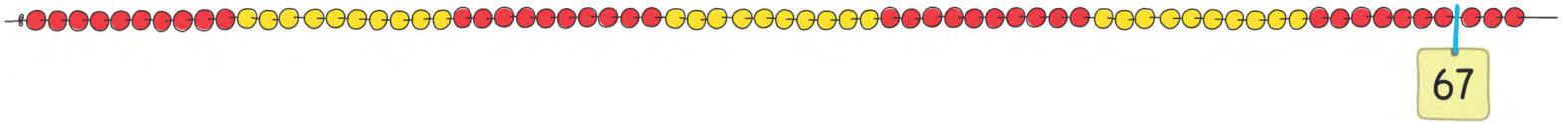
_____ tens and _____ ones in 14.



Fill up this table

Tens	Ones

Sabitri , how many tens and ones in sixty seven?



_____ tens and _____ ones in 67.



Fill up this table

Tens	Ones

 **Let us do**

1. Show the following on Ganitmala.

a. 37



b. 48



c. 90



d. 54






e. 72




2. Fill the empty boxes with arrow cards and give the number name:


a.

		
Forty	Eight	Forty Eight

b.

		
		Ninety

c.

		
Fifty		

d.

e.

Thirty	Seven	



It seems to be heavy. Why not make a bit of ten so that it becomes easier for you to carry. And easier for you to count with the help of our fingers as we have ten fingers.

Yes, that's a great idea Chumit.



You have 2 bita and 3 pieces of firewood. That is 23 pieces of fire wood.



I am finding it difficult to carry 2 bita and 3 pieces of firewood.





Ok, give me 1 piece of fire wood.

Thank you Chumit,
take one piece.



Now you have 2 bita and 2 pieces. That is 22
pieces of firewood. You can give me 1 more if
you are still finding it difficult to carry.

Ok, take 1 more then.



Now you have 2 bita and 1 piece of
firewood. That is 21 pieces of firewood.
You can still give me 1 more.

Ok then take 1 more.



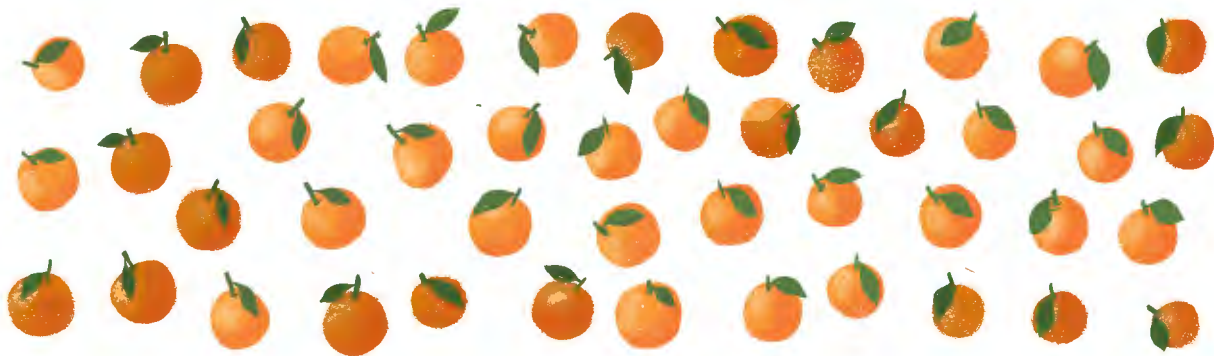
You have 2 bita and 0 piece of firewood.
That is 20 pieces of firewood.

Today I will carry 1 bita and
tomorrow, the remaining 1 bita.





1. Let us count how many oranges are there in the heap of oranges.



2. Let us find out

a. In the picture, circle oranges in groups of ten.

b. How many baskets of  10 oranges can be made?

c. How many oranges remain outside the baskets?

d. So, altogether there are _____ oranges.

That is _____ tens and _____ ones = _____ oranges.



1. In the above picture, circle chickens in groups of ten.

Tens	Ones

So, how many chickens?

2. A basket holds 10 chickens.
How many least number of baskets are needed for 43 chickens?



Draw them in the space below.

Teacher's Note: There is a possibility of putting less than 10 chickens in the basket. In such cases, ensure that they fill the baskets before moving on to the next basket

1. Let us do 3-way matching:

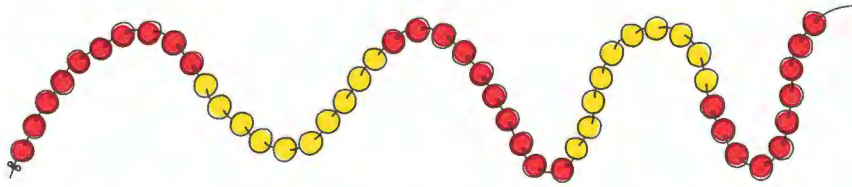
Ganitmala/Bundle of sticks

Arrow cards

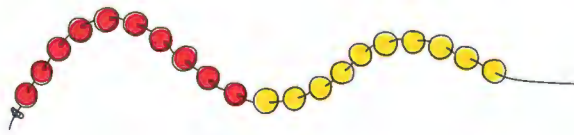
Number



20



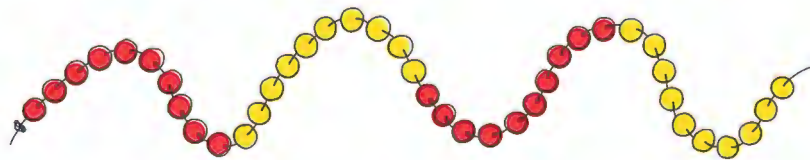
30



50



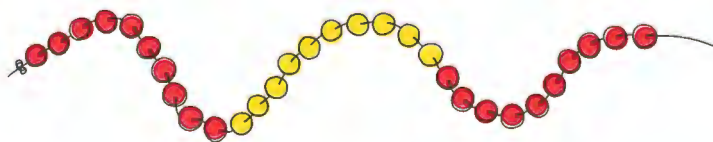
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80



90



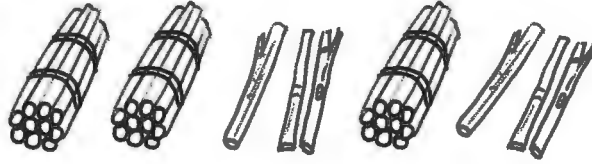
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40

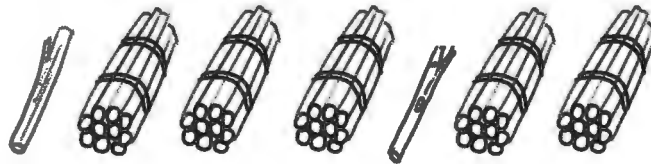
2. Look at the pictures below and tell how many sticks in all.

a.



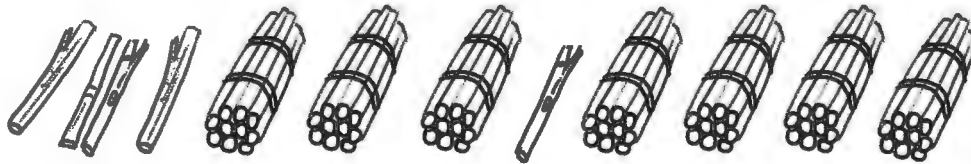
tens and ones, hence sticks or thirty-six sticks.

b.



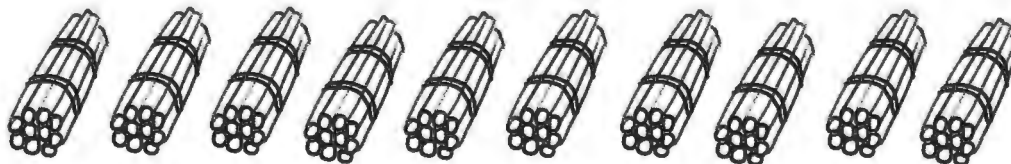
tens and ones, hence sticks or _____ sticks.

c.



tens and ones, hence sticks or _____ sticks.

d.



tens and ones, hence sticks or _____ sticks.

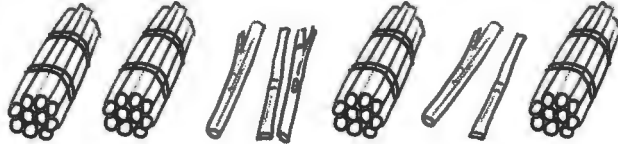
3. Draw the following numbers in bundles of 10 and loose sticks and write the number name or the number in the table below:

Number

Bundles and Sticks

Number Names

45



forty five



27



39



50

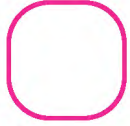


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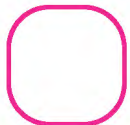
Number

Bundles and Sticks

Number Names

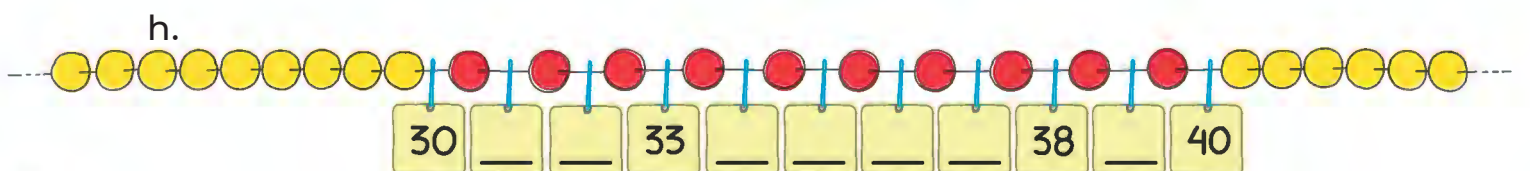
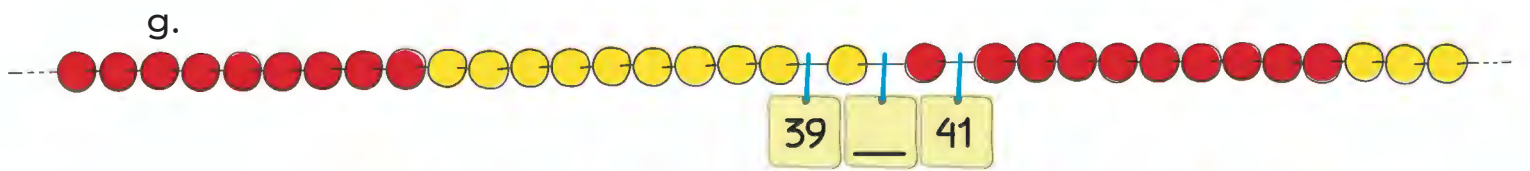
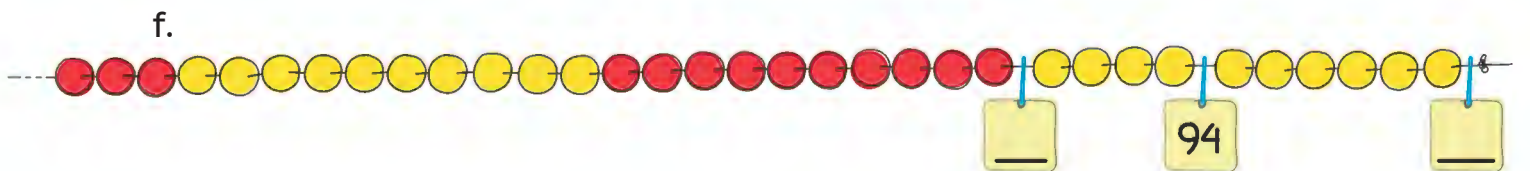
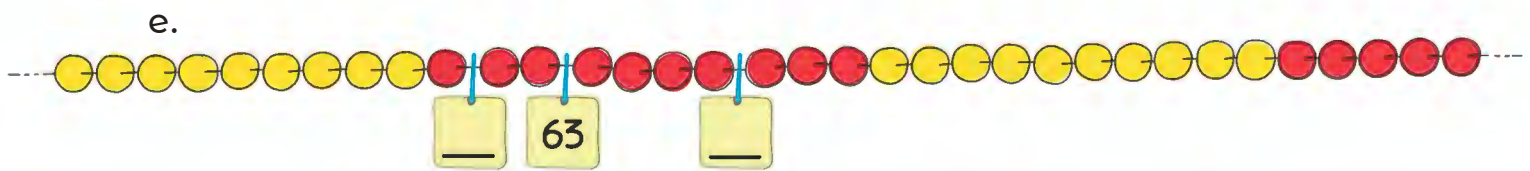
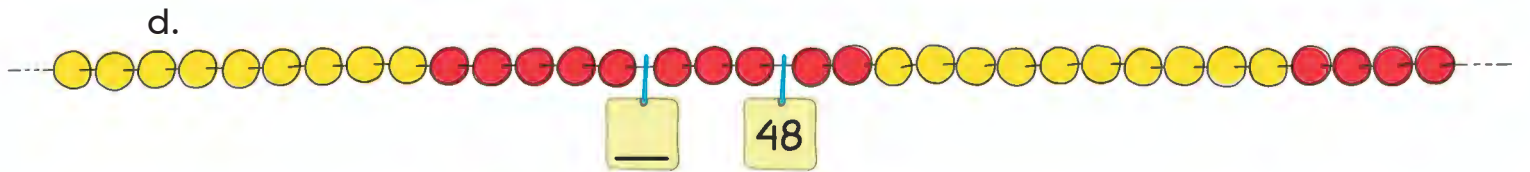
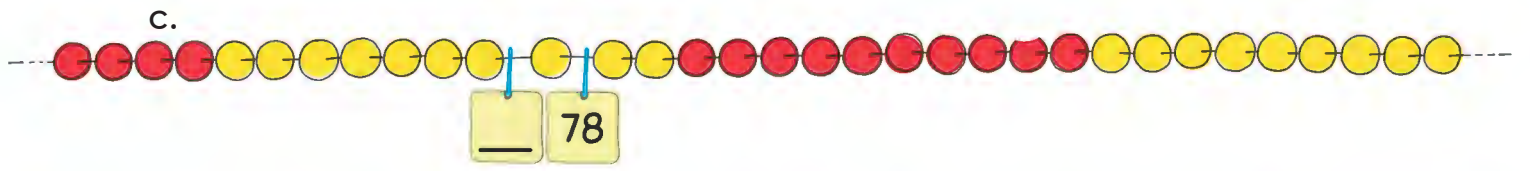
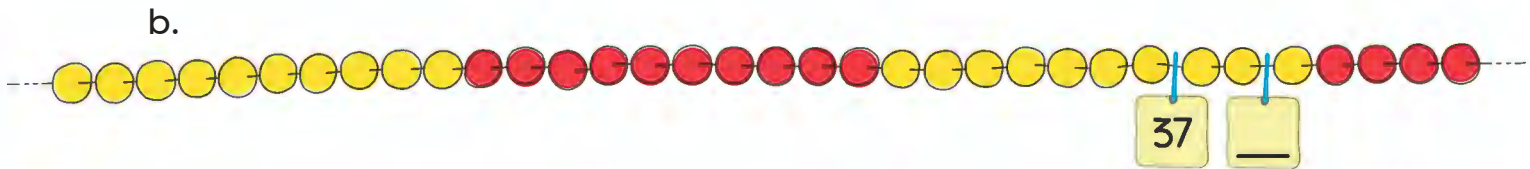
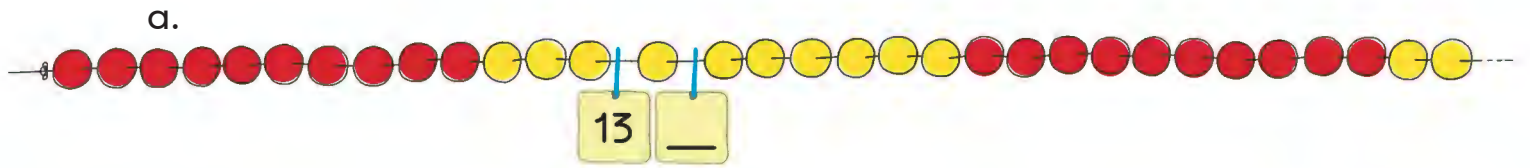


sixty one

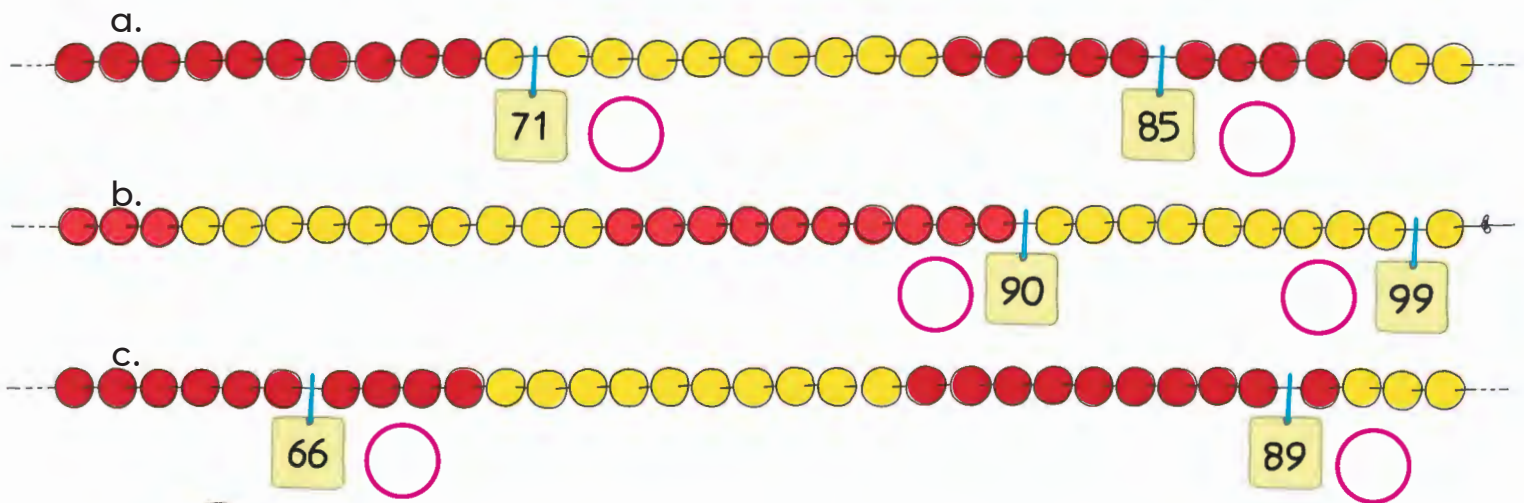


hundred

4. Fill in the missing numbers



5. Tick mark the bigger number in each pair



Do you see any pattern?



Yes, the bigger numbers are on the _____ of the smaller numbers.



I have flash cards numbered from 0 to 9.



Choose two numbers from these flash cards.

Oh very nice.



How many numbers can you make from this?

I choose 4 and 9



Is it 94? But how ?

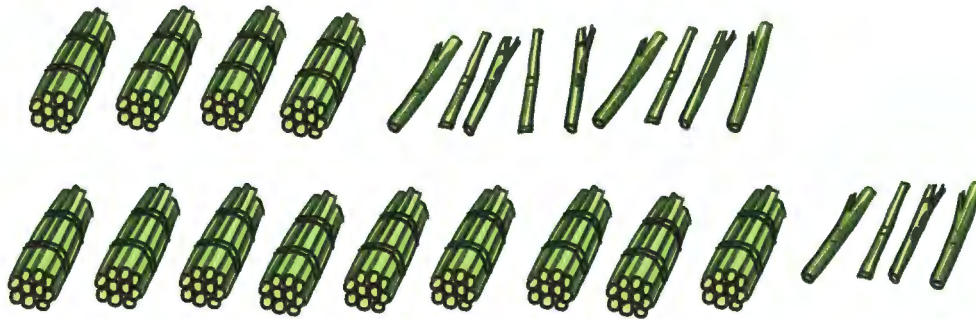
49 and 94.
Which is bigger?





Lets take the help of bundles and sticks.

Good idea. Here are the bundles and sticks.



Now I understood 9 bundles are greater than 4 bundles so 94 with 9 bundles and 4 sticks is greater than 49 with 4 bundles and 9 sticks.

Let us do

1. Complete the table below by choosing any two number cards and make two numbers smaller and bigger.

Flash cards	Smaller		Bigger			
	Tens	Ones	Tens	Ones		
<table border="1"> <tr> <td>2</td> <td>8</td> </tr> </table>	2	8	2	8	8	2
2	8					
<table border="1"> <tr> <td>3</td> <td>6</td> </tr> </table>	3	6				
3	6					
<table border="1"> <tr> <td>5</td> <td>0</td> </tr> </table>	5	0				
5	0					
<table border="1"> <tr> <td>6</td> <td>3</td> </tr> </table>	6	3				
6	3					

Flash cards	Smaller	Bigger		
	Tens	Ones	Tens	Ones
3 7 5	3 7	7 3		
2 6 1				
4 9 8				

2. Using the flash cards 0 to 9

a. Make smallest two digit number without repetition

--	--

b. Make largest two digit number without repetition

--	--

3. Arrange in ascending order (smallest to largest number)-
49, 87, 34, 99, 88

--	--	--	--

4. Arrange in decending order (largest to smallest number)-
32, 13, 98, 57, 49

--	--	--	--

Teacher's Note: If child shows 01, then it is not a 2 digit number. Though symbols greater than and lesser than are not introduced at this stage, this is a good way to subtly introduce them.

More or Less: Let Us Guess

1. Circle the correct answer:

a. The number of teeth in your mouth

More than 35



Less than 35

b. The number of matchsticks in a matchbox

More than 45



Less than 45

c. The number of pencils in your class.

More than 25



Less than 25

d. The number of seeds in this orange

More than 30



Less than 30

Activity: Twenty questions



I have picked a number between 0 and 100.
Guess which number it is?



Is it bigger than 50?



No.



Is it smaller than 30?



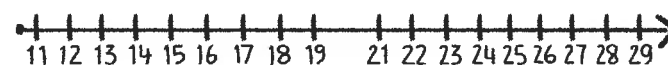
Yes.



Can it be shown with only one arrow card?



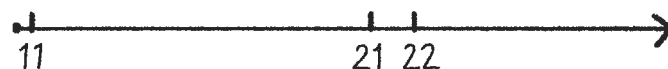
No.



Are the number of ones more than the number of tens?



No.



Are the number of ones less than the number of tens?



No.



Is it bigger than 20?



Yes.

22!



Play this with your friend.

2. Combining and Removing



 Draw and find out-

1.
~



3

+

2

=

2.
~



5

+

=

3.
~



2

+

=

5

4.
~



+

=

5.
~



+

6

=

13

Teachers' Day

Children of Class 2 decided to make bunches of 10 flowers for their teachers. They all came to school with different number of flowers.



1. Which combination of children can make a bunch of tens?

a. _____ and _____ , _____ + _____ = 10

b. _____ and _____ , _____ + _____ = 10

c. _____ , _____ and _____

_____ + _____ + _____ = 10

d. _____ , _____ , _____ and _____

_____ + _____ + _____ + _____ = 10

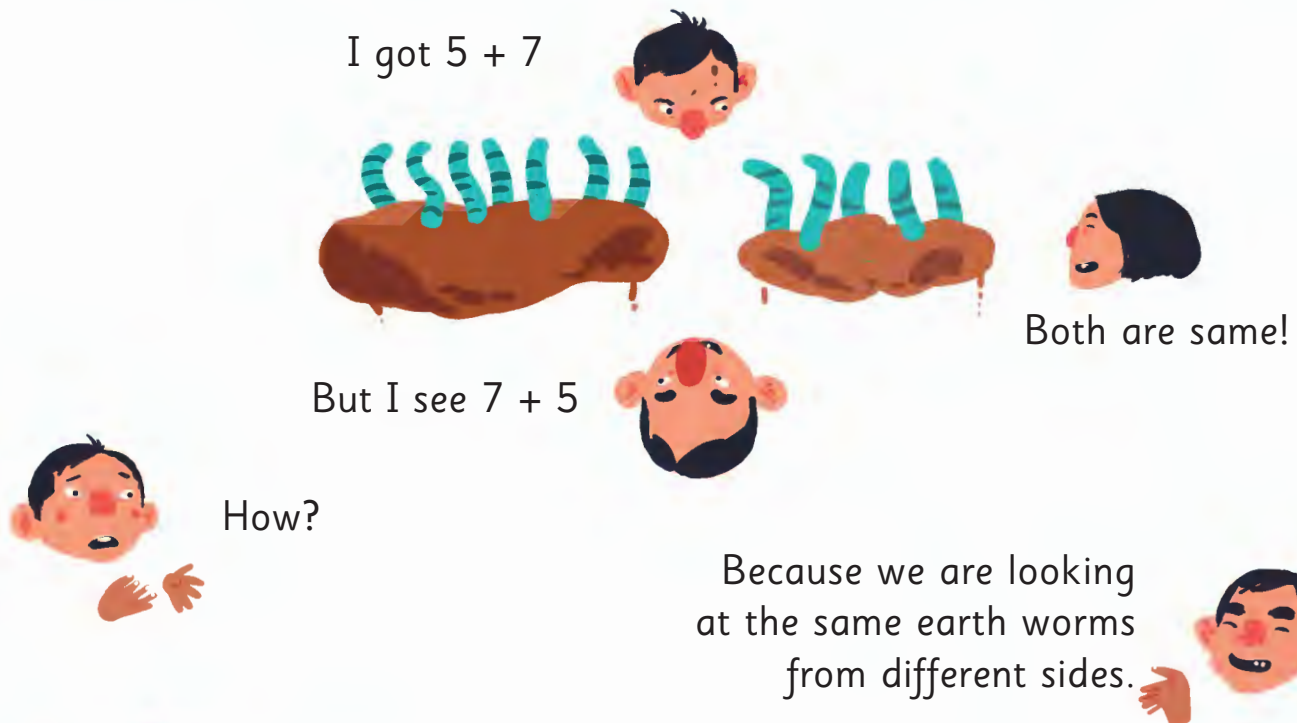
2. Name a child who has enough flowers to make a bunch.

Different ways to add:

3 children are playing in a field.



Let us count how many worms we got.



Of course!
 $7 + 5 = \underline{\quad}$ and
 $5 + 7 = \underline{\quad}$ too!

Anup! Help me to find total number of worms in all.

Oh! You can find this total without writing.

How?

It is $5 + 7 + 3$.
We already found $5 + 7$



So the total is $12 + 3 = \underline{\quad}$



I can find in another way. We can put these two groups together.



So we get $7 + 3 = \underline{\quad}$

Then we add these.



I like this one!

I know why.

1. Which one did you like? Adding $\boxed{5 + 7} + 3$ or $5 + \boxed{7 + 3}$

2. Now let's find out


a. $9 + 4 + 6$

c. $4 + 2 + 8$

b. $8 + 7 + 3$

d. $1 + 5 + 9$

Snake and Ladder

 Rubina and Sahil were playing Snakes and Ladders. This was their board.



What happens when you go 1 step right on this board?



The number becomes
1 more, like $7 + 1 = 8$

Or $53 + 1 = 54$



What happens when you go 1 step left?



The number becomes
1 less, like $4 - 1 = 3$

or $47 - 1 = 46$



What happens when you go 1 step up?



The number becomes
10 more.

Like $72 + 10 = 82$




What happens when you go 1 step down?



The number becomes
10 less.

Like $69 - 10 = 59$



Rubina got  at the beginning, so she is on ___



It's a ladder!

How many steps did
you move ahead from?



2 steps up, that is $10 + 10 =$ ___ steps more.

Then 1 step right, so ___ + 1 = 21 steps ahead.

So $6 + 21 =$ ___



They played for some time and Sahil was at 33 and he got 



A ladder!

How many steps
ahead from ___?



2 steps up, so ___ + ___ = ___ steps more

But 1 step left, so 1 step less that is

$20 - 1 =$ ___ steps more

So $36 +$ ___ = 55



After playing for a while, Rubina was at 61 and she got



So she got to $61 + \underline{\quad} = \underline{\quad}$



Oh! It's a snake!

Oops! So how many steps did you come back?



3 steps left, so 3 steps less that is $65 - 3 = \underline{\quad}$.

Then 1 step down, so $\underline{\quad} - 10 = 52$.

So $3 + 10 = \underline{\quad}$ steps less.



Yes, $65 - 13 = \underline{\quad}$

It can also be 1 step down and 3 steps left.



That is $10 + 3 = \underline{\quad}$ steps less.

Same as before.



So you went from 61 to 52.

Yes! 1 step down or 10 less

that is $61 - 10 = \underline{\quad}$

and 1 step right, so $\underline{\quad} + 1 = 52$



So 10 less and 1 more, that is $10 - 1 = 9$ less.

Yes, $61 - 52 = 9$



 Tashi and Rupesh saw a similar chart in their class.

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



You know this is like the Snake and Ladder Rubina and Sahil were playing.

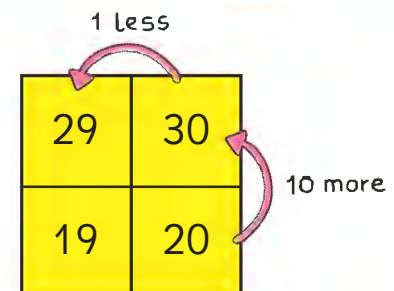
Yes! Just without the snakes and the ladders.



Did you notice that 19 is 1 up and 1 left of 20, 29 is 1 up and 1 left of 30.



Yes, that is because 9 is 1 less than 10. If you go 1 up, it is 10 more. Then you go 1 left, it is 1 less.





So 1 up and 1 left is 10 more and 1 less.
It is the same as $10 - 1 = 9$ more.

That makes sense. Let us
try somewhere else.



Check $26 + 9$.



Yes, $26 + 9 = 26 + 10 - 1 = 36 - 1 = 35$.
So the tens go up by 1 and the ones go down by 1.



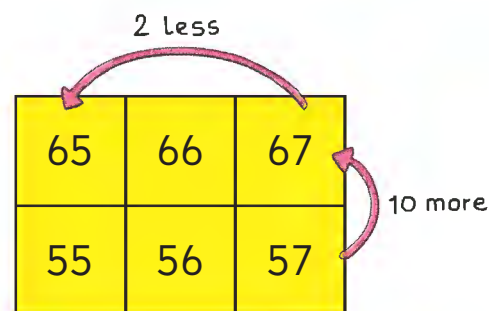
Can you guess a similar trick for adding 8?



Let me try, $8 = 10 - 2$. So, I take 1 step up
and 2 steps left. So tens go up by 1 and ones
go down by 2.



Try with a number. Say $57 + 8$.



So $57 \rightarrow 67$ that is 10 more. $67 \rightarrow 65$ that is 2 less.
So $57 + 8 = 65$.
Also if we count up from 57, we get 65! Yes, it works!

58	59	60	61	62	63	64	65
----	----	----	----	----	----	----	----



Similarly $7 = 10 - \underline{\quad}$. So to add 7,
go up 1 step up and go $\underline{\quad}$ steps left.

1. What can you do to add 6?

2. Try these quickly:

a. $46 + 8 = \bigcirc$

c. $83 + 9 = \bigcirc$

b. $19 + 7 = \bigcirc$

d. $35 + 6 = \bigcirc$



I think we can use these tricks to add even bigger numbers.

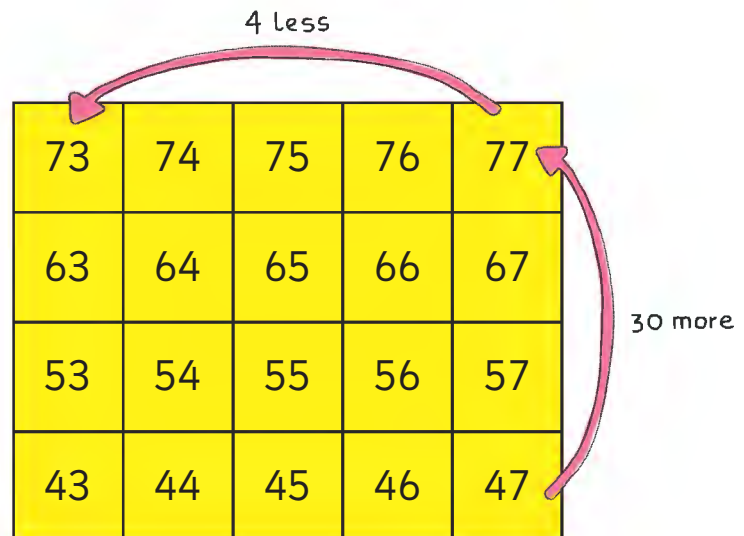
How?



Suppose you want to find $47 + 26$.
Now $26 = 20 + 6 = 20 + 10 - 4 = 30 - 4$.



So go up 3 steps from 47 that is $47 + 30 = 77$.
Then go 4 steps left that is $77 - 4 = 73$.



Exactly! Let us try some more!



How about $37 + 54$?



Ok. $54 = 50 + 4$ so 5 steps up that is $37 \rightarrow 87$ and 4 steps right 88, 89, 90, 91. So $37 + 54 = 91$

3. Now you try these:

a. $36 + 17 = \bigcirc$

c. $28 + 39 = \bigcirc$

b. $57 + 38 = \bigcirc$

d. $49 + 26 = \bigcirc$



How about $83 - \underline{\quad} = 57$?
Can we find it using the grid?



Isn't that how much
you come down?
Like the snake head is
at 83 and tail at 57?

30 less

83	84	85	86	87
73	74	75	76	77
63	64	65	66	67
53	54	55	56	57



So that is 3 steps down to 53 or 30 less.
Then 4 steps right to 57 or 4 more.

4 more



So 30 less and 4 more is $30 - 4 = 26$ less.
So $83 - 26 = 57$



So $28 + \underline{\quad} = 73$ is like a ladder going
from 28 to 73 and we need to find how
many steps we moved ahead.

Yes!

4. Try these:

a. $26 + \bigcirc = 75$

c. $\bigcirc + 39 = 64$

b. $57 - \bigcirc = 19$

d. $\bigcirc - 45 = 27$

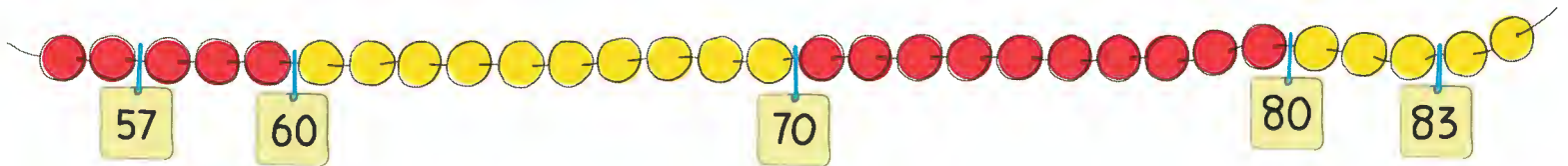
Rubina and Sahil joined Rupesh and Tashi. They saw the ganitmala hanging near the chart.



You know these are similar to jumping on the ganitmala.

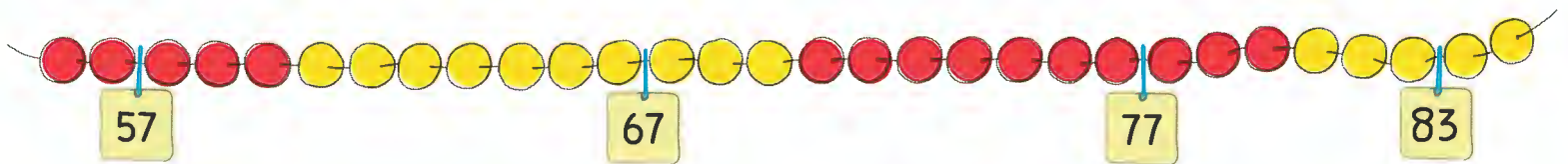
How?

For $83 - \underline{\quad} = 57$, let us put clips on 83 and 57.

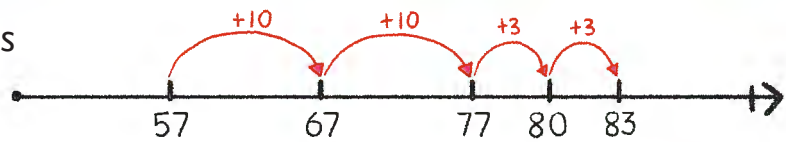


So $3 + 10 + 10 + 3 = 26$

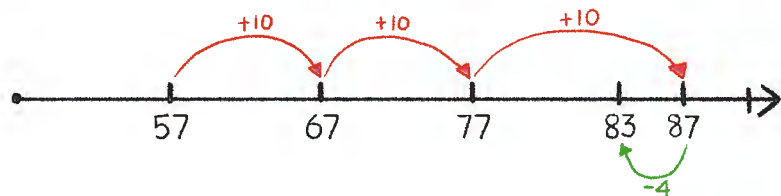
Yes! Also see $10 + 10 + 3 + 3$.



We can write this as



And $30 - 4$.



Yes, the numbers are exactly as the 100 chart.

5. Try these on the number line:

a. $37 + 19$



b. $82 + 48$



c. $23 - 17$

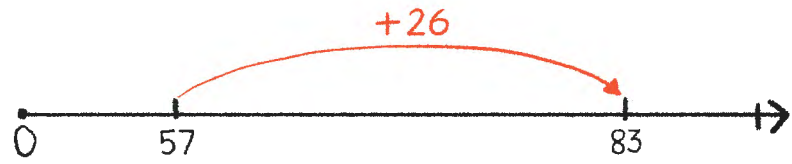


d. $45 - 26$

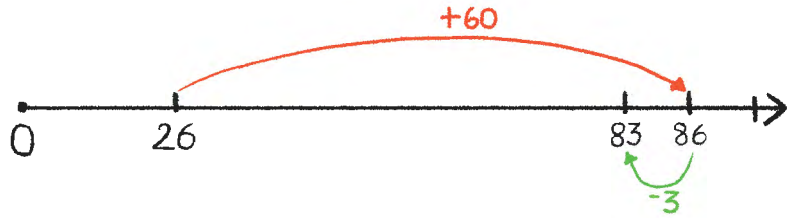





So $57 + 26 = 83$



And $26 + 57 = 83$



So $83 - 57 = 26$

So we have 3 things with these numbers 



Yes, $57 + 26 = 83$

$83 - 26 = 57$



And $83 - 57 = 26$

6. Your turn:

a. $52 + \bigcirc = 71$

d. $\bigcirc + 38 = 62$

b. $71 - \bigcirc = 52$

e. $62 - 24 = \bigcirc$

c. $71 - 52 = \bigcirc$

e. $\bigcirc - 38 = 24$

Visit to Changu Lake

Anita, Brijesh, Songmit, Serina and Pempa visited Changu lake with their parents.

They were happy to see churpi. They decided to take churpis for their friends.



Anita

I have 18 churpis.



Draw the chains and the loose churpis each child took



Songmit

I have 13 more than Anita.



Brijesh

I have 6 less than Songmit.



Pempa

I have 1 less than Brijesh.



Serina

I have 1 less than Anita.



How many churpis did Anita and Brijesh take together?

	Chain	Loose										
Anita												
Brijesh			+									
				<table border="1" style="border-collapse: collapse; width: 100px; height: 100px;"> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> </table>			1	8	2	5		
1	8											
2	5											



There are too many loose churpis.



Let us make a chain with 10 of them.



We get 1 chain.



And 3 remain.

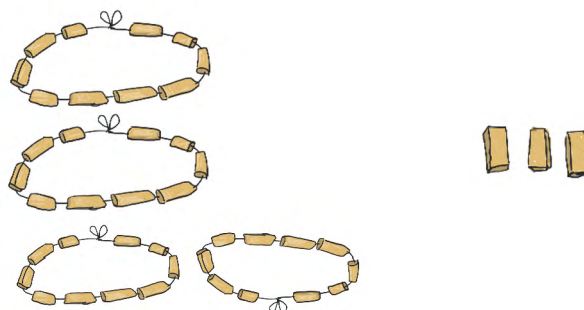


So we put 3 under the loose churpi or ones.



And we put a 1 below the chain or tens.

+



1	
1	8
2	5
	3



There are 4 chains.



So we put 4 under the chains.



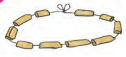

Ah! Anita and Brijesh have 4 chains and 3 loose churpis



Yes! That is 4 tens and 3 ones.



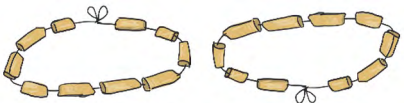



And they have 43 churpi in all.

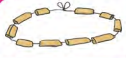

	
1	
1	8
2	5
4	3

Practice Time

How many churpi do they have together?



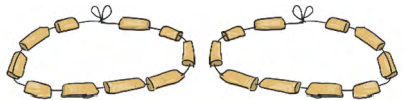

1. Pempa and Serina



	Chain		Loose	
Pempa				
Serina				

	
2	4
1	7

Pempa and Serina have _____ churpis together.

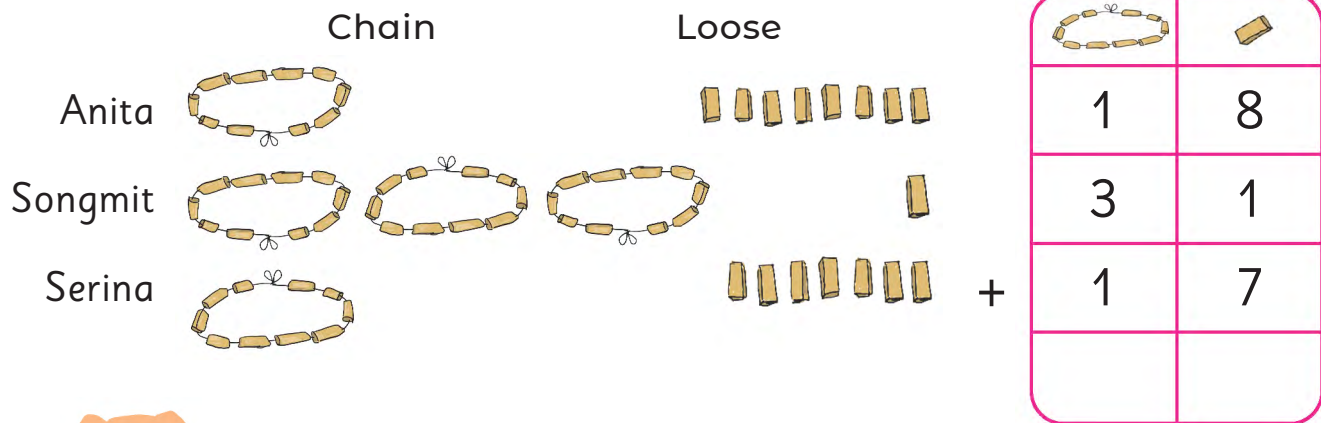
2. Anita and Pempa

	Chain		Loose	
Anita				
Pempa				

	
1	8
2	4

Pempa and Serina have _____ churpis together.

3. Anita, Songmit and Serina



Too many loose churpis.
Can you make a chain?

How many churpis are left?

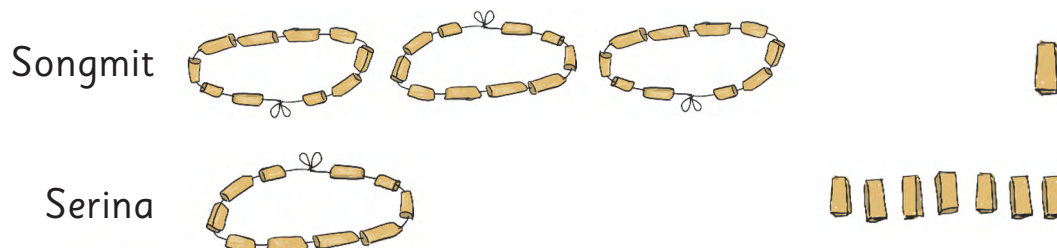
How many chains all together?

So Anita, Songmit and Serina have
_____ churpis together.

Finding How Many More

Who has more churpis-
Songmit or Serina?

Let us line up the
churpis and see



Looks like Songmit's line is longer.

So she has more.





But how many more than Serina?



Let us take away as much Serina has from Songmit's.



Then the rest is how much more he has.



Right!



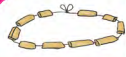

That is like $31 - 17$.



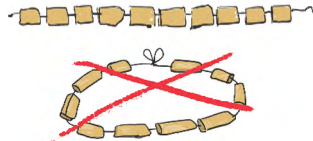
How will you take away 7 churpis from 1 churpi?



Let us open 1 chain of Songmit.

	
3	1
1	7

Songmit





Serina



So Songmit has 2 chains and 11 loose churpis.



So let us write that properly.

	
2	11
3	4
1	7



Now we can take out as much as Serina.

Songmit



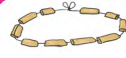
Serina

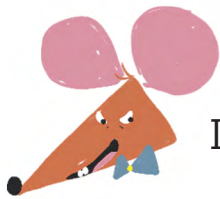


So Songmit has 4 more loose churpis than Serina.



Yes, $11 - 7 = 4$ loose churpis and $2 - 1 = 1$ chain

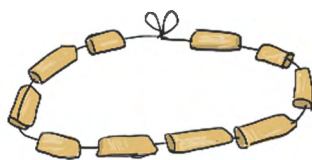
	
2	11
3	4
1	7
1	4



I can do it in a different way.



See it is like the number line. You try to keep only 17 churpis. How many churpis did you remove?

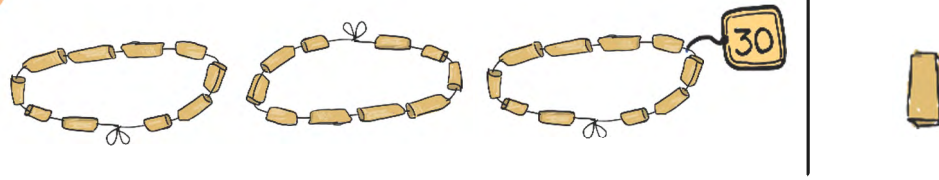


How?

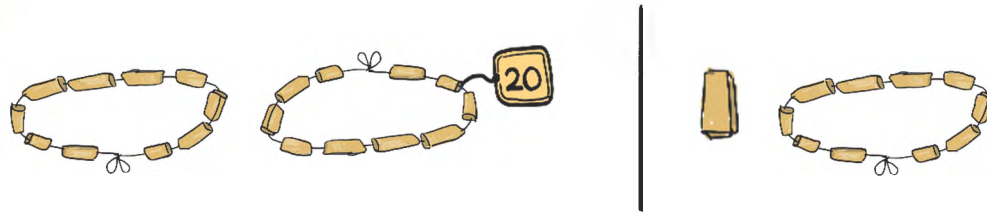




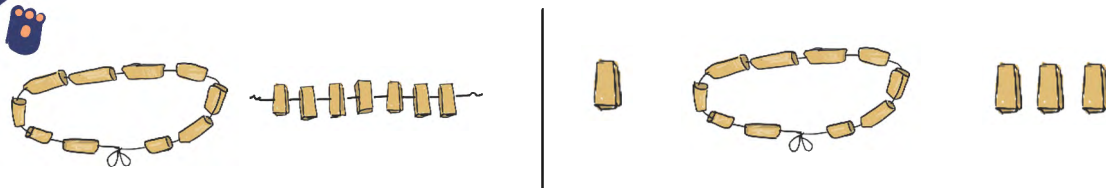
First I can remove 1 churpi. Then 30 churpis remain.



Now we can remove 1 chain. Then 20 churpis remain.



Then we open a chain and remove 3.



So $1 + 10 + 3 = 14$



Exactly what you got!



So Songmit has 14 churpis more than Serina.

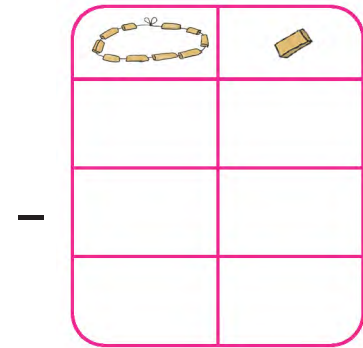
Practice Time

Who has more and how much more?

1. Pempa or Anita

Pempa

Anita



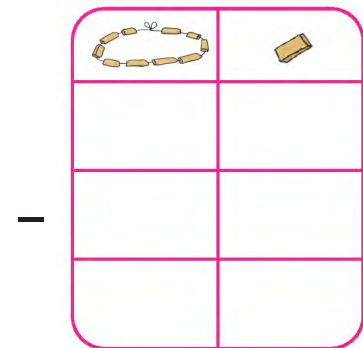
So _____ has more.

She has - = more than _____

2. Brijesh or Songmit

Brijesh

Songmit

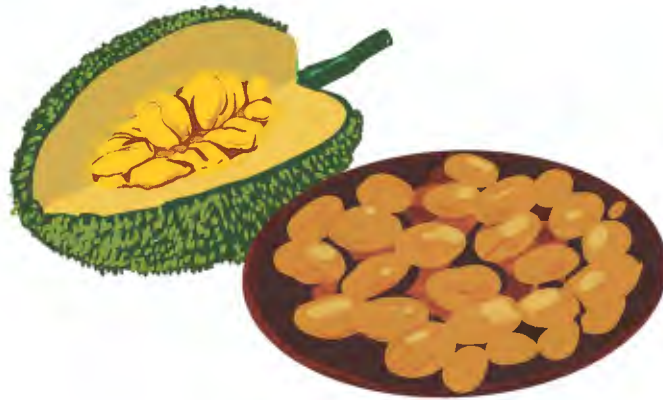


So _____ has more.

He has - = more than _____

Let us do the following

- Anisha got 29 seeds in a jack fruit and Zigdel got 24 in another. Who got more and by how much?



Tens	Ones
2	9
2	4

- Manisha's mother used to sell maize at road side. Yesterday she sold 23 and today she sold 31. How many did she sell in 2 days?



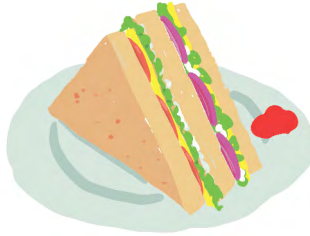
Tens	Ones
3	1
2	3

- Rima's dad went to a far away place for work. 28 days have passed. He will return after 17 more days. For how many days is he away?



Tens	Ones

4. 22 people were repairing Ram's home. He wanted to give 1 sandwich to each one. He made 7 sandwiches. How many more sandwiches does he need to make?



Tens	Ones

5. Aditya and Dawa were playing marbles. Aditya had 13 marbles at the beginning. After the game, he had 21 marble. How many marbles did he win?



6. For a food bank, Riya collected 47 rotis from her school. Jenny gave her 28 more. How many rotis does Riya have now?



7. A shopkeeper has 100 eggs. He sells 50 of them on the first day and 30 of them on the second day. How many eggs are left?



First day

$$100 - 50 = \underline{\hspace{2cm}}$$

Second day

$$\hspace{2cm} - 30 = \underline{\hspace{2cm}}$$

8. Match the following:

$23 + 22$

$7 + 8$

$12 + 27$

$19 + 18$

$45 + 19$

$34 + 39$

15

45

37

73

39

64

$56 - 17$

$91 - 27$

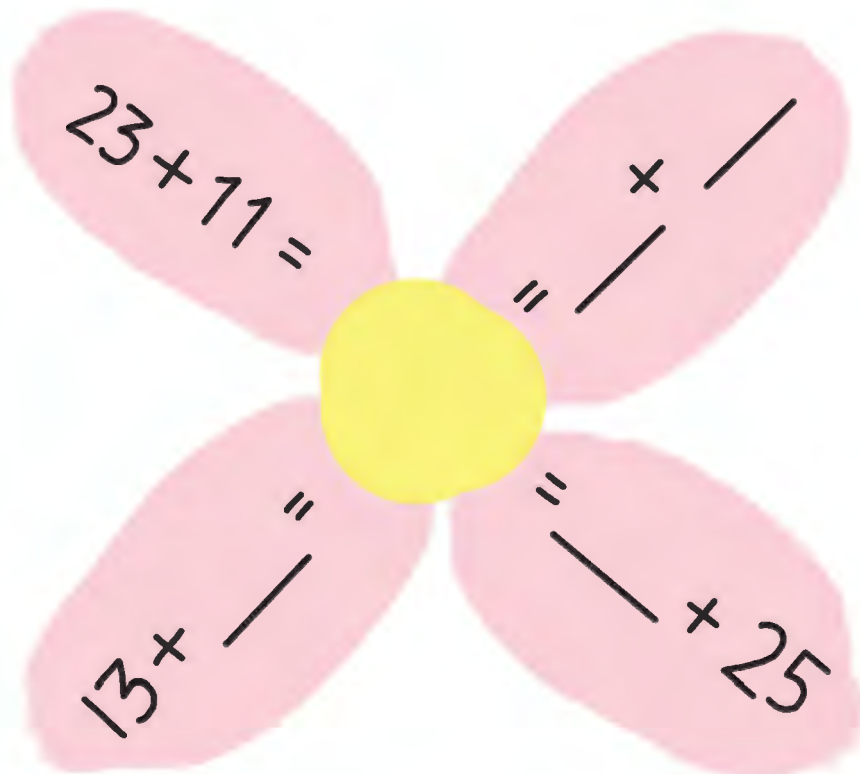
$41 - 26$

$87 - 42$

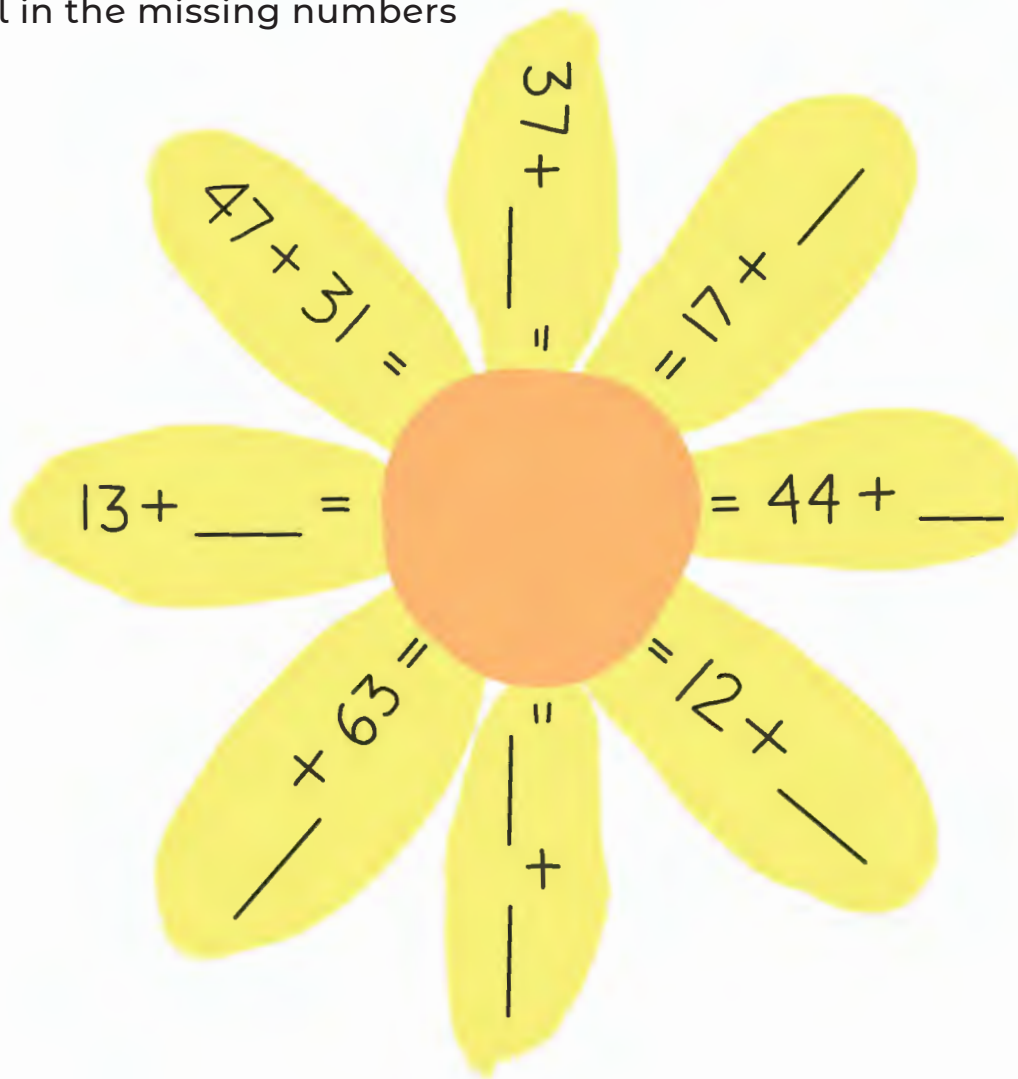
$82 - 9$

$53 - 16$

9. Find out:



10. Fill in the missing numbers



Make your own flowers.

11. Fill in the missing numbers

a. $18 + 13 = \bigcirc = 13 + 18$

b. $24 + \bigcirc = 43 = \bigcirc + 24$

c. $\bigcirc + 16 = 34 = 16 + \bigcirc$

3. Shapes Around Us



Guess Its Name



It is school vacation and Tika is visiting his aunt Ashvini. He is excited to meet his aunt, his grandmother and his cousins. In the evening, they got together to play the game 'Who am I'.



We are playing a game - 'Who am I?'. I have some things in this bag. Put your hands inside and hold one of them. Feel it and describe it. Can you guess what it is?



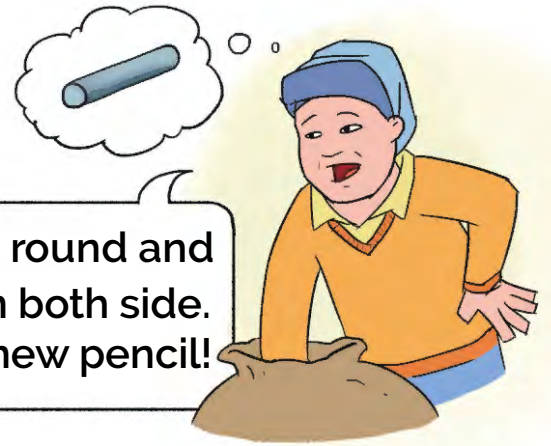
Round and round everywhere
no corners, Not flat at all.
It's a ball!



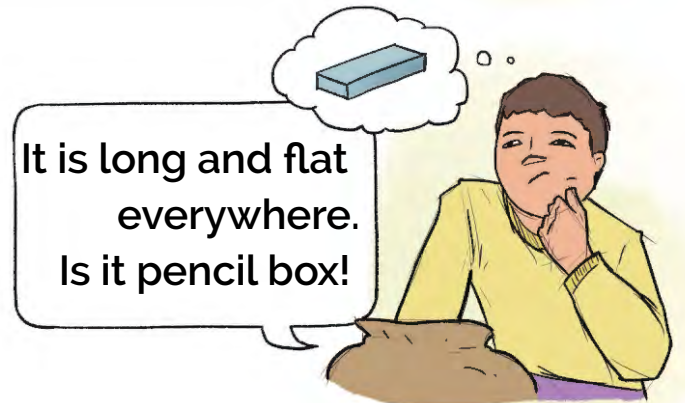
Yes! Let us clap for her!



Guess what it is?



Your turn Debu.



Round - Flat

1. Tick the thing that is round.



2. Tick the thing that is flat.

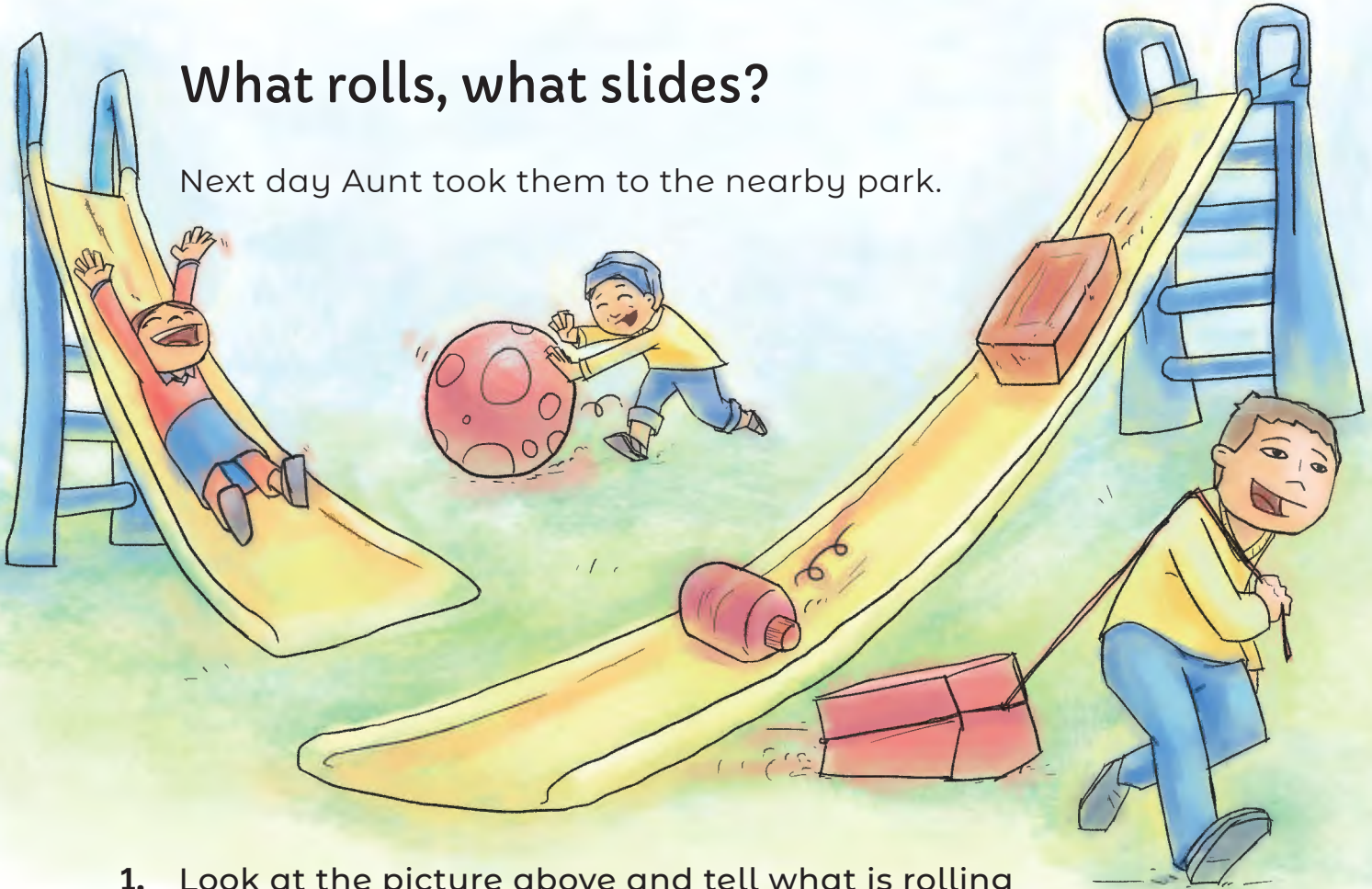


3. Tick the thing that is both round and flat.



What rolls, what slides?

Next day Aunt took them to the nearby park.

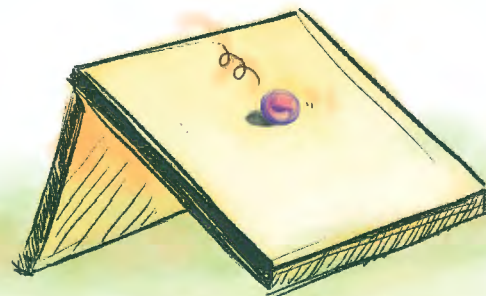
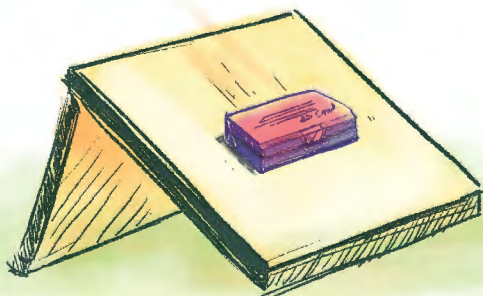


1. Look at the picture above and tell what is rolling and what is sliding?

2. Which is easier to move and why?



3. Does it slide? Does it roll?








Can I roll?
Can I slide?

4. Name some more such objects that can both roll and slide.
5. Does a coin roll or slide? Try it.
6. If we turn a coin like this what shape does it form?



 **Can you find:**

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

Let us sort



Navina, Kalzang, Nomit and Anup select some of the above things in the following way.

Navina's group



Kalzang's group



Nomit's group.



1. Does Navina keep the candle and the glass in one group?
2. Why didn't they keep the pencil and the notebook together?
3. Why didn't they put the marble and the ludo dice together?



Nomit's group is called sphere. They roll but do not slide.



Navina's group is called cylinder. They can slide and roll.

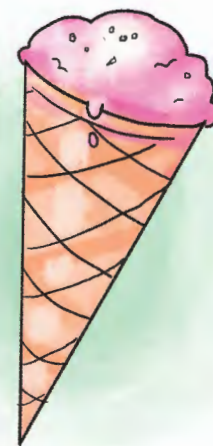


Kalzang's group is called cuboid. They slide but do not roll.

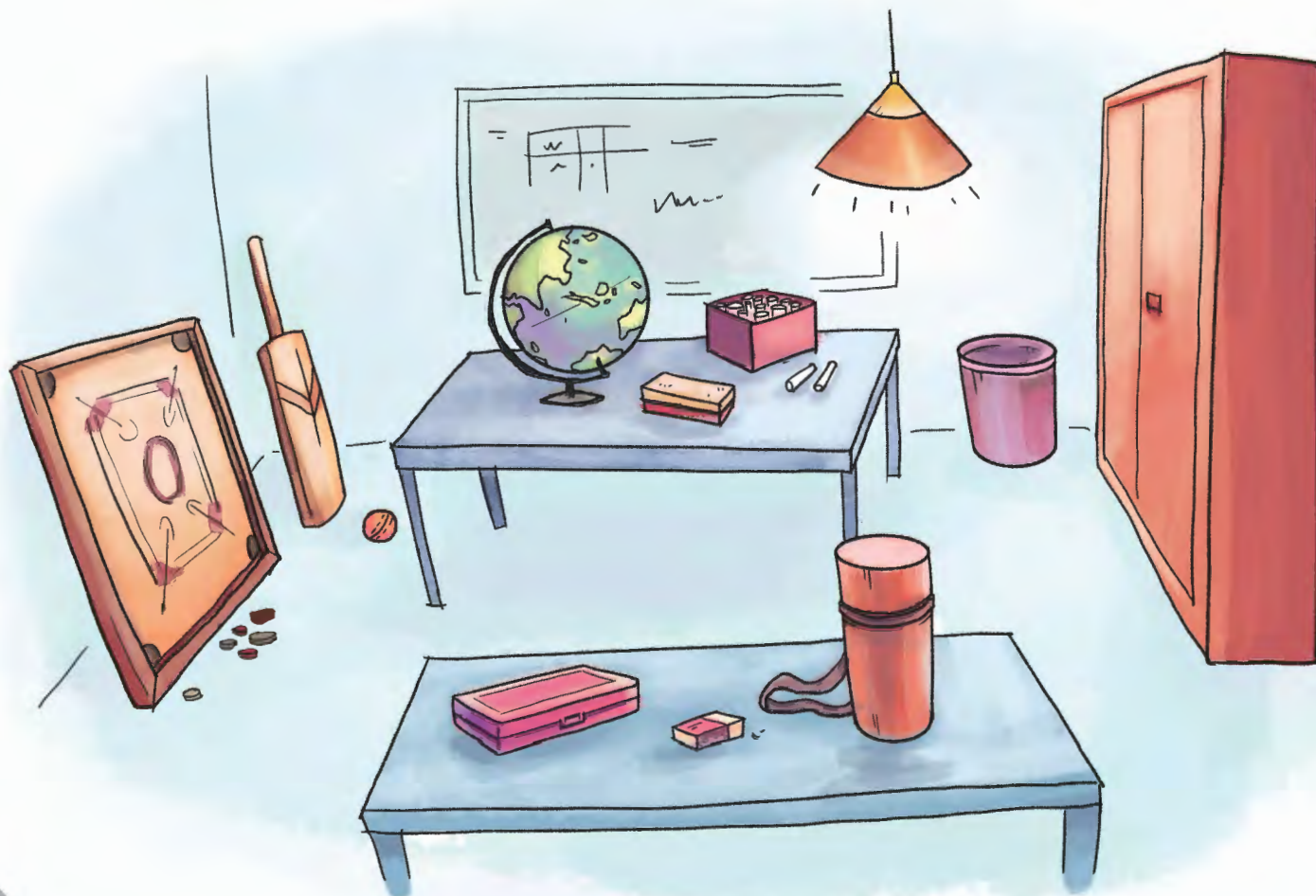


I roll and I slide. Am I a cylinder?

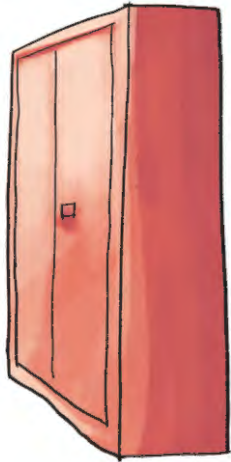
No, we have a pointy end. We are cones.



1. Can you make a cone by rolling a paper?
2. Can you make a cylinder?



Match the shapes with their names:



sphere



cone



cylinder



cuboid

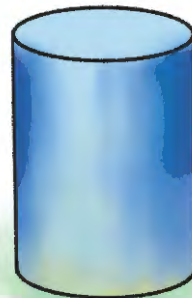
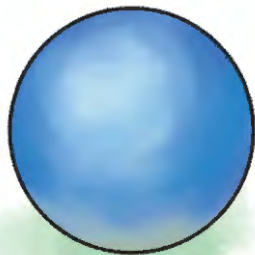
Find these shapes at your home:

Cuboid

Sphere

Cylinder

Cone



Trace the things

✂ Abina collects different kinds of leaves from her garden and takes prints.

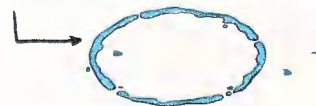
1. Match the leaves with their prints



✂ Have you seen your own foot prints and those of cat and birds?



Trace of the bottle





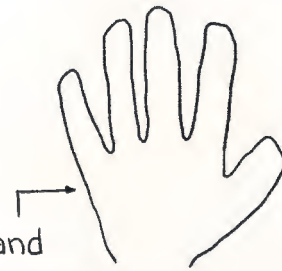
Trace of the bottom of okhli



✂ In the image below, Geeta is tracing her hand on her copy.



Trace of Geeta's hand



Geeta wants to make such traces of different things like bowls.

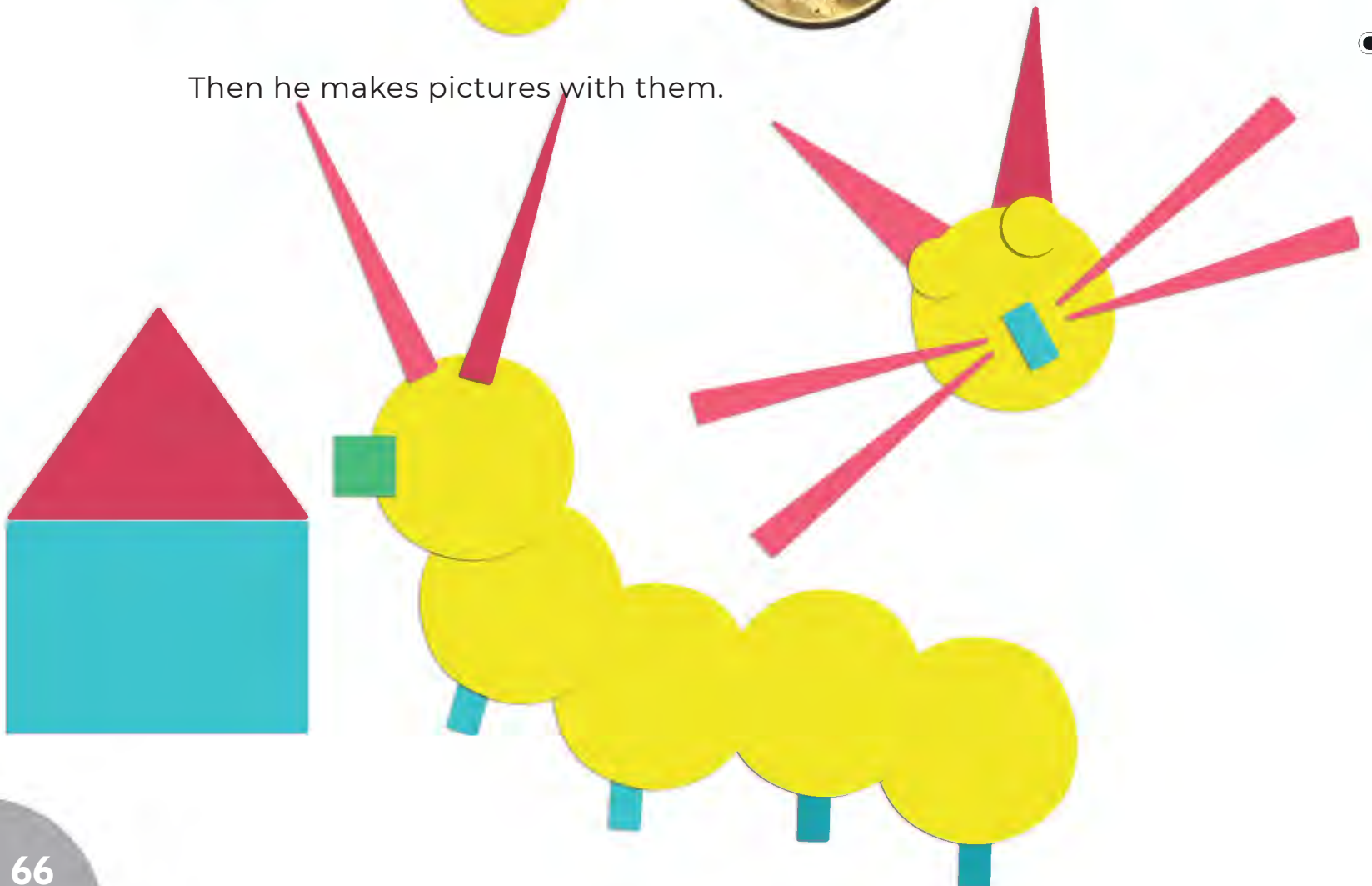


1. How did she get two traces from the same bowl?
2. Can you get two different traces from the two sides of a coin?
3. How many different shapes can you get by tracing a match box?
4. How many different shapes can you get by tracing a dice?

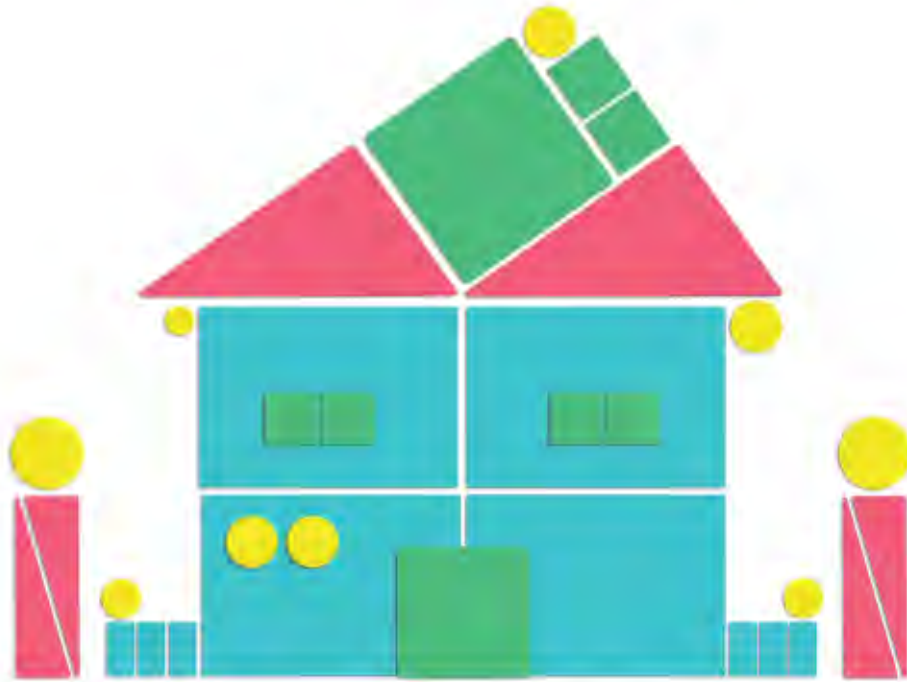
✂️ Pemtuk collects things like coins, match boxes, bottle caps and buttons. He traces them and makes cutouts. He cuts match boxes and gets.



Then he makes pictures with them.



1. In the given pictures below count the number of each shape.



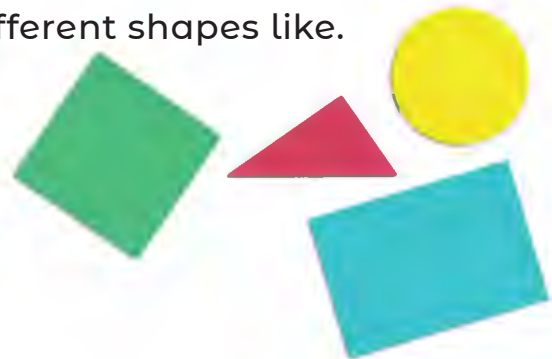
How many  _____

How many  _____


How many  _____

How many  _____

2. Now make your own picture using different shapes like.

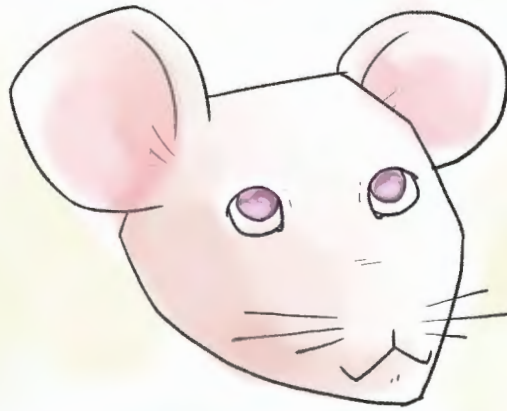


 **Draw shapes in the pictures**

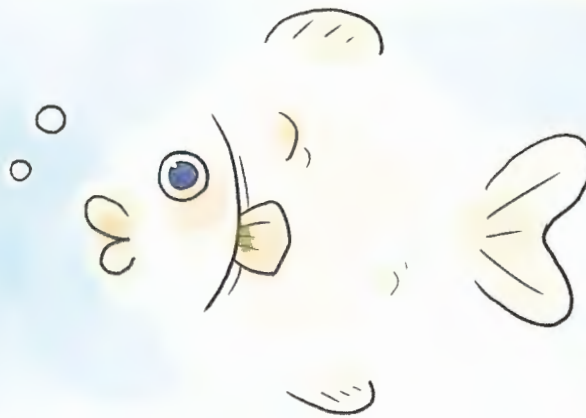
1. Draw a moustache of  shape on the cat's face.



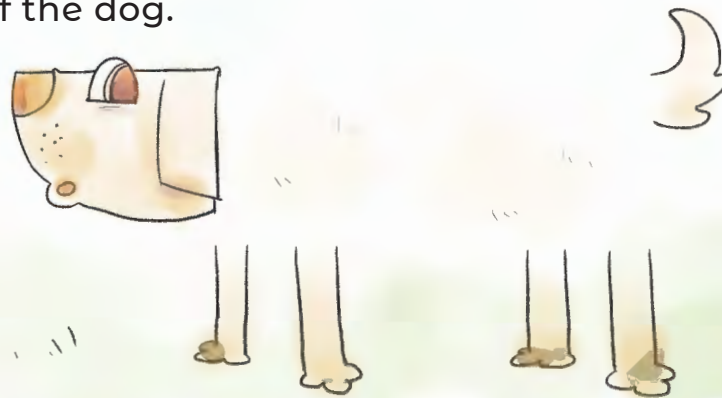
2. Draw a  nose on the rat's face.



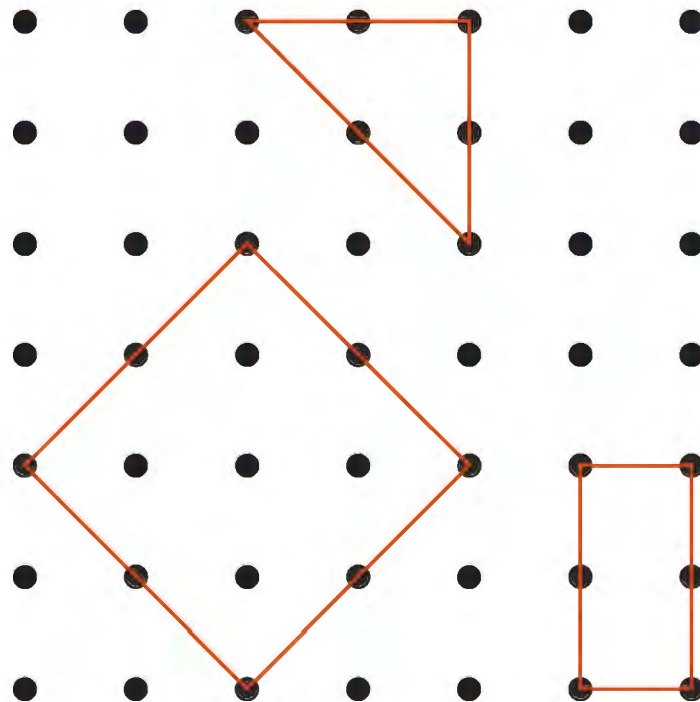
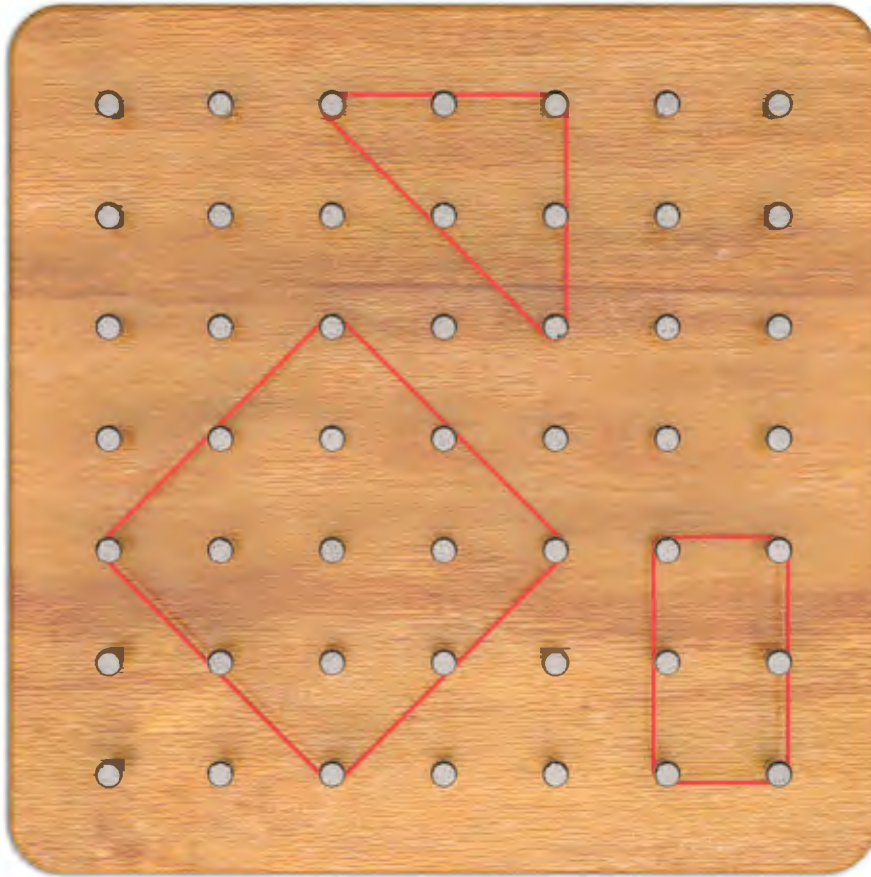
3. Draw a  body of the fish.



4. Draw a  body of the dog.



Let us make different figures using geoboard and dot sheets.
There are three shapes shown as examples.



The Tallest Tower

Tashi and Nima used to go Bina's house after school to take the help of Bina's elder sister to study. After that they used to play different games.



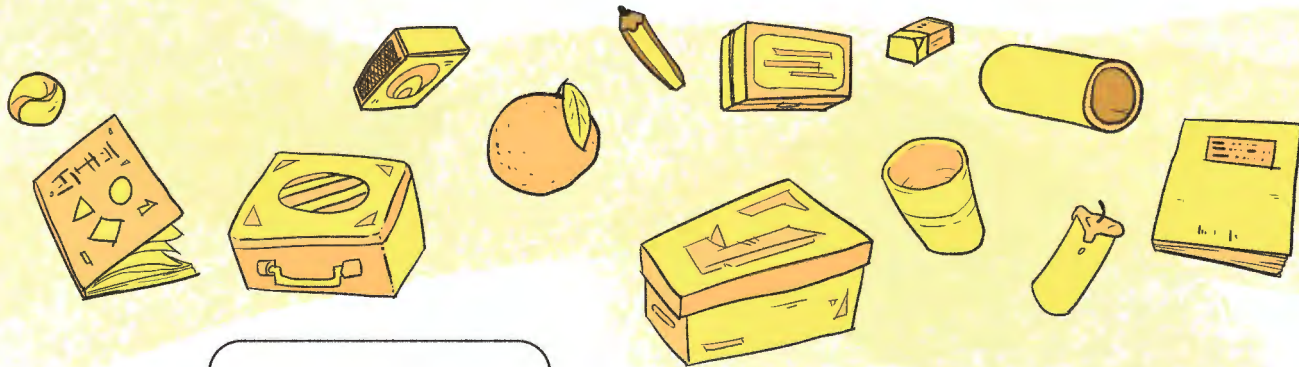
Hello friends! What should we play today?



Let us collect different Items and see who can make the tallest tower.



Now they start collecting different objects: eraser, match box, candle, marble, pencil box, pencil, glass, lunch box, orange, piece of pipe, notebook, textbook, shoe boxes etc.

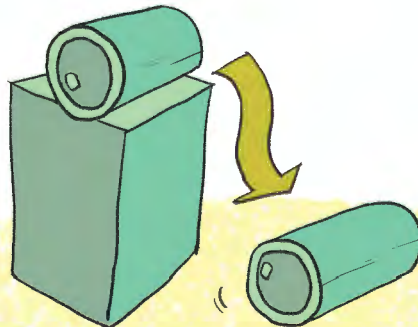


I will make first.

Look friends, I can't put this can!



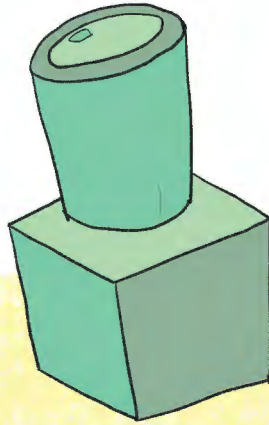
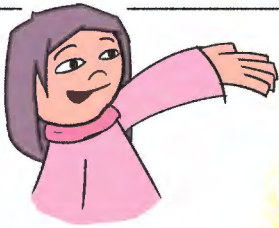
It rolls.



Why?



Put in upright way,
it doesn't roll.



Oh! Yes, it
doesn't roll!

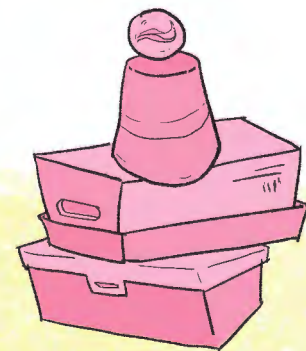
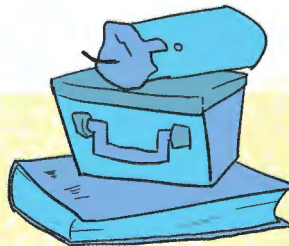
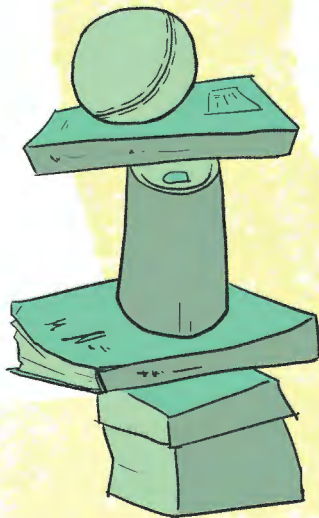


This ball also rolls. We cannot
put anything on top of this ball.

You can put the
ball on top.



Now our turn.



Yes! Mine is the
tallest one.



1. Collect these kinds of items and make towers of same objects and also of different objects. Which one will be tallest and why?

4. Long and Short



Passang, Dhan Hang and Parumita are friends. They stay in a village called Sichey in East Sikkim.

They study in the same school and always spend time together. There is a small park near Passang's house.

One day they decided to go to the park and spend some time together. As they entered the park they were so surprised to see many new saplings.

They started running all over the park and after sometime they decided to play luka-chhupi.



While playing they found plants of different heights.



Which is the shortest plant?



See the Marigold here. I think this is the shortest plant.



How can that plant be so tall?



Which one? I found the banana plant is the tallest one.



1. Look around and find things:

Taller than you	Shorter than you

 **Activity:**

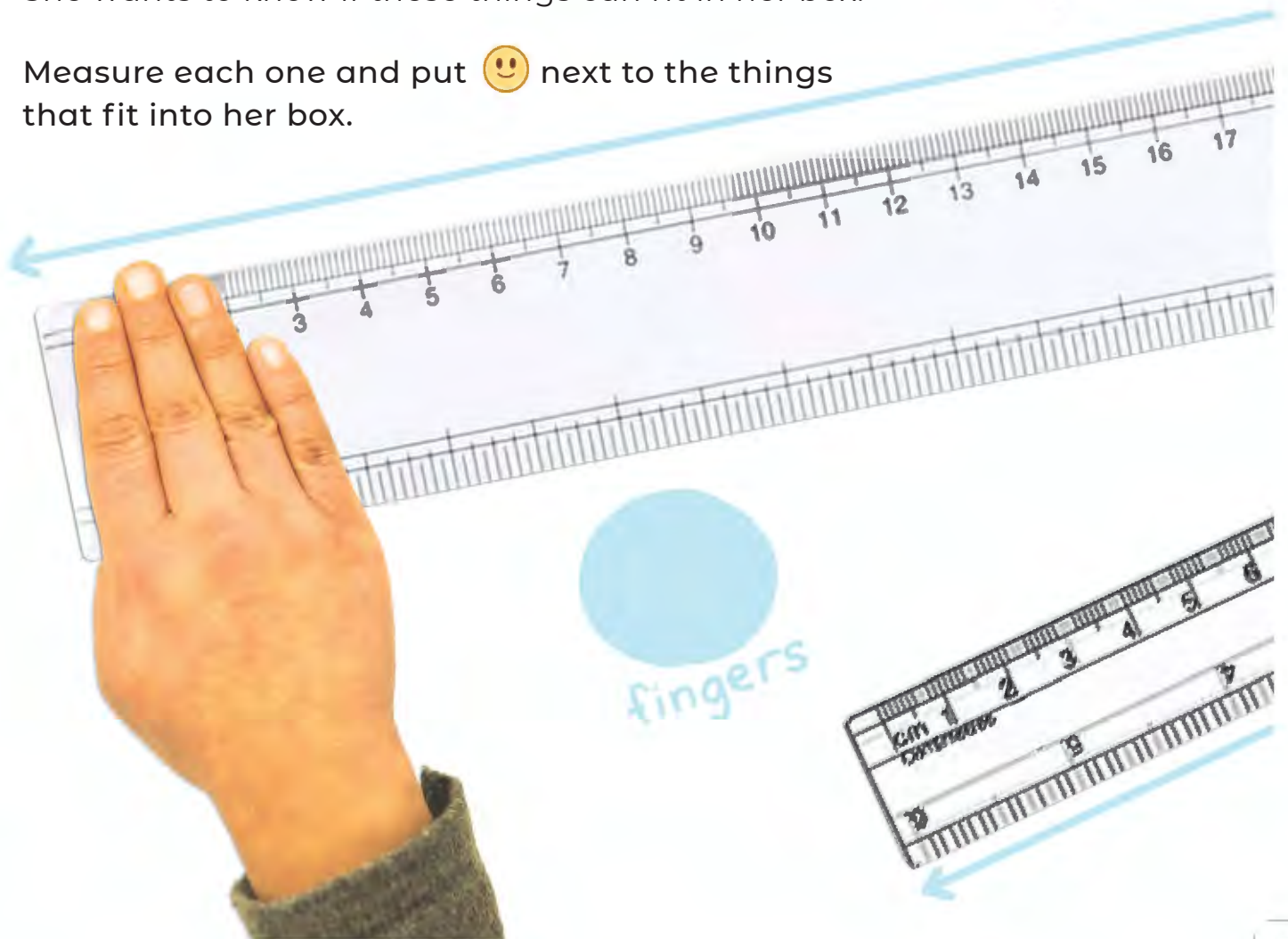


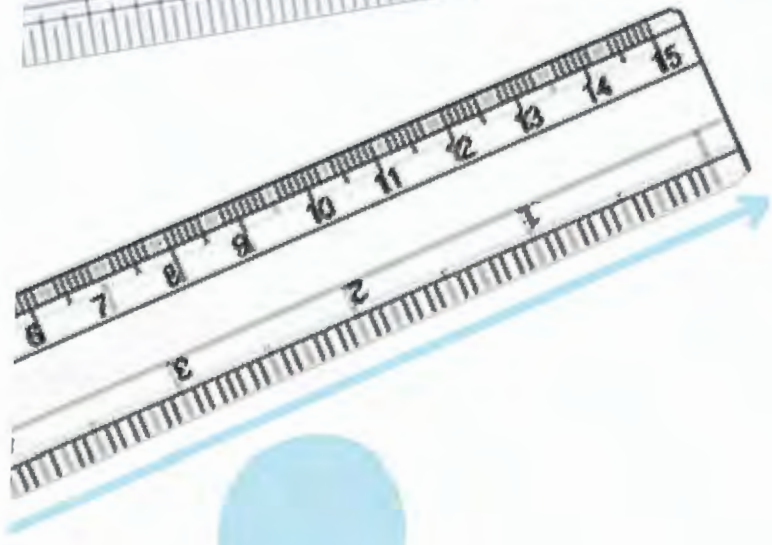
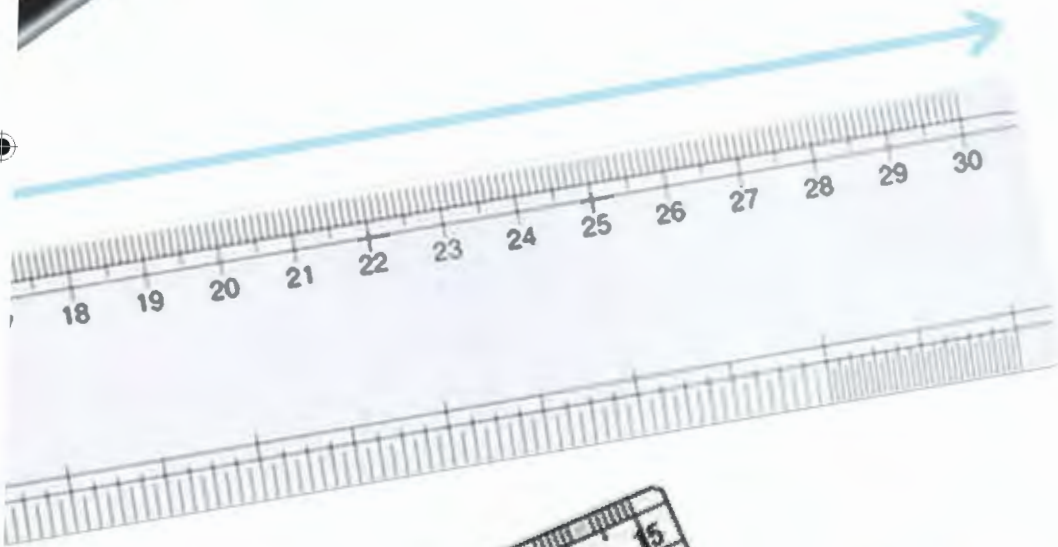
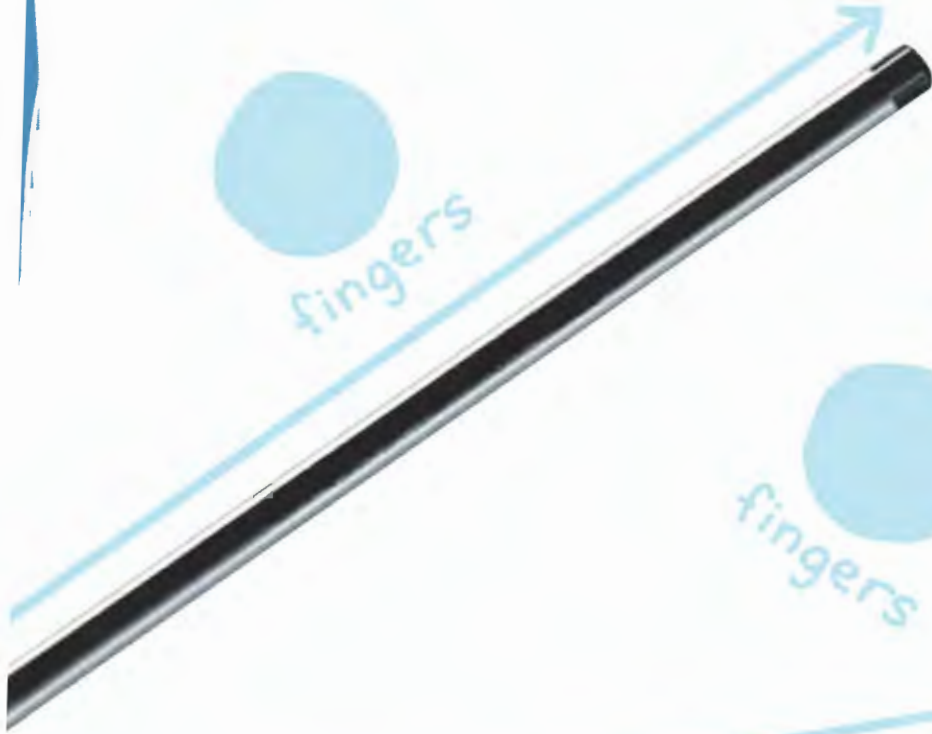
- Measure the length of any wall in your classroom with your foot.
- Measure the length of another wall next to it.
- The first wall is _____ (longer/shorter) than the other walls next to it.

Sonal's pencil box is 14 fingers long.
She wants to know if these things can fit in her box.



1. Measure each one and put 😊 next to the things that fit into her box.

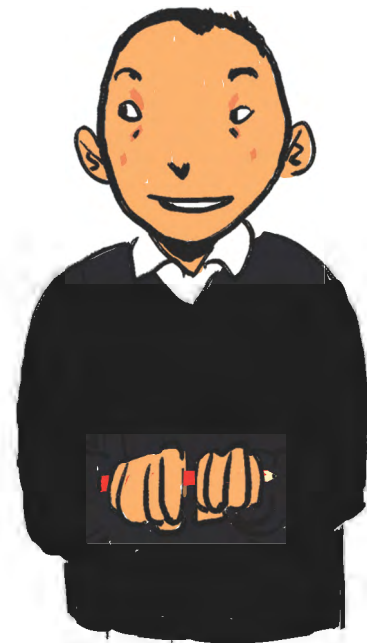






2. Let's discuss

- Which one can you completely cover in your palm?
- Which one can you almost cover in your palm?
- Which ones will stick out of your fist?
- Can you cover them with both hands?
- Which one will still stick out?

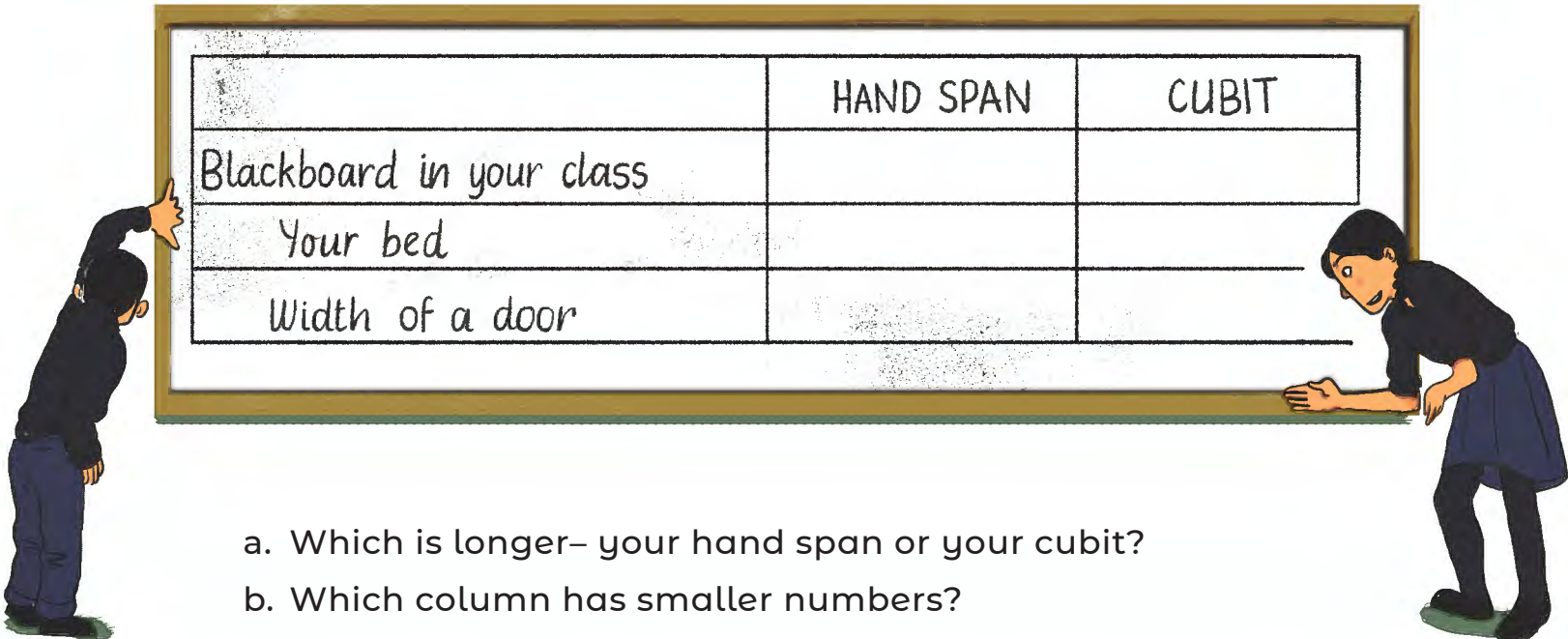


3. Find out the length of these things:



 **Activity:**

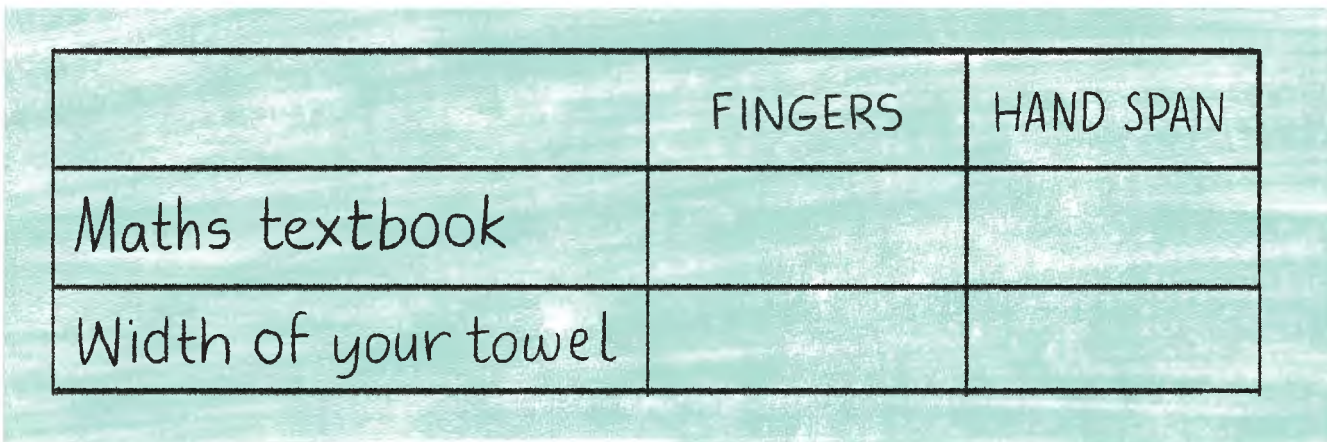
1. Measure and write:



	HAND SPAN	CUBIT
Blackboard in your class		
Your bed		
Width of a door		

- Which is longer– your hand span or your cubit?
- Which column has smaller numbers?

2. Measure and write:



	FINGERS	HAND SPAN
Maths textbook		
Width of your towel		

- Which column has bigger numbers? Why?

Teacher's Note: Draw the attention of children to observe that we get a smaller number when something is measured with a bigger unit and vice versa e.g. the same textbook can be 2 hand spans long or 23 fingers long.

3. Which of these would you measure with hand span?
Which ones with fingers?
Connect them by drawing lines.



5. Heavy and Light



Let us clean our surroundings

Suren uncle called all the children from his neighbourhood.

Today is a sunny day.
Let us clean our surroundings.

We will put bottles
and plastics in the
blue bin.

And weeds, paper,
fruit peels and twigs
in the green one.



They started collecting waste.

Abinas: I can easily lift all these
and put in the bin.

Reshma: I am not able to lift
this stone.

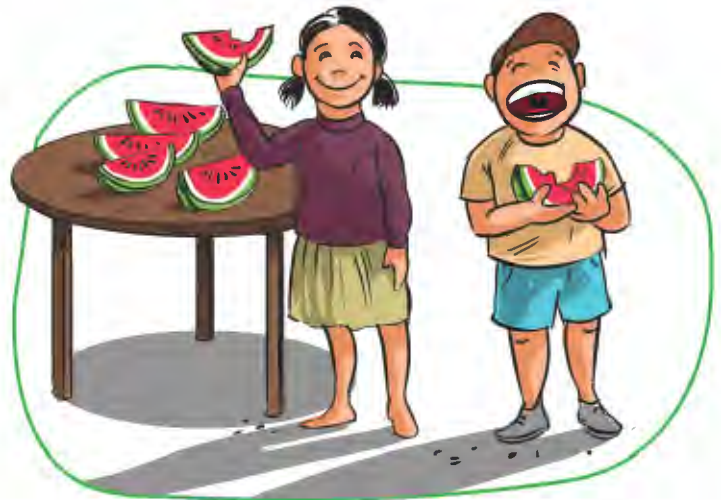


1. Why is Reshma unable to pick up that stone?
2. Why is it easy for Abinas to pick up wrappers and plastic bottles?



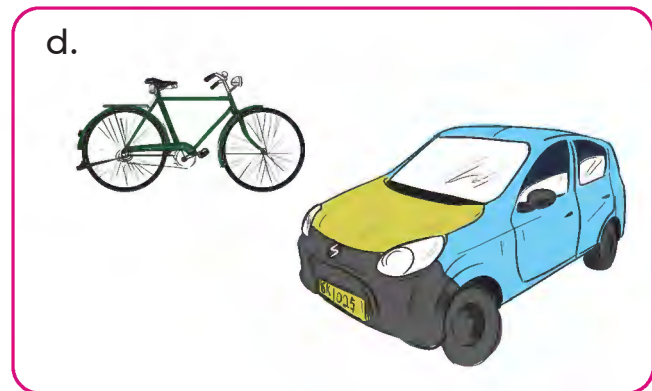
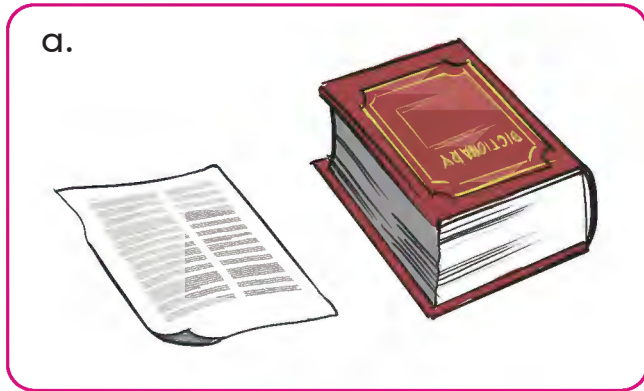
3. Both the dustbins got filled. Could they carry a full dustbin?

After finishing the work, uncle brought two watermelons. Children found it difficult to carry them. Uncle cut each watermelon into smaller pieces. Children could pick them and eat.

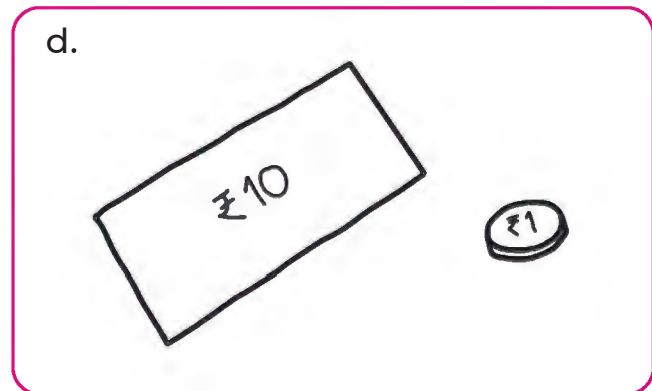
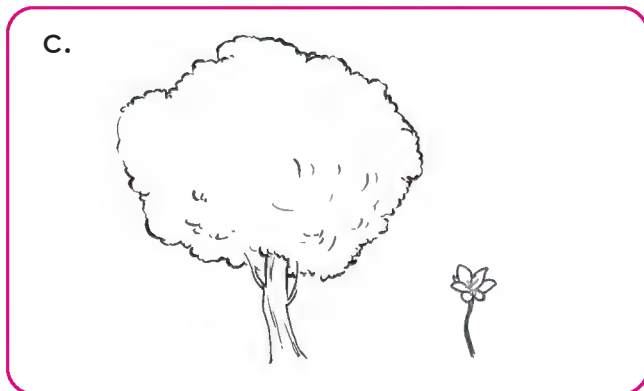
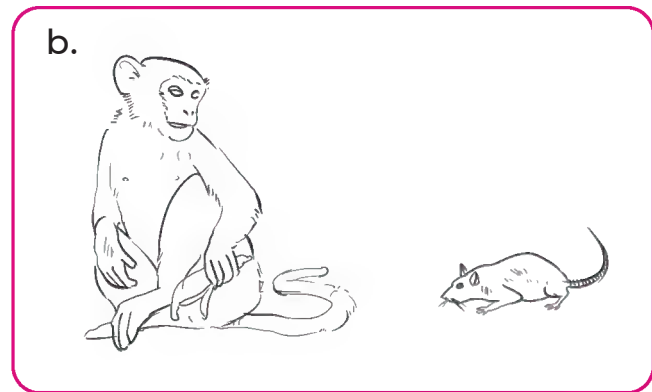


4. Why could they pick up the pieces of the watermelon?

1. Circle the heavier one.



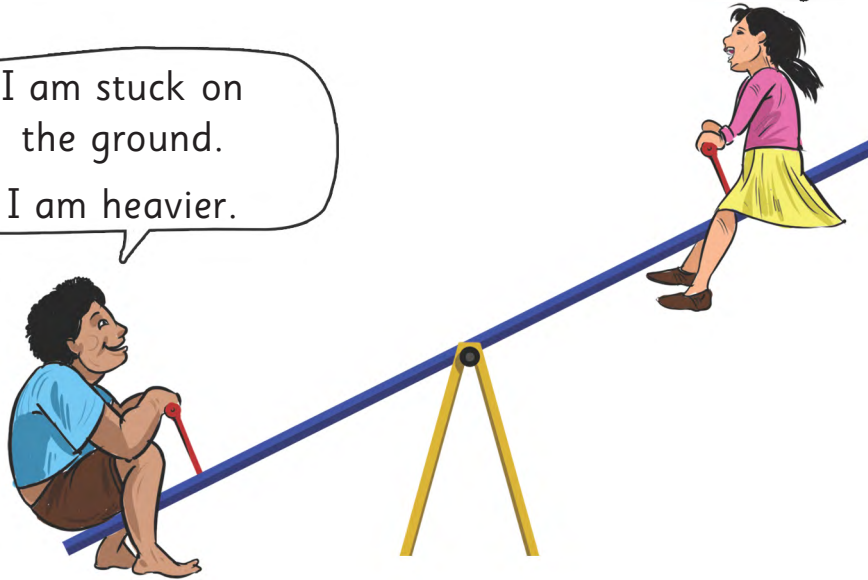
2. Colour the lighter one



Who is heavier?

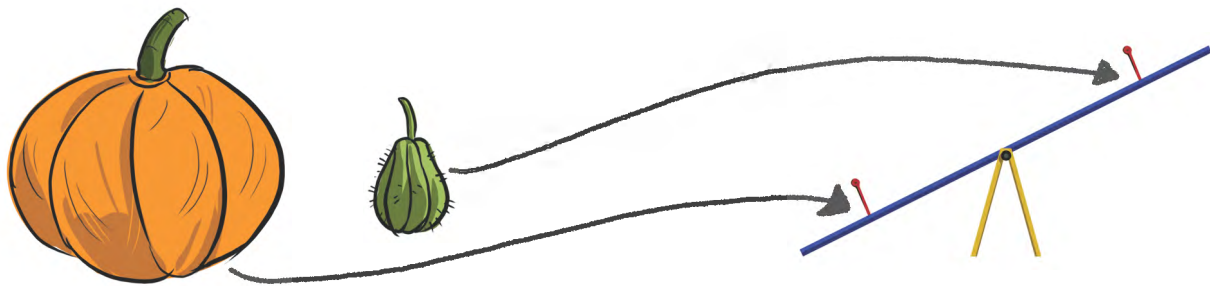
I am stuck on the ground.
I am heavier.

I am in air.
I am lighter.



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

a.



b.



c.



How much can Sarita carry?



Sarita is a 7 year old child. She has come to buy a packet of salt.

1. Can she carry a packet of salt?
2. Can she carry 10 packets of salt?



Arun's father came to the shop to buy cow feed.

3. Can he carry a big bag of cow feed?
4. Can he carry 10 packets of sugar?



Arun's father also wants to buy some loose salt.

5. How do you think the shopkeeper will give it to him?

6. Guess who can carry what:



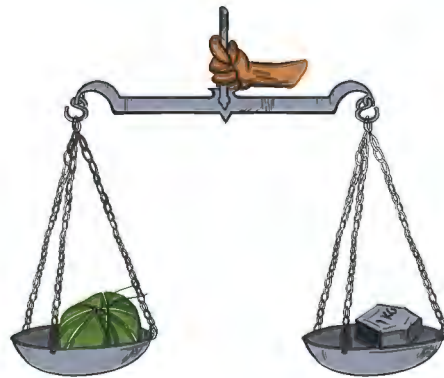
a. Her father?

c. Her brother?

b. Her mother?

d. Which items can you carry?

A lady came to Sarita's house. She had vegetables, fruits and some butter in a doko.



How much butter did Sarita's mother buy?

Find out

1. How much onion do your parents buy at one time?
2. How does the vegetable seller weigh the onions?
3. How much rice do your parents buy at one time?



Chunnu and Munnu



Hello friend! Good morning!
Let us go school together.

Okay



Yesterday my father wanted to make momo. So, he sent me to buy 1kg wheat flour (atta) and 1kg cabbage.

Ah! I like momo too!



1. What was the total weight carried by Chunnu?



1kg of wheat flour and 1kg of cabbage was heavier than my school bag. I have 2 books, 2 copies, pencil box, water in small bottle.

So our school bag is less than 2kg.



One day a medical team came to school for vaccination. The class teacher made health cards for all the children, measuring their heights and their weights.



Hey! What's your weight? I am 25kg.

I am 23kg only, you are heavier than me.

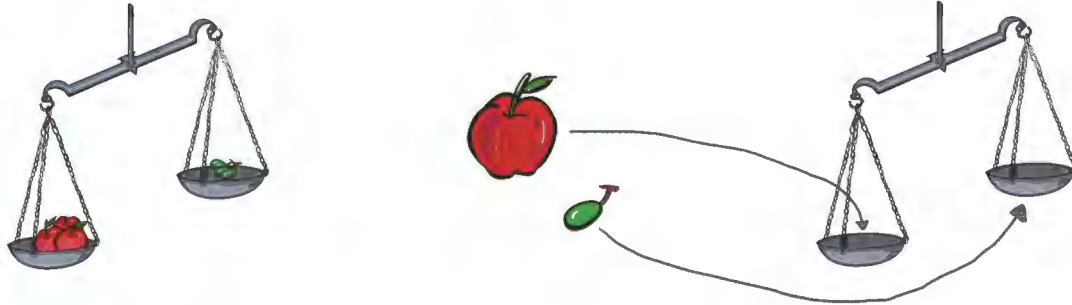


2. Guess and find out

- a. What is your weight?
- b. Guess your friend's weight.
- c. Guess how much weight you can carry.
- d. Guess the weight of your school bag.

3. Look at the following images and put the things in the correct pan. The first one is an example done for you.

a.



b.



c.



d.



6. Playing with Lines



Lines in Our World



Dear friends see the roads on Old Silk Route, Silk trading route between India and China at Zuluk, East Sikkim.



Sevoke Road on the way to Siliguri



Palzor, how is the Zuluk Road? Show it on the board.



Wow, very beautiful!
Now Sita, what about Sevoke road?



1. Look at the roads drawn by Palzor and Sita.

They are _____ (same/different).

Draw Zuluk road

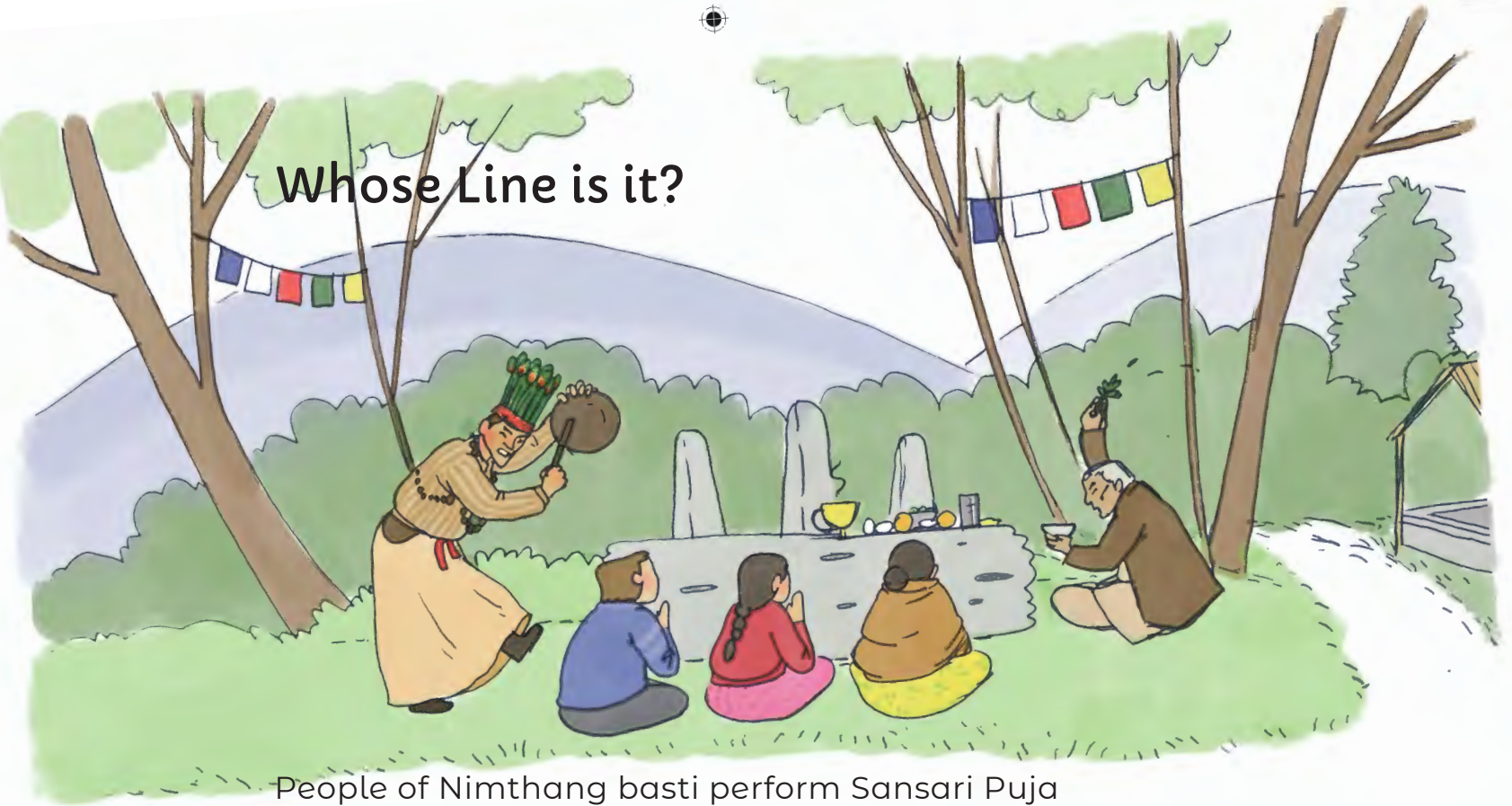
Draw Sevoke road

a. Zuluk road is _____ (straight/curved) and the

b. Sevoke road is _____ (straight/curved).

Teacher's Note: Raise questions like: Which places in your surroundings give an idea of curved and straight lines?

Whose Line is it?



People of Nimthang basti perform Sansari Puja (Mother Nature Ceremony) on Saturday or Tuesday of the months *Phagun*, *Chaitra* or *Baisak*. All villagers gather to worship nature. This puja is performed for prosperity and to protect their village from evils at Nimthang Dhara. Chewghar Bajey, Gangkhi Ajyo and Keyongmet Theungpa decided to go together on this occasion.



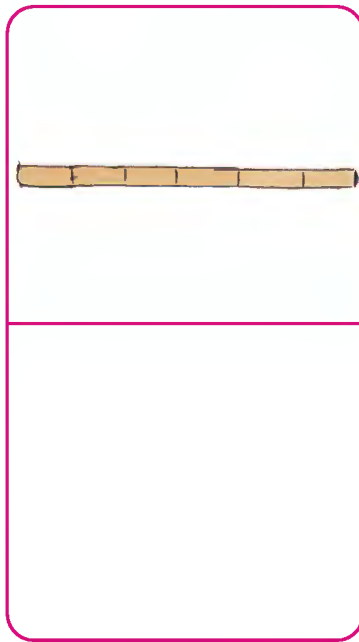
On the way to Nimthang Dhara, there is a place called Deorali where they offer Titey-Pati and they decided to rest for a while at Chautara.



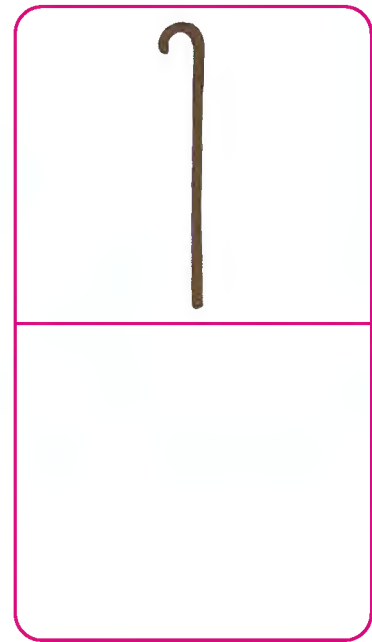
1. Let us draw how the walking sticks were placed:



slanting line

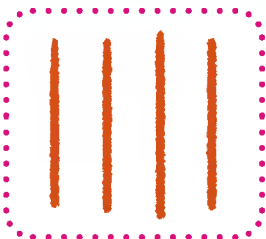


sleeping line

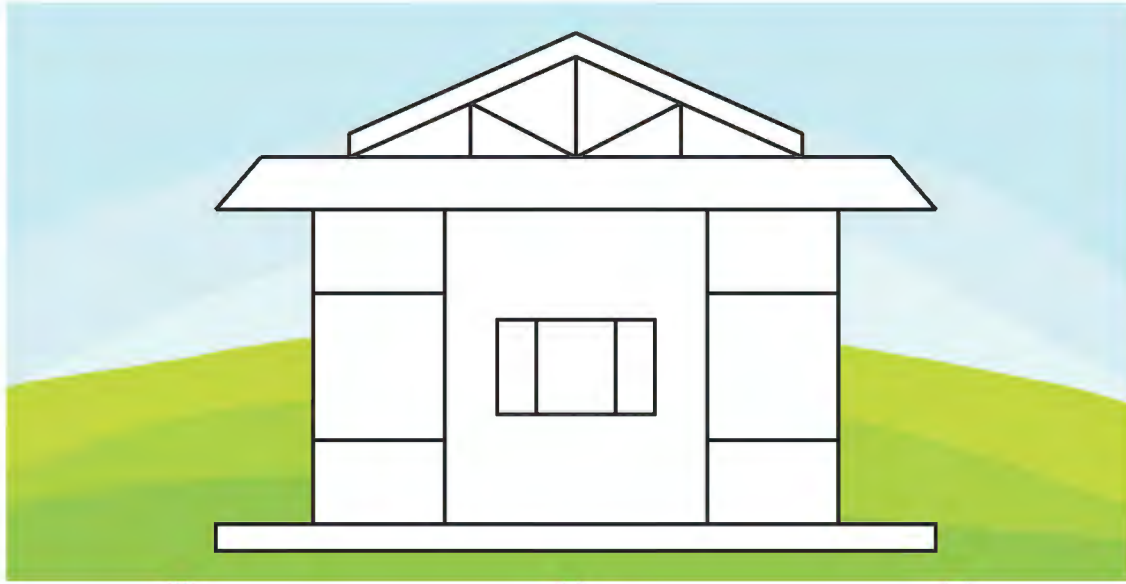


standing line

Here are some standing lines, slanting lines and sleeping lines.



2. Count and write the number of lines:



sleeping lines



standing lines



slanting lines

3. Which of the following have:

= I L A N + T W
Z X □ E ▽ M K 4

a. Only standing lines

.....

b. Only sleeping lines

.....

c. Only slanting lines

.....

d. Only sleeping and standing lines

.....

e. Only standing and slanting lines

.....

f. Only sleeping and slanting lines

.....

g. Standing, sleeping and slanting lines

.....

4. Draw some new shapes with:

a. Only slanting lines

b. Only standing and sleeping lines

c. Only sleeping and slanting lines

d. All these lines

How to draw lines

I can draw lines with the side of my box.



I will try to draw lines with only my hand.



I can draw lines with a scale.



a. Join the ant with its food with a blue line.

It is a _____ line.

b. Join the cat with its food with a black line.

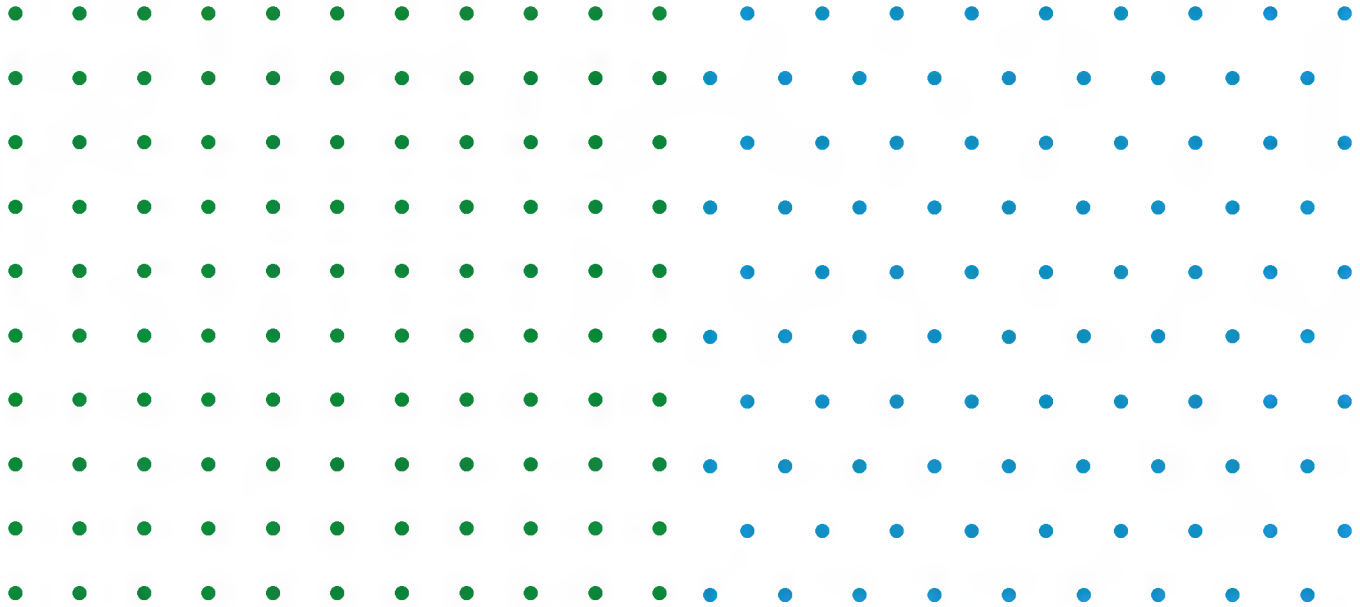
It is a _____ line.

c. Join the bird with its food with a green line.

It is a _____ line.

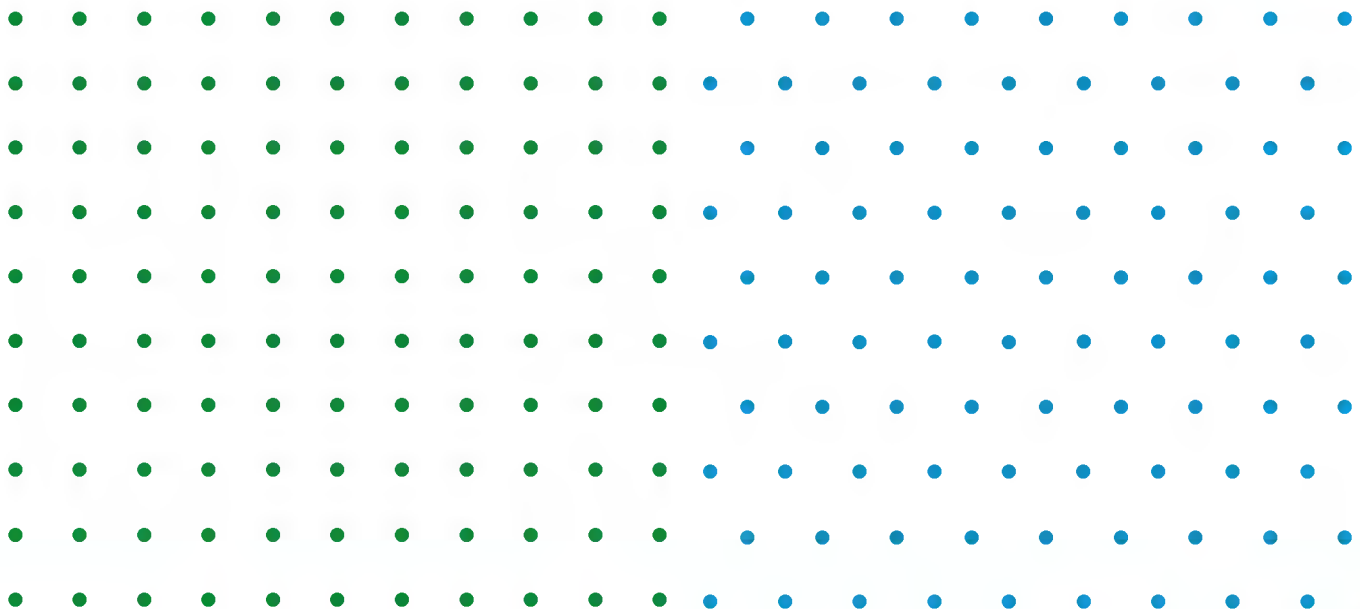
✂ Let us play with dot sheets:

1. Draw some new shapes with:



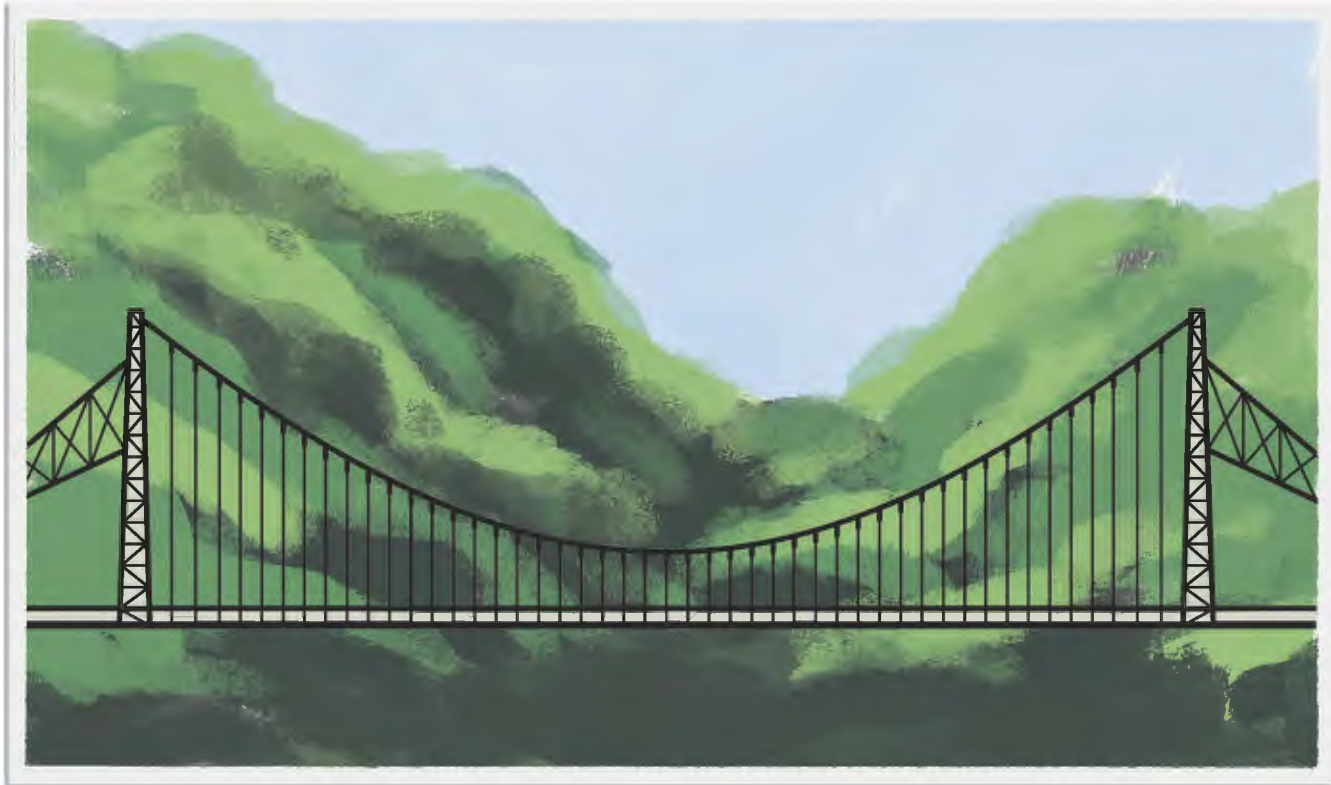
Ekta's lines are not straight.
These are curved.

2. Draw more curved lines by joining the dots like Ekta.



Lines in Pictures

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



Let us observe the prayer flags.

1. Tick the pictures where the line of the flags is curved.

a.



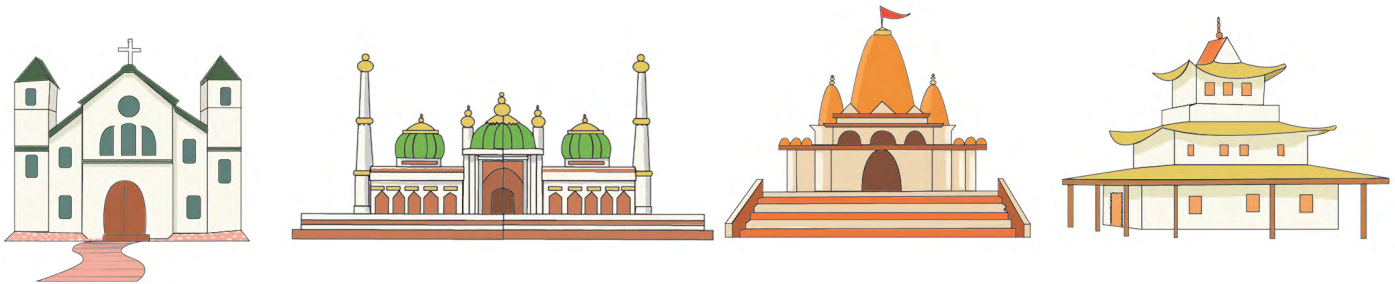
b.



c.



Places where we pray



1. Find out:

- Which of these have doors made with only curved lines?
- Which of these have windows with only straight lines?
- Which have curved and straight lines on their doors?
- Which ones have curved lines on their roof?

Let us play with lines

Hangma 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. Hangma made more numbers and letters with used matchsticks.



Teacher's Note: Children should be allowed to observe the figure and they should realise that all the figures can be drawn using only straight and curved lines.

Activity time:

Collect used matchsticks. Have fun making numbers and letters with these.

- Write your name and age with matchsticks.
- 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.

What is straight?

Hold a piece of thread with both hands.



Can you make it straight?



Now bring your hands closer. Is the thread straight now?



Can you make it straight and slanting?

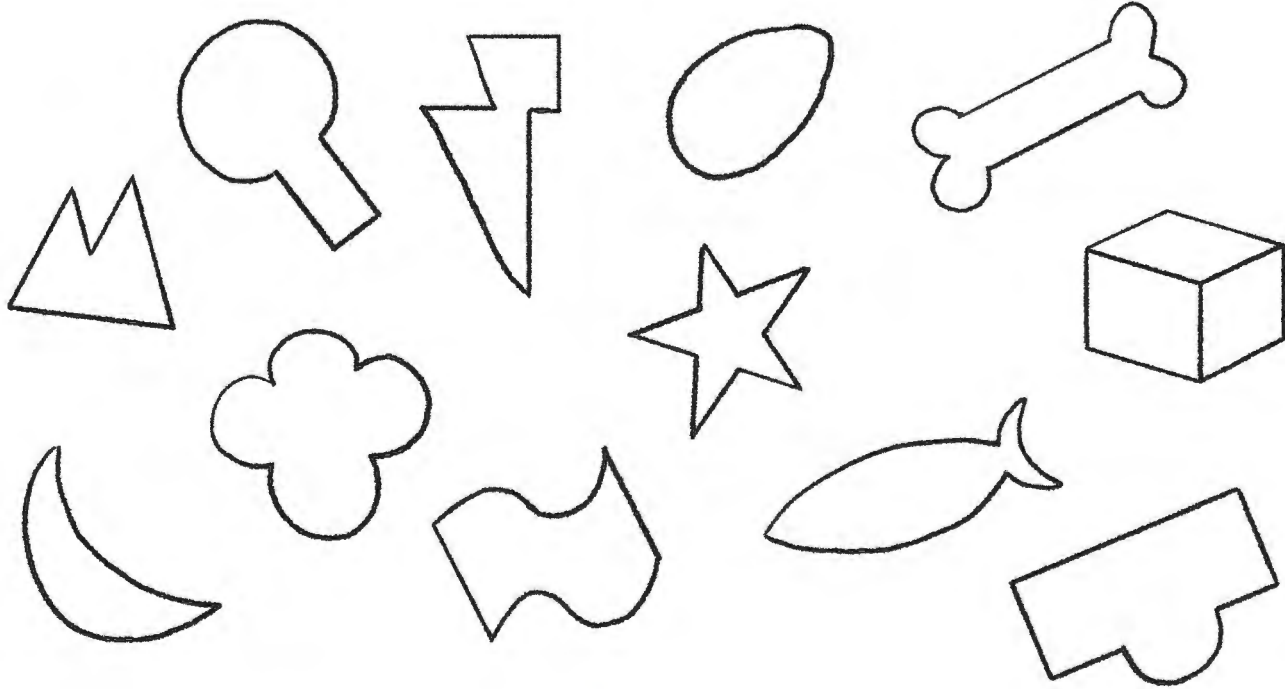


Can you make it straight and standing?



1. Identify the Lines

- a. Colour the shapes with only straight lines green.
- b. Colour the shapes with only curved lines blue.
- c. Colour the shapes with both straight lines and curved lines red.



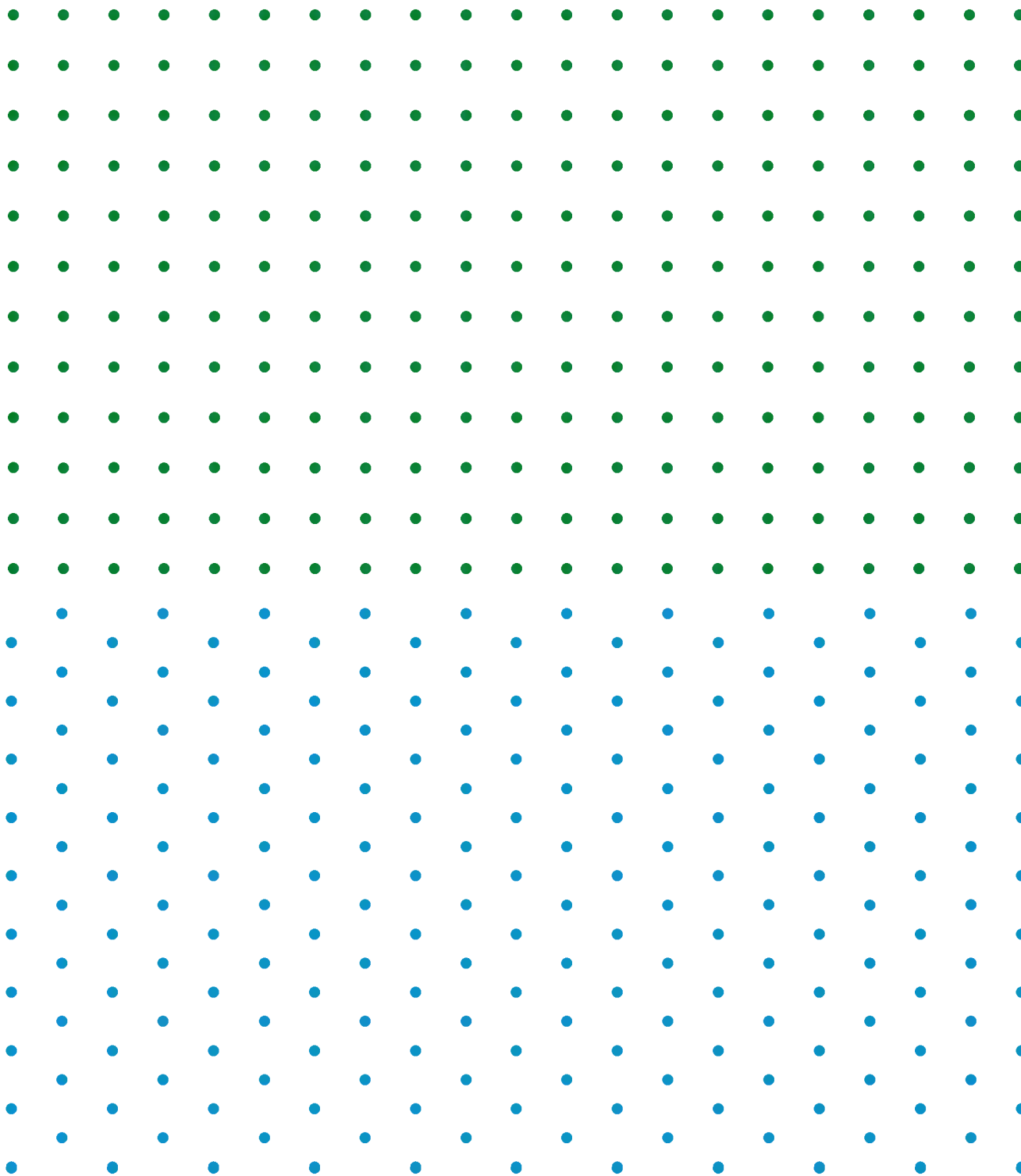
2. Put letters and numbers in the correct boxes in the table.



	Letters	Numbers
Only straight lines	L	
Only curved lines		6
Both curved and straight lines	B	

3. Designs with Dots

Join the dots with curved or straight lines.
Make your own designs.

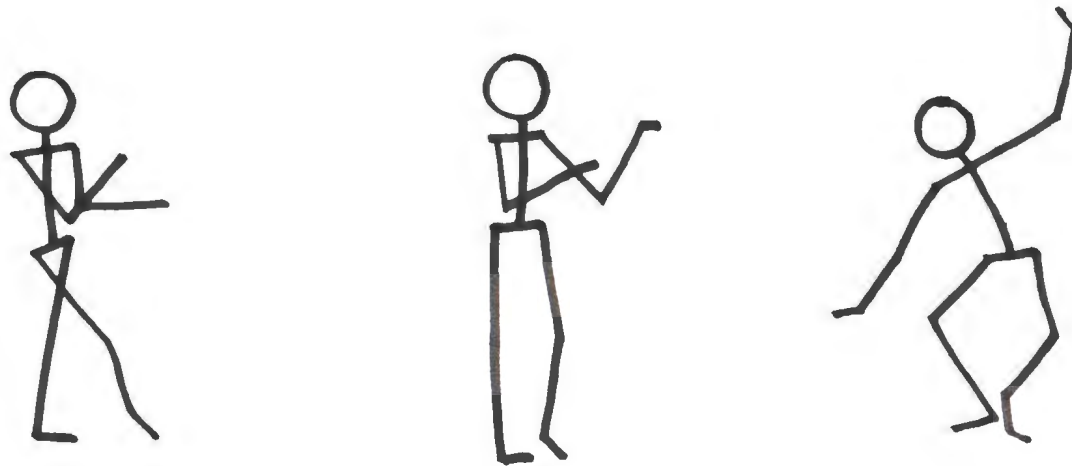


Teacher's Note: Separate sheet of papers with dots can be given to the children for designing.

Dancing Lines

Sikkimese Folk Dance

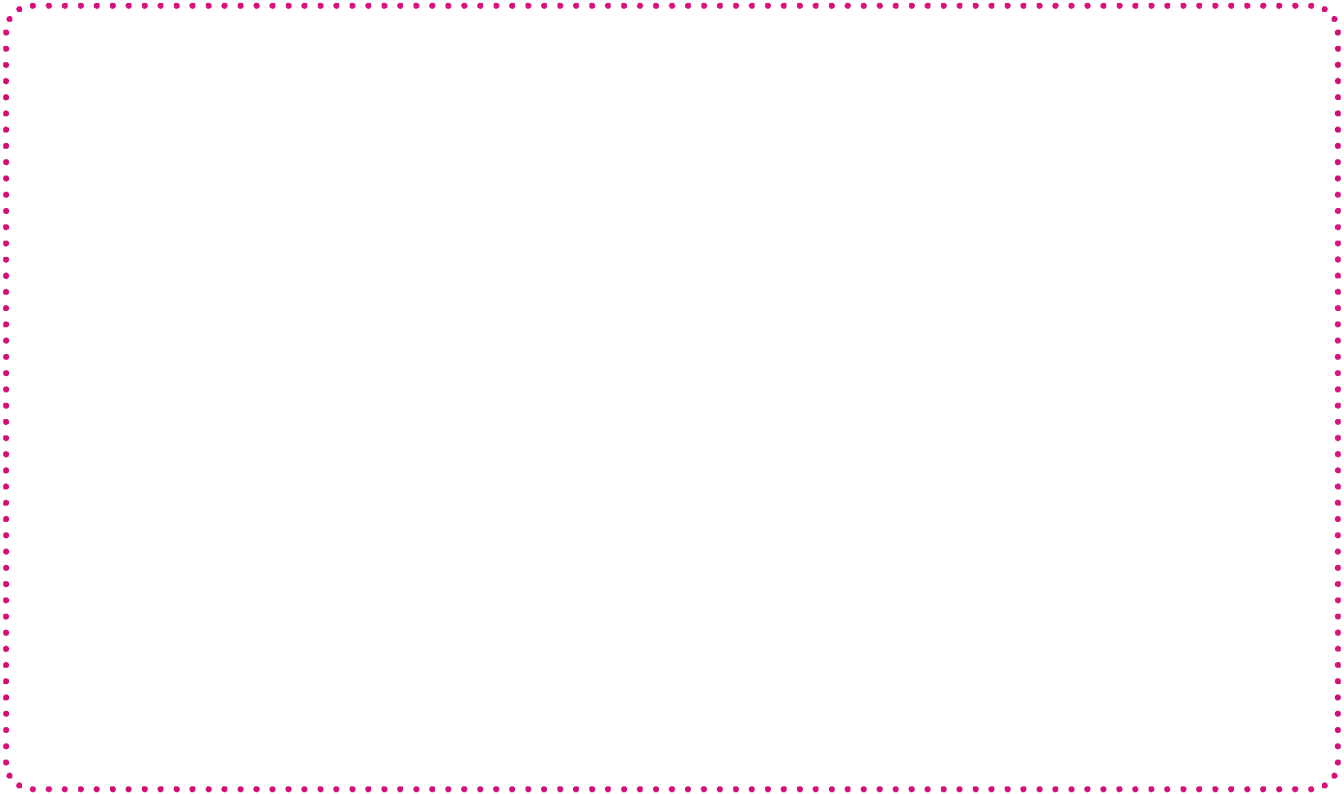
Do you know this dance form? Would you like to dance in the class. Look how the dancers are moving their hands and legs. They look like standing, sleeping, slanting and curved lines.



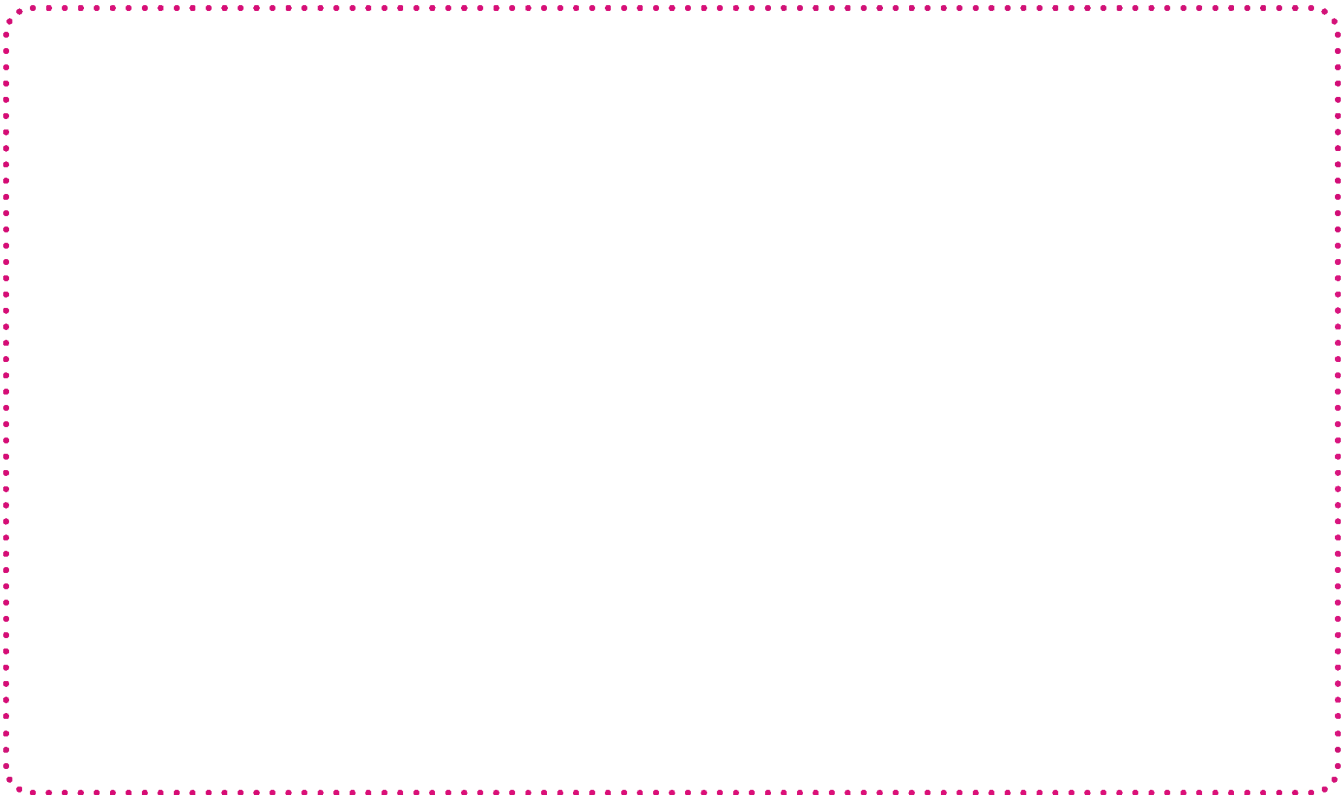
You can dance like the people given in the picture above.

Teacher's Note: For folk dancing, teacher can show how the standing, slanting, sleeping and curve lines can be made. Children can be encouraged to look for different lines or shapes in pictures or school/ T.V. programmes.

1. Make some more dancing stick figures.



2. Draw some pictures of your choice using the straight and curve lines.



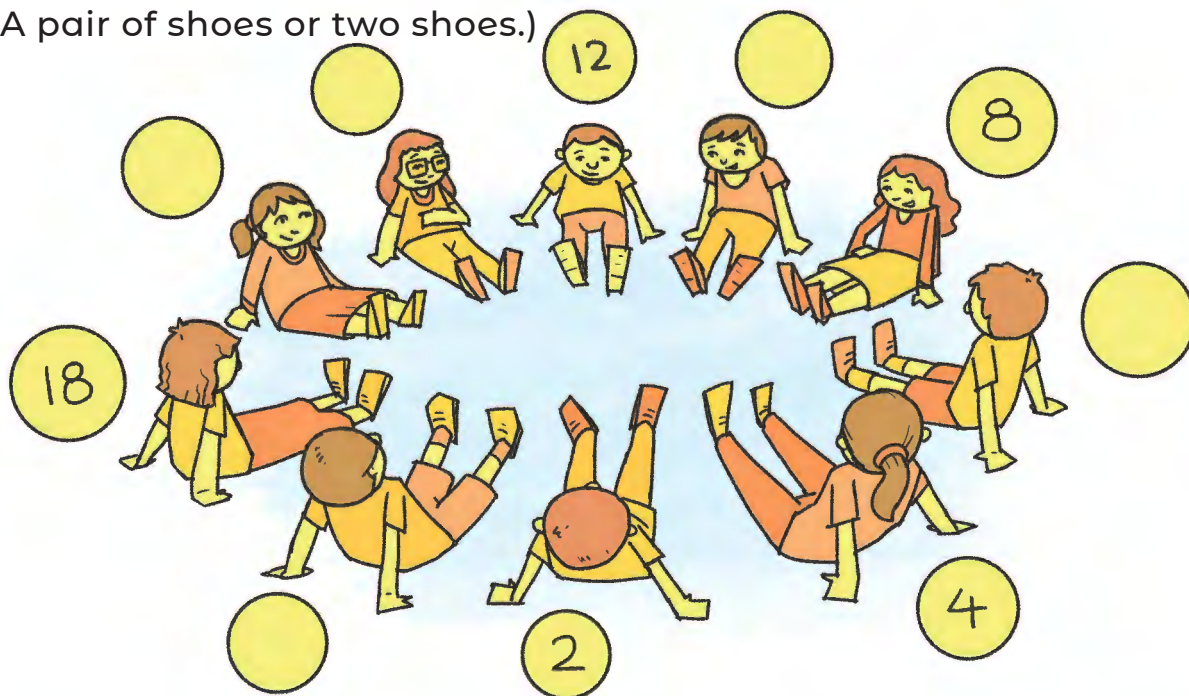
7. Grouping and Skipping



Another way of counting.

Class 2 children are getting ready for Annual Sports Day.

1. How many shoes do we need for these children?
(A pair of shoes or two shoes.)

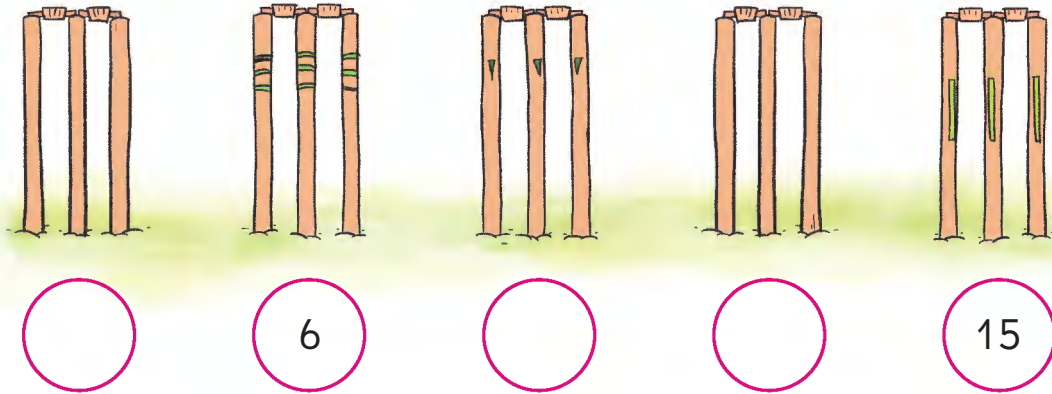


2. Count the total number of shoes without counting each shoe.

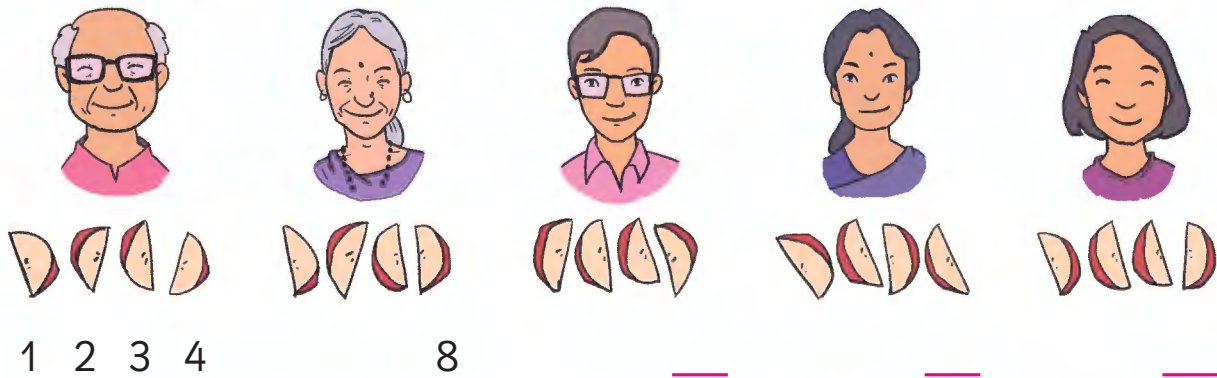


Can you count the total number without counting each?

1. Have you seen this? What do we call this? Where are this used?
How many stumps are there in total?



2. Sohana wants to distribute 4 slices of apples to her Bajey, Boju, Baba, Ama, and her Didi. Find the total number of slices she needs.



3. Grandpa has trouble cutting his nails. So his grandson Ramesh, clips and trims his finger nails and toe nails.



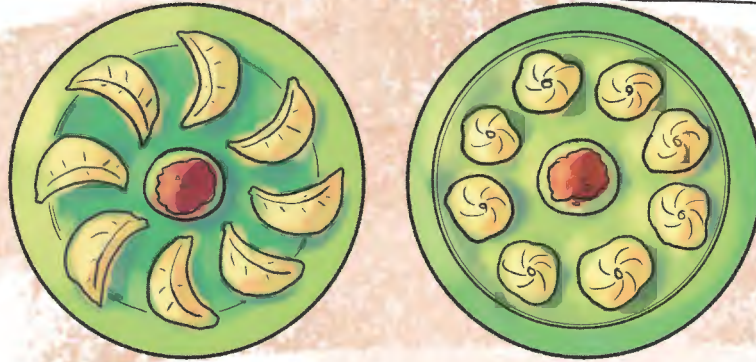
Total number of nails trimmed =

4.



Papa, I am hungry. I want to eat momo.

Let's have two double momo.



How many pieces of momo do we have in two doubles?

_____ pieces of momo

5.

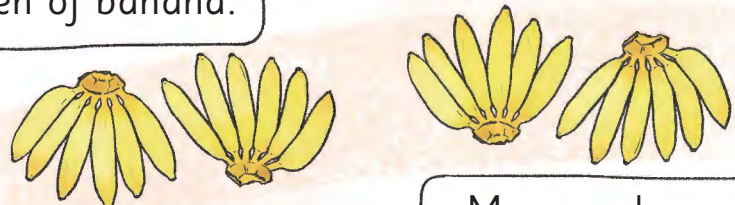


Do you like banana?

Yes, I like very much.



We will buy two dozen of banana.



Mummy, how many bananas are there in two dozen?

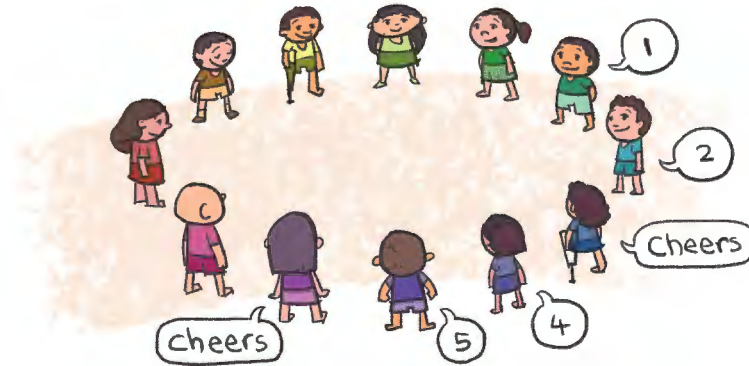


1 dozen is _____ and so,
2 dozen = _____ + _____ = _____ bananas

Teacher's Note: Teacher can take the help of ganitmala for counting in groups. Also, s/he can use the number line for jumps of 2, 3,..., 10. Children should be encouraged to count in groups not one by one. The idea here is to encourage them to look at the arrangement of objects and use the strategy of counting in groups.

Let Us Play “Cheers”

- Step 1 -** Stand in a circle. Choose who will start counting. Starting person says 1. Next person says 2. Every 3rd person has to say “cheers”



- Step 2 -** If you say the number when you should say “cheers”, then you are out



- Step 3 -** The game starts again from the next child. The last person is the winner.



Teacher's Note: This game can be further extended for skip counting of 4, 5, 6, 7, 8, 9, 10

Let us do

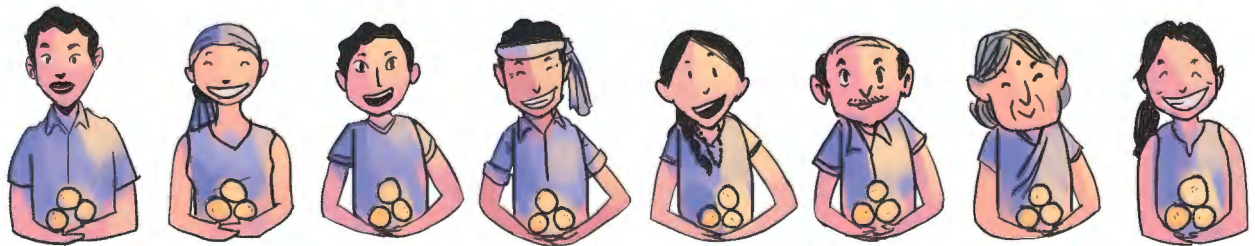
1. Class 2 children wash both their hands before the mid-day meal. There are 20 children.

How many hands have been washed among 20 children?



2. We celebrate 15 August as our independence day. On this day, Class 2 students decided to distribute 3 sweets each to 15 people repairing roads near their school.

How many sweets are distributed?



3	6	9					
---	---	---	--	--	--	--	--



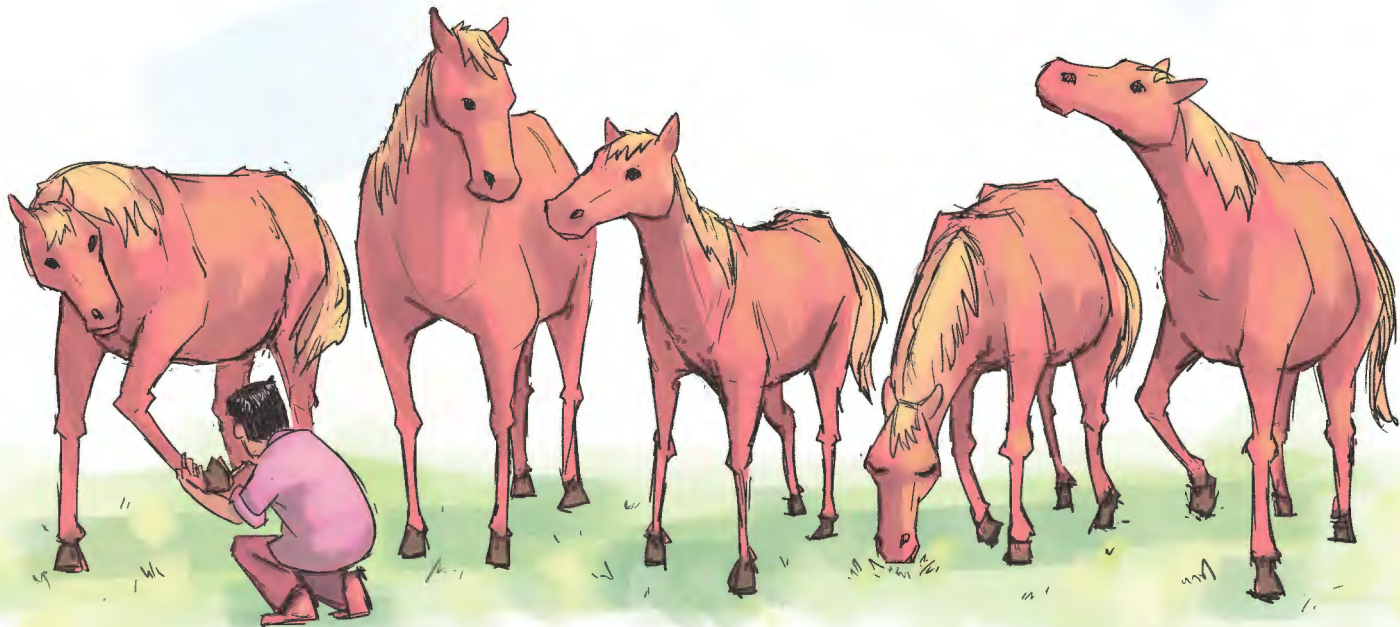
--	--	--	--	--	--	--

3. Years ago, in Sikkim, we mainly depended on zho, yak, khachchar (mule) and horses for transportation.

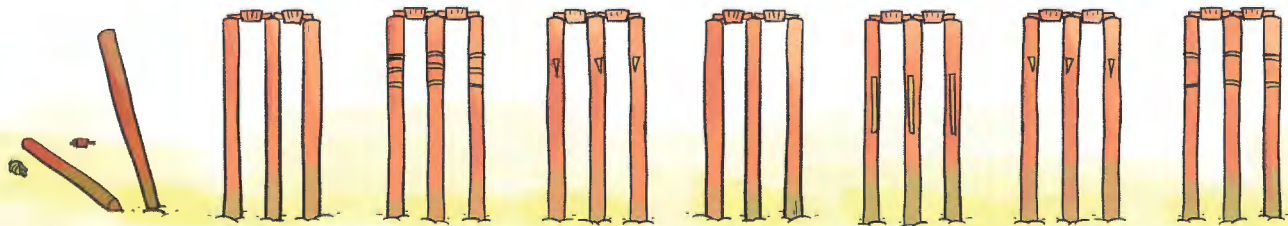


Horse-shoes were used to protect the hooves of these animals.

How many such shoes are required for 5 horses?



4. Count the total number of stumps.



Teacher's Note: Children can answer the question without knowing the multiplication. They do the repeated addition, which is in fact the preparation for multiplication. Teacher can create their own word problems for repeated addition of 5, 6, 7, 8, 9, 10.

8. Collect and Tell



Landslide



Gyan

During rainy season there is always a chance of landslide.

Yes, you are right Gyan! Due to yesterday's rainfall there was a landslide in our village. Losing.



Biren



Ingsa

Oh my God! Biren was there any loss of lives?

No Ingsa, but many houses and trees fell. People and animals were hurt.



Biren



Bhaichung

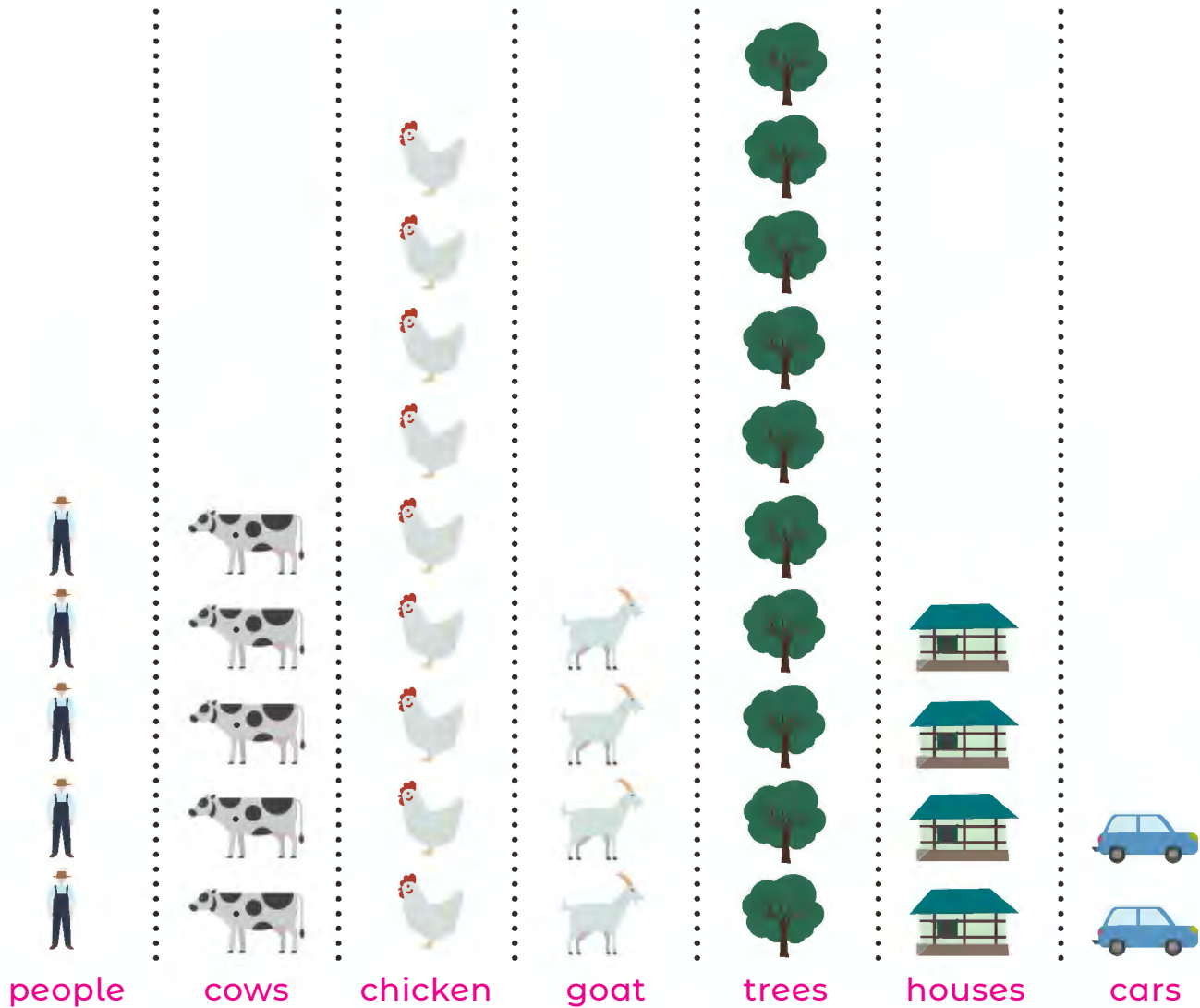
Oh! So sorry! How many houses and trees got damaged and how many villagers, domestic animals got injured?

There was much damage and many injuries. Here are the details.



Biren





1. Let's find out

- a. _____ people were hurt.
- b. Number of houses fallen is _____
- c. _____ animals were hurt.
- d. Which animal had most injuries?
- e. How many more/less chickens were hurt compared to goats?
- f. How many more/less houses were fallen compared to trees?



Students organised the tree plantation programme in landslide area of Biren's village.





This is the list of trees we planted.



Dhupi

27



Chilauney

51



Uttis

89



Pani Saaz

51



Katoos

47



Serees

34

2. Let's find out

- How many Dhupi, Chilauney and Serees trees were planted?
- Name and draw the trees which were planted the least.
- Name and draw the trees which were planted the most.
- Children planted some more Uttis trees to make it 100. How many more did they plant?
- Name the trees which were planted in equal numbers.
- Katoos were planted more than Serees. How many more?

We planted trees in and around our village years back. Since then we have had very few landslides.



Cleaning up!



Sekher

We are going to clean our school and the surrounding area today after the school gets over.

Lets do it on the coming Saturday after 1pm.



Anjana



Karna

But remember we will have to collect plastic water bottles, cold-drink bottles, plastic wrappers, paper wrappers and twigs separately.

That's ok, let us do it today.



Debu



Tashi and his friends cleaned their school and the surrounding area.

Tashi counted the plastic bottles, plastic wrappers, paper wrappers and twigs:



plastic bottles

20



plastic wrappers

98



paper wrappers

89



twigs

70

And here comes Anupama with another idea:

Waste items	Quantity
Plastic bottles	20
Plastic wrappers	98
Paper wrappers	89
Twigs	70



Kuldip

This tells us that plastic waste is more. They are harmful and many animals lose their lives because of plastic. Can we reuse them?

Yes, we can reuse these plastic wrappers by making items like basket, pira and flowers for school.



Gopal





Suraj

We are using plastic water bottle which is also not good for our environment. Instead, we can bring water from home to avoid using this type of bottles.

We cannot even burn them. Because burning produces smoke which causes air pollution.



Davi Bhakt



Dhan Kumar

Let's use those water bottles for growing flower saplings.

We can also make decorative items like



Arun



Swati

From now on, let us collect plastic waste separately and reuse it.

What to do with twigs?



Kewal



David

We will give them to our aunt who cooks our mid-day meal.

What to do with paper wrappers?



Rajiv



Trinity

We will keep this for cleaning glasses of our classroom windows.

1. Use the table to answer the following:

- a. Total number of plastic water bottles and plastic wrappers are _____
- b. Paper wrappers are _____ (more/less) than plastic wrappers by _____.
- c. How many bundles of ten can we make from the twigs?
- d. Sita has a bag which can hold only 5 bottles. How many such bags are required to hold all the bottles?
- e. If one pira is made from roughly 20 plastic wrappers, then how many piras can be made from 80 plastic wrappers?
- f. If 8 pieces of paper wrappers are required to clean the glass of one window of your class, then how many wrappers will you need to clean all the windows in your school?
- g. If one basket is made from 30 plastic wrappers, then how many baskets can be made from 60 such wrappers?







I am thirsty!




Dorji estimated that he drinks about 2 glasses from the tap each day.



1. Ask your friends and fill the table below:
How many glasses of water do they drink in a day?

How many glasses ?	Number of children
	
	
	
	

2. Let us know:

a. The number of children who drink  glasses of water is _____.

b. _____ children drank  glasses of water.

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

 Our Doctor Uncle has another chart:

Age	How much water to drink in a day.
1-2 years	1 to 3 glasses
3-6 years	3 to 5 glasses
7-12 years	6 to 8 glasses
13-18 years	8 to 10 glasses

3. Find out

- Tashi Choden is 12 years old and drinks 6 glasses of water every day. Is she drinking enough?
- Sumit drinks 6 glasses of water every day and it is the right amount for his age. How old is he?
- Jangmu is 5yrs old and drinks 8 glasses of water every day. Is she drinking too much or too less?
- Mani Kumar drinks 7 glasses of water and should drink more. How old is he?

9. Pouring and Mixing



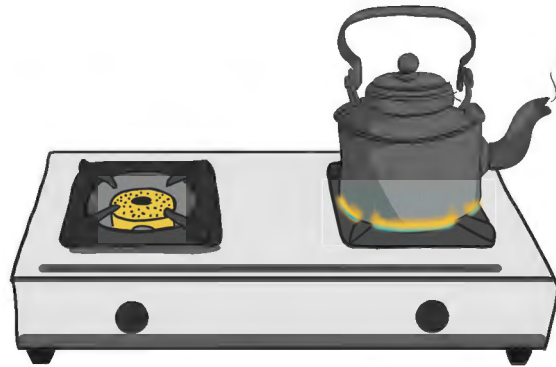
A cup of tea

Good morning! It's time to rise, stand up straight and do some exercise.

Make and enjoy tea

You will need

- one spoon of sugar
- one cup of water
- quarter cup of milk
- one teaspoon of tea leaves.

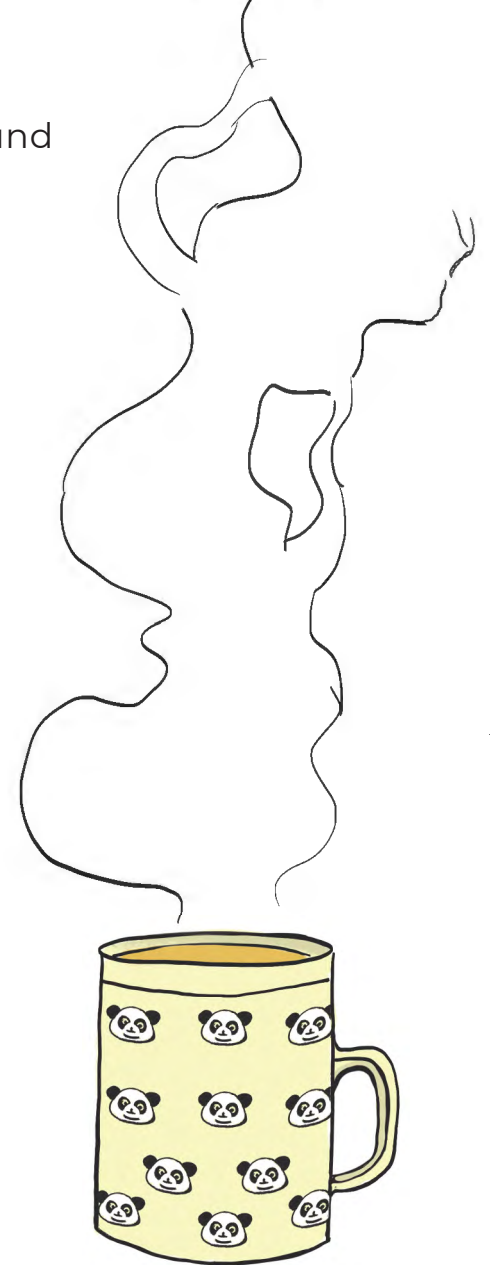


Hey! It's boiling, now tea is ready.

Enjoy your tea!

1. Ask and find out:

- How many cups of milk will you need to make 4 cups of tea?
- How many cups of water is needed to make 4 cups of tea?
- We need _____ spoons of sugar to make 4 cups of tea.
- How many spoons of tea leaves will you need to make 4 cups of tea?
- How many cups of tea do you drink in a day?



Fun in Filling Vessels

Find out how many cups of water will fill your bottle.
First guess and then try it out.



Now, fill bottles of different sizes with the same cup.

- Which flask bottle will hold less water?
- Which flask bottle will hold more water?

Abhi Hang and Domit brought different vessels from the kitchen.



a cup



a glass



a jug



a mug



a bowl



a pot



a jar




an empty
medicine bottle


They filled each of these with water.

- Guess which vessel will hold the least water?
- Which vessel holds the most water?

Now, you collect different vessels from your kitchen.


Use the same size cup  to fill each of them and count the number of cups of water each of them can hold.

First guess and then do it.

The vessel you used					
Number of cups of water to fill it					

 Circle the one which holds more water.


a.




b.



c.



d.



e.



f.



Water is useful

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

a.



buckets

mugs

b.



buckets

mugs

c.



buckets

mugs

d.



buckets

mugs

e.



buckets

mugs

f.



buckets

mugs

Guess and then find out:

1. How many glasses of water do you drink in a day? _____

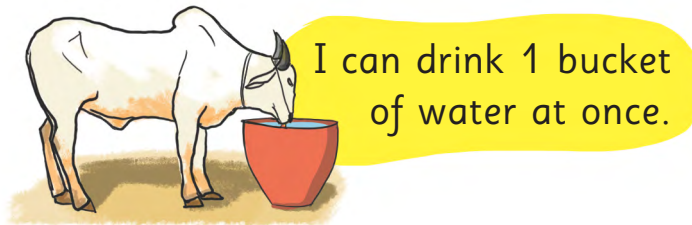
2. Ask your parents how many cups of water are used to cook 1 cup of rice at your home? _____

3. How many mugs of water do your parents use for watering plants? _____

4. How many cups of tea do people drink in the morning at your home? _____

5. How many manas/cups/bowls of rice is cooked in your house every day? _____

6. How many buckets of water can 2 oxen drink at once?



7. How many cups of water is need to fill a water gun?



8. How many cups of water will fill this can?



Milkman



Amber is a milkman. He sells milk to houses and dairy. Everyday Dawa's mother buys a pot of milk from Amber. He uses a mug two times to fill Dawa's pot.

Amber gives 8 mugs of milk to the dairy. It has big cans to collect milk. People bring milk and pour in those big cans.

One day Dawa's mother gave him a different vessel to take milk. Dawa found that the vessel was not full like before.



Oh! Today Amber has given me less milk



1. Do you think Amber has given Dawa less milk? Find out.
2. From whom do you buy milk?
3. How much milk do your parents buy every day?

Dawa has milk in one particular mug. One day his mug was not washed. So his mother gave him milk in a glass. Dawa was thrilled:



Mug



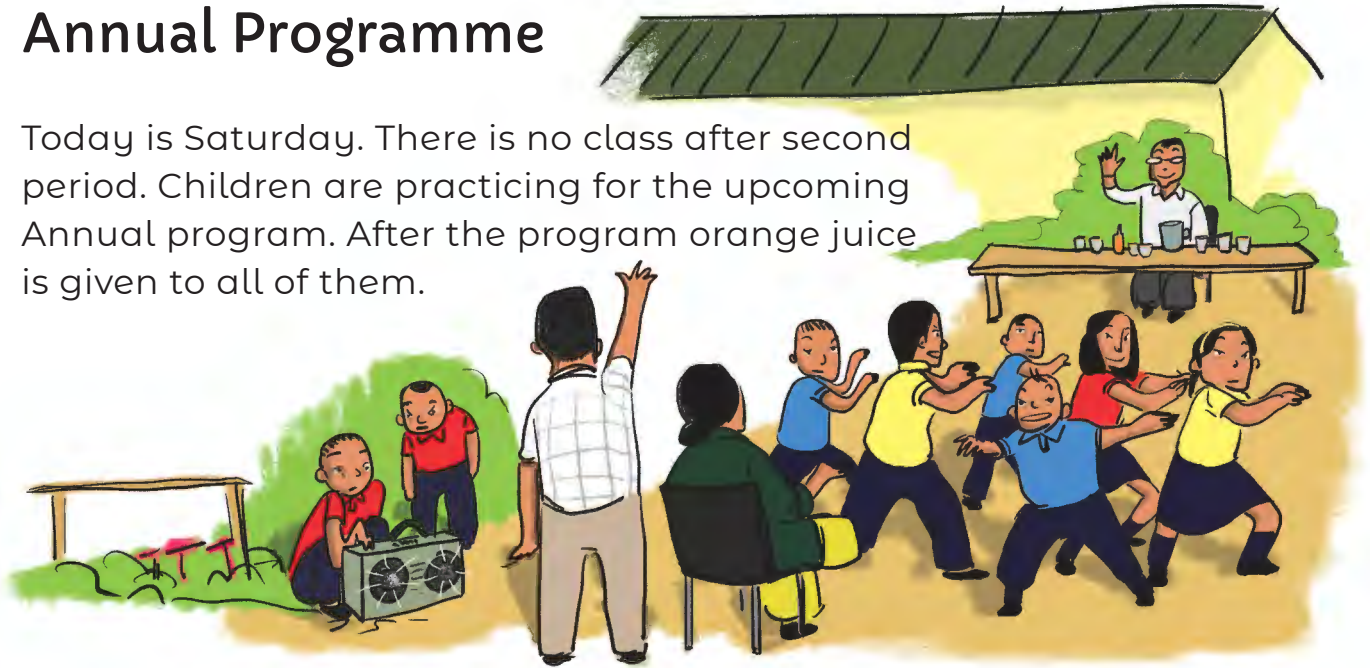
Glass



4. Do you think his mother gave him more milk?

Annual Programme

Today is Saturday. There is no class after second period. Children are practicing for the upcoming Annual program. After the program orange juice is given to all of them.



There are 35 children taking part in dance, Rinchen sir made juice for all.

One bottle of strong juice could fill 4 glasses. He poured one bottle of strong juice in a jug. Then he added water to it and the jug became full. It filled 7 glasses.



1. Rinchen sir added _____ glasses of water to 1 bottle of strong juice.

2. So 2 bottles of strong juice can make _____ glasses of juice.

3. 1 bottle of strong juice + _____ glass of water = 1 jug



4. If each child gets 1 glass of juice, how many jugs are needed for 35 children?
5. How many glasses of strong juice were used for 35 students?
6. How many glasses of water were used to make juice for 35 students?

 **Let us do a matching activity**





Gardening

Nisha, Karma and Manish wanted to grow flower plants. So they collected waste jars from their surroundings. They also brought unused ones from their homes. They cut the upper part of the jars and opened them.



Nisha brought 6 mugs  of mud and 2 mugs  of manure.



Karma brought 7 mugs  of mud and 3 mugs  of manure.



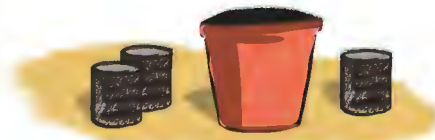
Manish brought 6 mugs  of mud and 3 mugs  of manure.

They put all the mud and manure together in a big container and it was full!



1. How many mugs of mixture were there in the big container?

2. 3 mugs of this mixture filled one pot.
How many pots could they fill?



3. If Manish wanted to fill pots with the mixture of mud and manure brought by him alone, than how many pots could he fill?

Cleanliness and Plantation drive

There is a cleanliness and plantation drive in the village. Nisha, Karma and Manish went with their parents. They removed the unwanted weeds and picked rubbish.



After the work, they arranged for a bucket of passion fruit juice. They used glasses to serve. All glasses were not of equal sizes. There were big glasses and small glasses. They saw a jug.



Bucket of juice



Big glass



Small glass



Jug

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

Manish found the jug  filled 4 big glasses. 

Karma found that 2 small glasses  filled 1 big glass.

2. How many small glasses  can be filled from a jug  ?

3. How many big glasses will fill half the jug?

10. Buying and Selling



1. Match the following:



₹17

₹25

₹35

₹50

₹15

2. Sonu has the following notes and coins with her.



Which notes and coins does Sonu need to buy the following things?



₹10

₹10



₹17



₹8



₹30

Manoj and Karma are friends. They stay in a village called Majigaon and go to the same school.



Karma have you seen the big fair near our play ground?



Is that so? I haven't seen it yet. Have you visited it?

Yes I went with my sister Reema yesterday but only for a short time.

Can we go together again? I haven't seen a fair for a long time.

Why not? There are so many games and a merry-go-round. I will ask my mother's permission.

Manoj's mother gave him ₹25 and Karma's father gave her ₹50. Manoj and Karma were happy. They checked the money before entering the fair.

Karma had 4 ₹10 notes and 5 ₹5 coins.

Manoj had 5 ₹ notes, 5 ₹2 coins and 5 ₹1 coins.



1. Manoj visited the aluchura stall, the burst-a-balloon stall and the merry-go-round. Karma visited the orange-juice stall, the merry-go-round, the ice-cream and the momo stalls.

- Karma had ₹ _____ more than Manoj.
- How much did Manoj spend?
- Manoj was left with ₹ _____ .
- How much did Karma spend?
- Total money spent by Kama and Manoj _____

2. What would you choose from these lists?
How much would it cost you?

my choices	how much I would spend

Geeta didi's Canteen

Geeta didi runs a small canteen near a school. Her shop gets full with students and teachers during lunch time.



1. Help her to calculate these bills:

1.	Momo	:	₹25
2.	Chowmin	:	₹15
<hr/>			

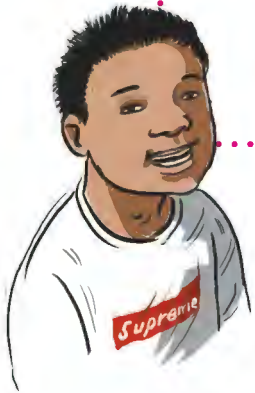
1.	Aludum	:	₹15
2.	Veg Phaley	:	₹8
<hr/>			

1.	Veg. Roll	:	₹12
2.	Pakora	:	₹10
<hr/>			

Make your own bill

1.	_____
2.	_____

2. Tshering wanted to buy noodles for ₹15. Which notes and coins can he use to pay Geeta didi?



What do you do with the money?



What do you think?

 **Practice Time:**

1. Sonam bought biscuits for ₹30 and a glass of chocolate shake for ₹15. How much will he pay?



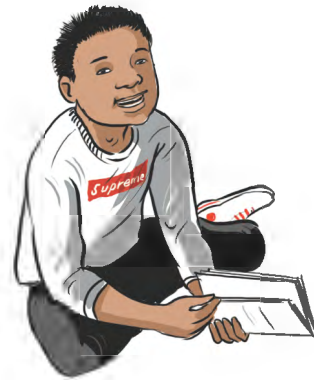
2. Rupa had ₹19. Her mother gave ₹15. How much money does she have now?



3. Tina had ₹25 in her bag. She gave ₹15 to her friend. How much money is left with her?



4. Tshering buys a story book worth ₹35. He gives a ₹50 note to the shopkeeper. How much money will he return?



5. Kavita buys a pen for ₹10, a pencil for ₹6 and a pair of erasers for ₹5 each. How much money did she spend? If she had given a ₹50 note to the shopkeeper how much will he return?



11. Calendars and More



Tick what takes longer

1.



Walking from one room to another

OR



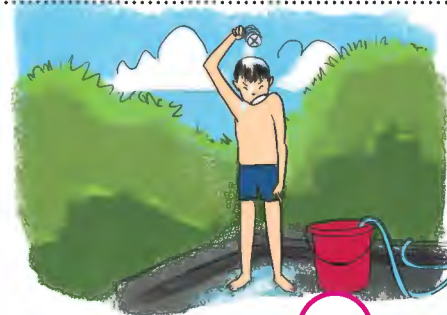
Walking from home to school

2.



Washing hands

OR



Taking a bath

3.



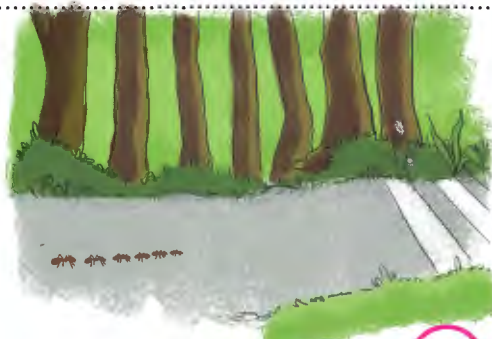
Growing rice

OR



Making tea

4.



Ant crossing a road

OR



Dog crossing a road

CALENDAR 2021

JANUARY 2021

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

FEBRUARY 2021

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

MARCH 2021

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

APRIL 2021

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

MAY 2021

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

JUNE 2021

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

JULY 2021

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

AUGUST 2021

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

SEPTEMBER 2021

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

OCTOBER 2021

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

NOVEMBER 2021

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

DECEMBER 2021

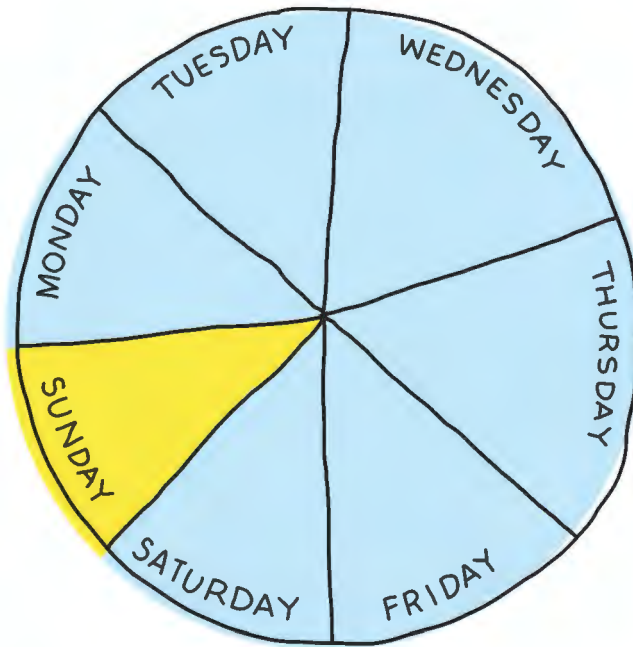
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

List of Holidays for 2021

New Year's Day	:1st Jan.	Saga Dawa	:26th May	Bahadur Bhandari,	
Barahimizong	:4th Jan.	Shyadar Pidar	:26th May	Former C.M. of Sikkim	
Maghe Sankranti	:14th Jan.	Bhanu Jayanti	:13th July	Durga Puja (Dasain)	:13-17th Oct.
Republic Day	:26th Jan.	Drukpa Tshe-zi	:14th July	Lhabab Duechen	:27th Oct.
Sonam Lochhar	:12th Feb.	Guru Rimpoche's	:19th July	Laxmi Puja (Deepawali)	:4th-6th Nov.
Losar	:12th Feb.	Thrunkar Tshechu		Puhgal Parim	:19th Dec.
Bhumchu	:27th Feb.	Tendong Lho Rum Faat	:8th Aug.	Teyongsi Sirijunga	:19th Dec.
Holi	:29th Mar.	Independence Day	:15th Aug.	Sawan Tongnam	
Good Friday	:2nd Apr.	Pang Lhabsol	:22nd Aug.	Sakewa	:24th Dec.
UCWSS Prayer Day	:11th Apr.	Janmasthami	:30th Aug.	Baharahimijong	:24th Dec.
Dr. B.R. Ambedkar Jayanti	:14th Apr.	Teej (Haritalika)	:9th Sept.	Christmas	:25th Dec.
Ramnavami (Chaita Dasain)	:21st Apr.	Indrajatra	:20th Sept.	Tamu Lochar	:30th Dec.
Id Ul Fitr	:14th May	Gandhi Jayanti	:2nd Oct.		
State Day	:16th May	Birthday of Late Nar	:5th Oct.		

Days of a week

1. Tick one day of the week



- a. Yesterday was _____ .
b. Today is _____ .
c. Tomorrow will be _____ .

Monday is the first day of the week.

Now answer the following:

1. The second day of the week is _____
2. The fourth day of the week is _____
3. The fifth day of the week is _____
4. The last day of the week is _____
5. Which day do you like the most?

Days of a week—Yesterday and Tomorrow

1. Fill in the table

YESTERDAY	TODAY	TOMORROW
Tuesday	Wednesday	Thursday
	Monday	
		Wednesday
Saturday		
	Friday	
		Thursday
	Sunday	

Activity

1. Fill in the days in the correct order



2. Is Sunday different from other days? How?

3. Is there something special on Mondays?

Teacher's Note: Encourage children to speak about days that they like. For example: Some places could have market day specifically for that place. Children may like a certain day because their favourite activity happens on that day.

Class Timetable

CLASS-2		Class Teacher - Mrs. Diki Bhutia						
DAY	1	2	3	4	5	6	7	8
MONDAY	Maths	English	Hindi	EVS	Nepali	Maths	EVS	Moral Science
TUESDAY	Maths	EVS	Nepali	Hindi	English	EVS	Maths	English
WEDNESDAY	Maths	Nepali	English	EVS	Hindi	Maths	EVS	Library
THURSDAY	Maths	English	EVS	Hindi	EVS	Nepali	SUPW	SUPW
FRIDAY	Maths	EVS	Hindi	English	Nepali	GK	Games	Games
SATURDAY	Maths	English	SUPW	Games				

1. Look at the timetable from 2018 and fill in the table:

PERIOD	DAYS
Maths	
Library	Wednesday
Games	
SUPW	
GK	

2. Which period in a day do you like the most?
3. Which day do you like to come to school the most?

4. Which is the last period on Friday?
5. How many Maths period are there on Tuesday?
6. Does Saturday have the same number of periods as Thursday?
7. Which period is after Hindi on Friday?
8. Which period is before Nepali on Wednesday?

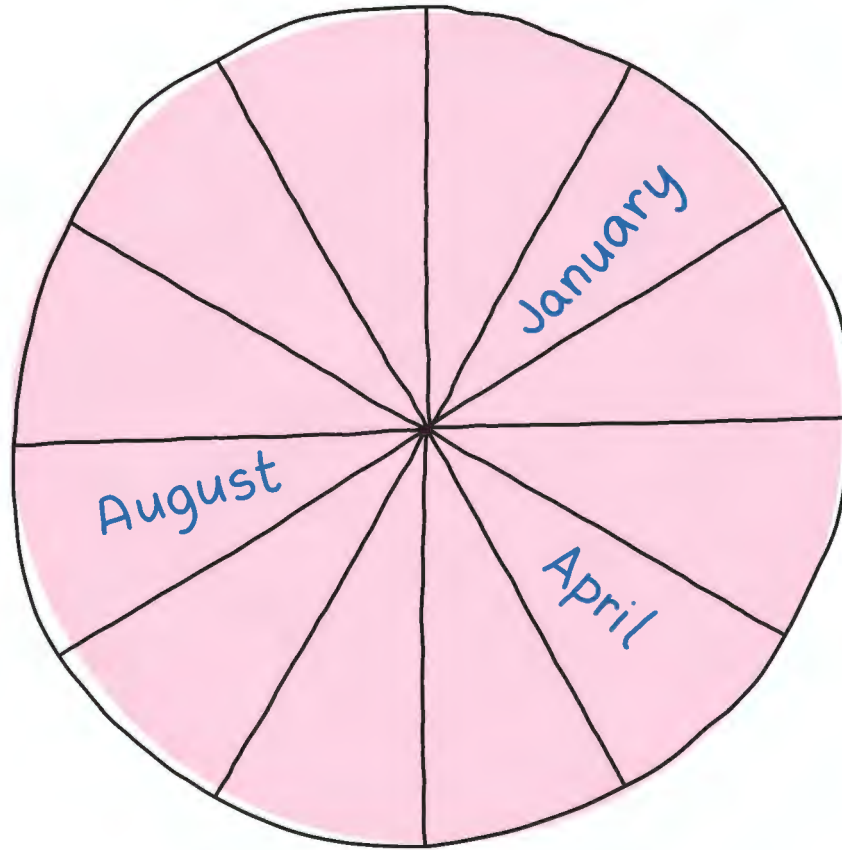
Months of the Year

 Which month comes next?

April	May	June	
August		October	
	February	March	
March			
July		September	
October		December	



1. Put the months in the correct order in the wheel below-



2. February is special. Why?
3. January has _____ days.
4. _____ and _____ also have the same number of days as January.
5. _____ has fewer number of days than January.
6. _____ has fewer number of days than January but more than February.
It has _____ days.
7. Which months have 30 days?
8. How many months have 31 days?

9. _____ is the shortest month.

It has _____ days.

10. _____ month has 4 Sundays.

11. July has _____ Sundays.

12. Which month has the shortest name?

13. Which month has the longest name?

14. I am different from other months.

- Which month am I?
- How am I different?
- Which month rhymes with me?

15. Which other months rhyme with each other?

16. _____ and _____ are months with 4 letters.

Both begin with the letter _____.

17. _____ and _____ are months with 5 letters.

18. _____ is a month with 7 letters.

Teacher's Note: Many of the above questions have multiple correct answers. Children should be given credit for any correct choice in each of these questions.

19. Match the pictures with the correct seasons and the seasons with the months.



Summer
We don't need sweaters.

Autumn
Sunny days after the rains, but not too cold.

Winter
It is very cold during this season.

Monsoon
These months are very wet.

Spring
It brings a lot of flowers.

September to November

December to February

March to May

June

July to August

20. List the fruits and vegetables available during different seasons in our place.

Seasons	Fruits	Vegetables

21. Write the names of festivals that you and your friends celebrate. Also write the months in which these festivals fall.

Festivals	Month

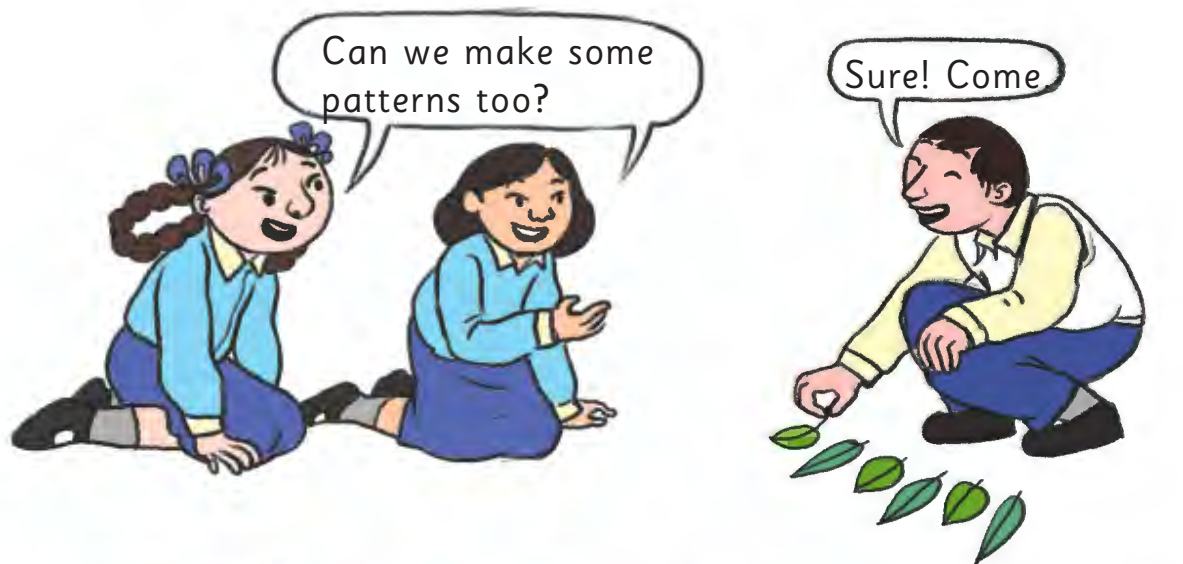
22. Create a poster of a special event that happens during your favorite season.

12. Playing with Patterns



One day Nima and Anu saw ferns while coming from school.





We used the same leaves but made so many different patterns!



1. Now collect some leaves and make some patterns with them.

Teacher's Note: These patterns can be made and stuck on chart papers. Then they can be displayed in the classroom. They can also be used to decorate the school on some festive occasion.



See, they must have some program in their school.



I love wearing a sari with such colorful designs like our mother.

How?

These patterns are different from the ones we made.



Our leaves were not exactly the same.

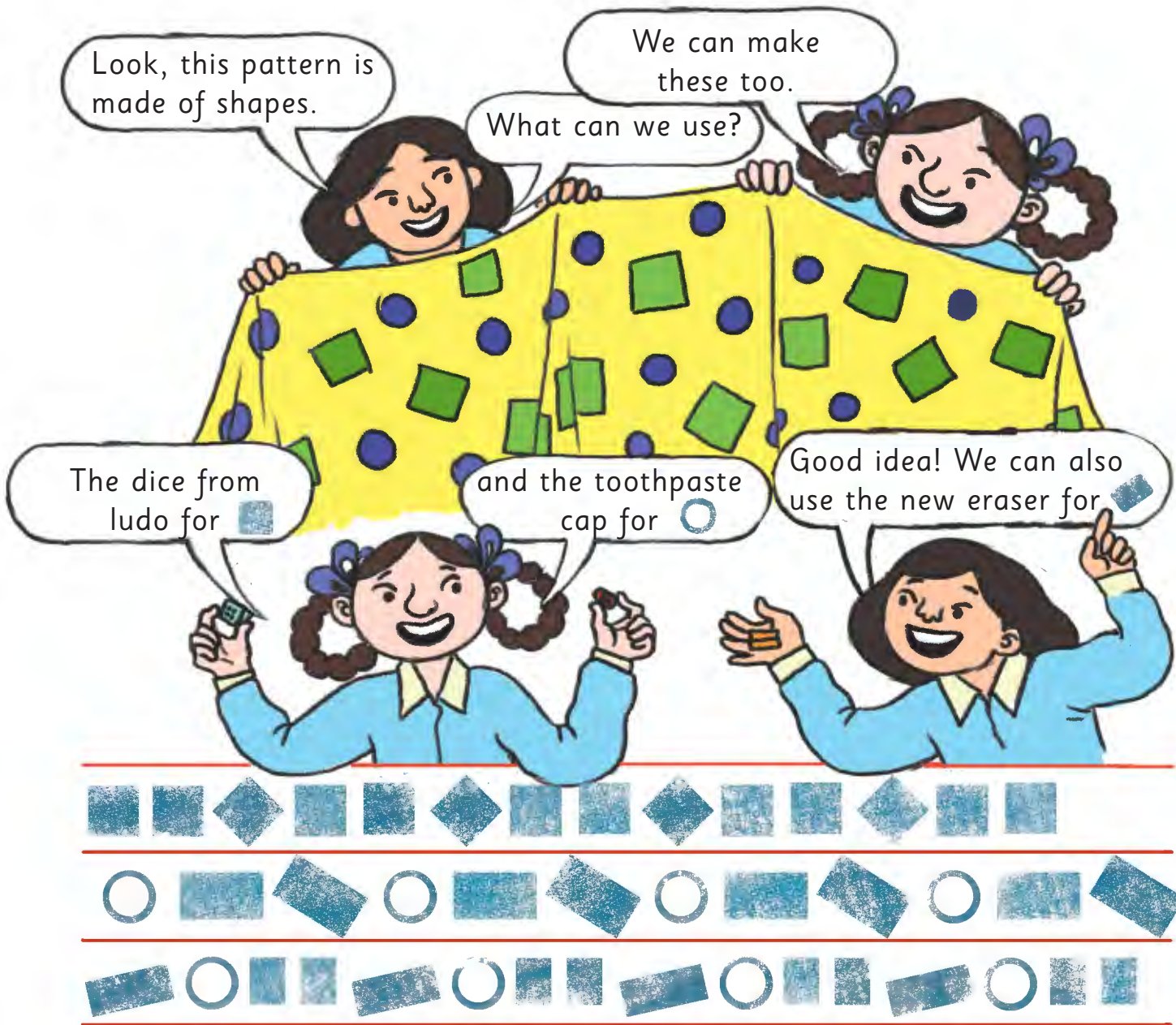


But the patterns in their dresses are exactly the same!





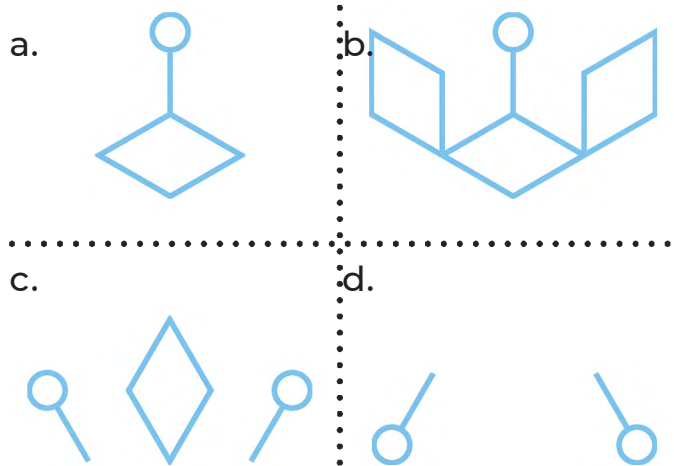
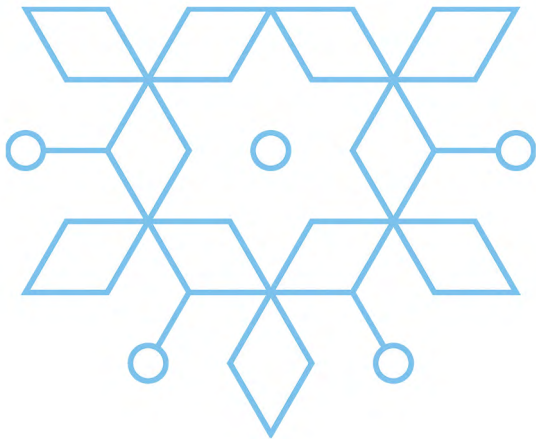
2. Your turn to make patterns:



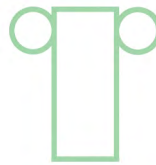
3. Make your patterns with shapes:

4. Next day they had an art and craft exhibition at their school. There was a big rangoli.

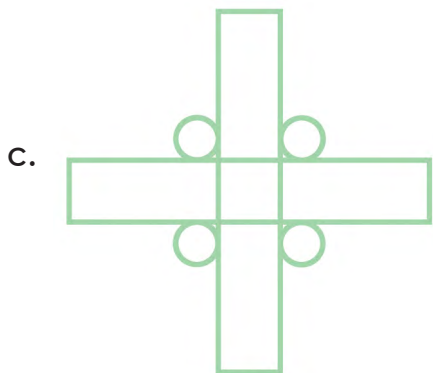
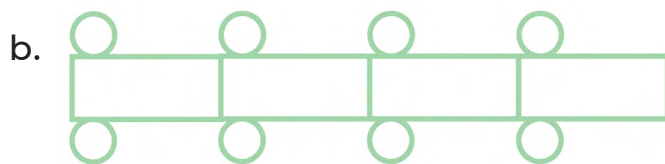
Look at the rangoli done by Nima. Help her to complete the rangoli by matching the block.



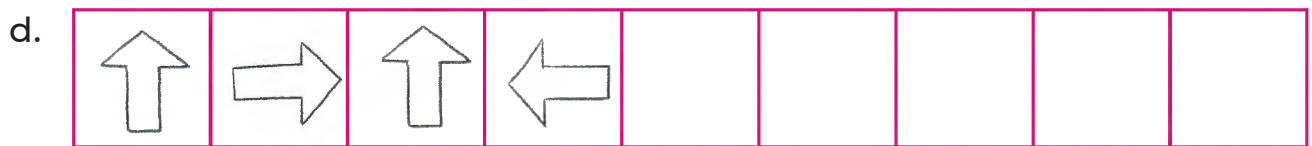
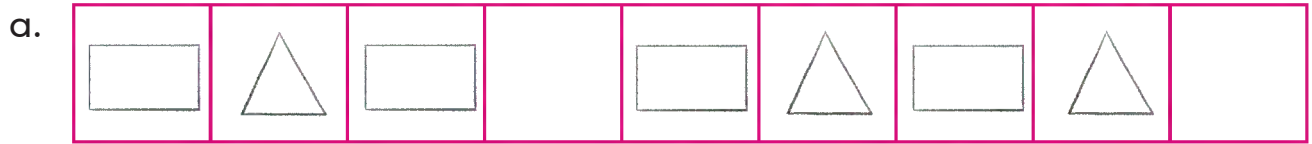
5. Sonam made some patterns with



Which of these can not be made with this block?



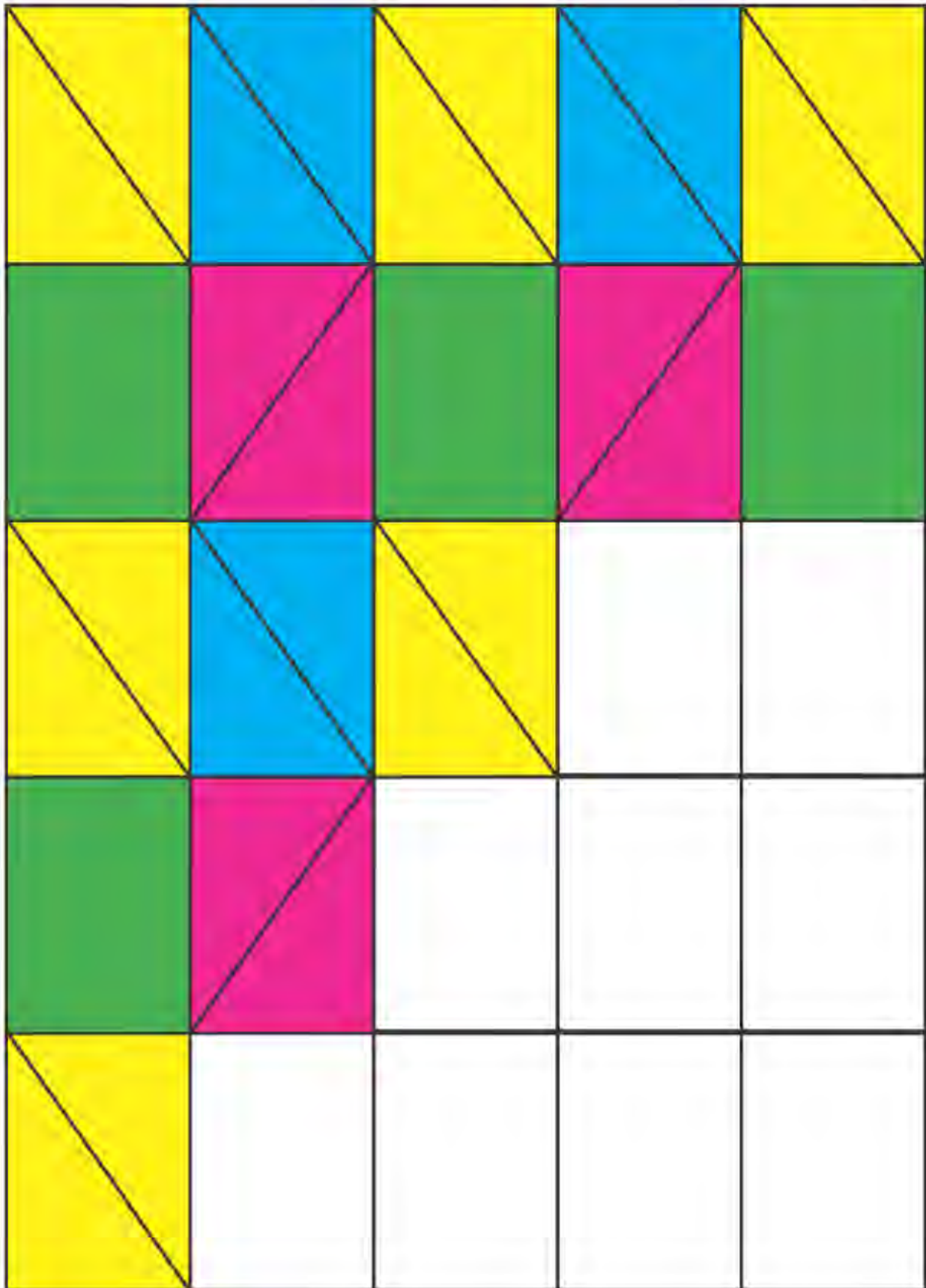
6. Patterns with shapes and lines.



7. Using the above shapes, make your own patterns






8. Fill the boxes and complete the pattern.






Some more patterns

1. Draw the next one. How many match sticks are in each?




a.

			
6	11		

b.




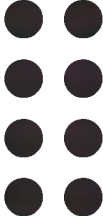
			
7	12		

c.

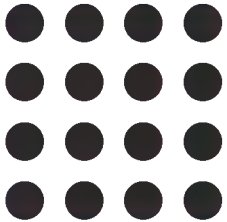
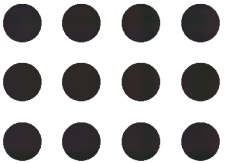
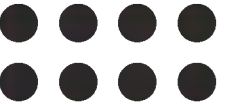
			
5			

2. What comes next? How many dots in each case?

a.

				
1	2			

b.

			
		8	

3. Complete the sequences-

a. 2 4 6 8 _____

b. 5 10 15 20 25 _____

c. 6 9 12 15 _____

d. 10 20 30 _____

e. 3 7 11 _____

4. Continue the pattern:

a.

1	4	1	4				
---	---	---	---	--	--	--	--

b.

A	B	C	A	B			
---	---	---	---	---	--	--	--

c.

90	80	70					
----	----	----	--	--	--	--	--

d.

AB	CD	EF					
----	----	----	--	--	--	--	--

e.

56	50	44					
----	----	----	--	--	--	--	--

f.

7	12	17					
---	----	----	--	--	--	--	--

g.

66	55	44					
----	----	----	--	--	--	--	--

h.

1A	2B	3C					
----	----	----	--	--	--	--	--

13. Maghey Mela



I am really excited today.

Why didi?



Virat



Amma and Papa are taking us to Maghey Mela at Jorethang.

Rhea

Oh great! Amma, tell us something more about this Mela.



Amma

This happens in the beginning of holy month of Magh. This is celebrated to welcome spring season. Devotees gather here to take a holy dip in river Rangeet and perform religious rituals. You can see food stalls, various games, hot air- ballooning, rafting, dance and singing programs happening there.





Oh, look there is the ticket counter.



₹20 each for the adults and ₹10 each for the kids.

In that case, how much do we need to pay for four of us?



Papa



$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Virat and Rhea ran towards the game center to play their favourite games.

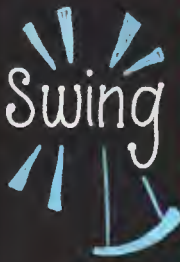

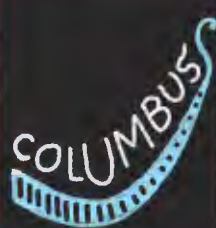




I want to swing.

I like the roller coaster.



Here is the ride chart.

 Swing ₹60	 MERRY -go- ROUND ₹30	 COLUMBUS ₹40	 ROLLER COASTER ₹70	 FERRIS WHEEL ₹40
---	--	---	---	---

We can give you ₹50 for a ride.



Then we can't go for _____
because it costs more.



I like to take a ride on columbus
as it is less than ₹50.

I have only ₹50, ₹20 and
₹10 currency notes with me.



Then I will need ₹20 + ₹10 + ₹10



Or _____.



Or I can give ₹50 and get ₹_____ back.

1. If you have ₹100 which rides would you take?
How much would it cost you?

I would ride _____ and _____.

That would be ₹60 + ₹40 = ₹100.





Look at that stall with lovely baskets.

Please have a look at these crafts. Our self-help group makes them from bamboos.



I want to buy one 'Lota'.

Okay, go ahead. If I give ₹100 to the stall keeper



He will return ₹ _____

Item	Cost	Money paid	Stallkeeper returns
Dalo	₹ 55	₹ 100	
Basket	₹ 75		₹ 5
Thunsey	₹ 100	₹ 100	



Uncle, how long would it take to make these items?

Name of the item	Number of days required
Dalo	1 day
Lota	1 day
Basket	2 days
Thunsey	2 days

2. a. Which items took longer to complete? _____
- b. Which took less time to complete? _____
- c. Total number of days required to make all the items? _____



Ok, how many days would it take if 2 of each is made?



That would be _____ + _____ = _____ for lota,

another _____ for dalo,

_____ + _____ = _____ for basket

and another _____ for thunsey



So total _____ + _____ + _____ + _____ = _____

There is another way to do it.





How?

Just add what you got if one of each is made to itself



_____ + _____ = _____

Right, they are the same!



Amma, I am hungry.



Let us go to the food stall over there.



Food items	Pieces in 1 plate
Momo	8 pieces
Sekuwa	5 pieces
Furaula	5 pieces
Boiled iskus kozara	3 pieces
Selroti	2 pieces
Boiled pindalu	4 pieces
Boiled Sakarkhanda	4 pieces

1. Rhea and Virat equally shared 1 plate momos, 1 plate boiled pindalu and 1 plate sel roti. Fill in how much did each one have.

	Virat	Rhea
Momo		
Selroti		
Boiled Pindalu		



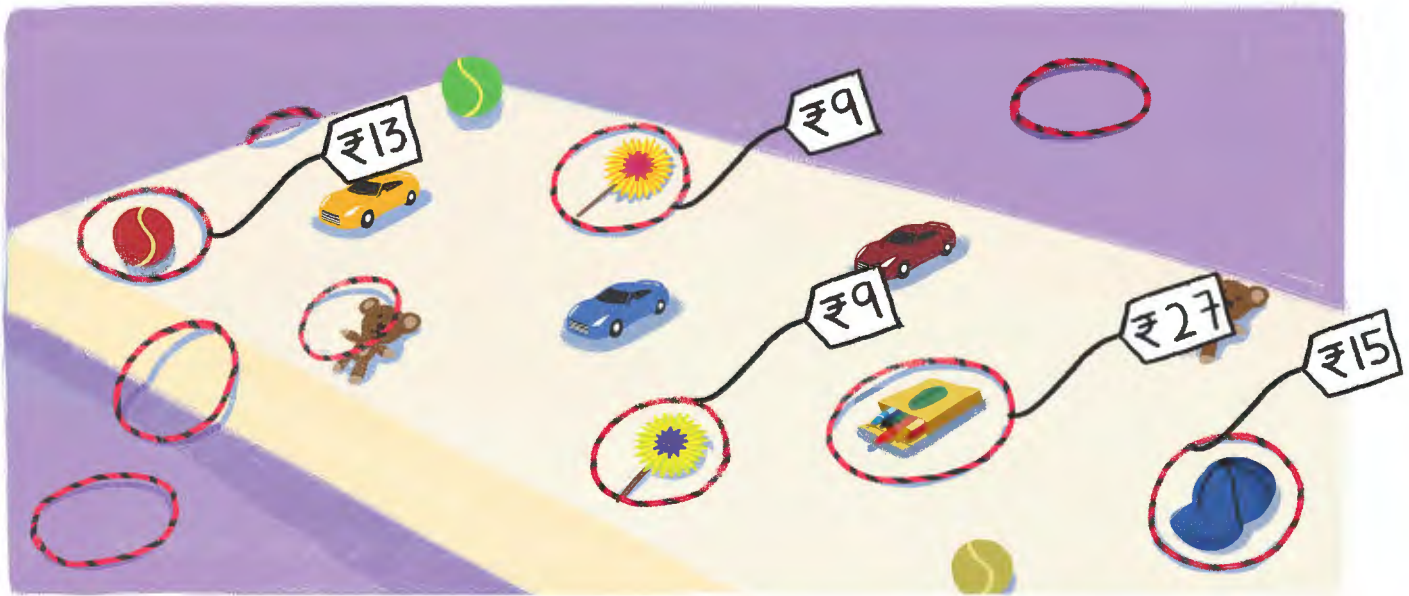


Pack me 4 plates sekuwa, 5 plates Sel roti and 3 plates boiled iskus ko jara.

2. Find number of pieces of each of these:

Food item	Number of plates	Number of pieces
Sekuwa		
Selroti		
Boiled iskus ko zara		

Rhea and Virat ringed 5 items in 'Ring and Win' stall.



1. a. What is the total amount they won?

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

b. Virat won fan and crayons. Rhea won _____, _____ and _____.

c. Who won more number of things?

d. Who won more amount?



Look Papa, what are those big balloons?



Those are hot air balloons.



I want to draw them.



Ok, let us sit down.

Did you bring your notebook?



We did bring our pencils and erasers.

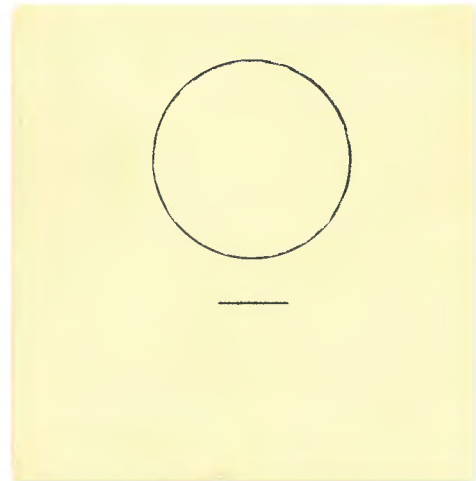
Good! Let us sit then.



Step 1 -

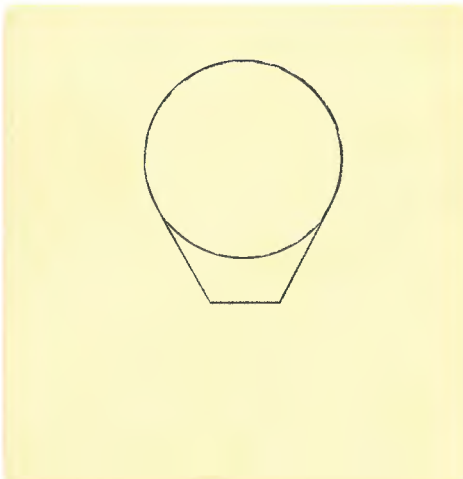


Step 2 -

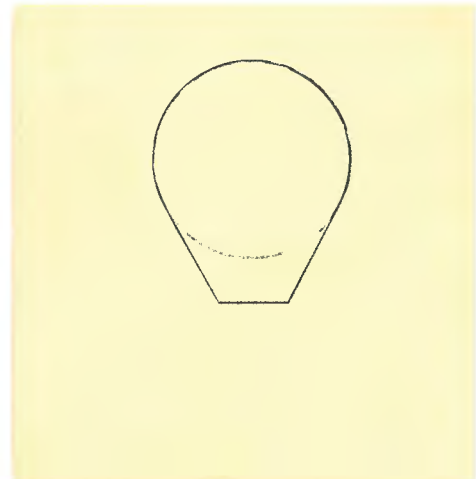


That's a _____ line!

Step 3 -



Step 4 -



These are _____ lines!



Erase this to get the balloon.

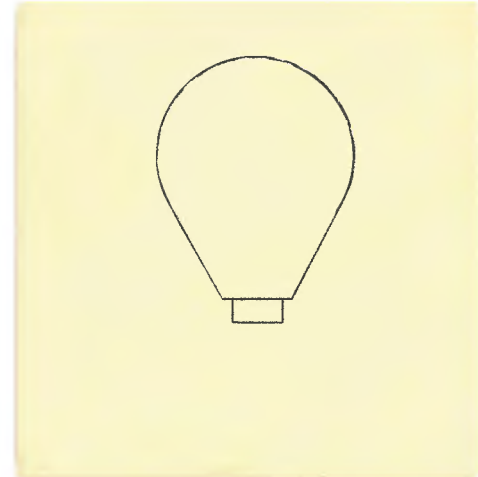


But where does the hot air come from?



That comes from a little box.

Step 5 -



There is something below this box. What is that?



That is a basket where you stand if you want to go up in such a balloon.

Step 6 -

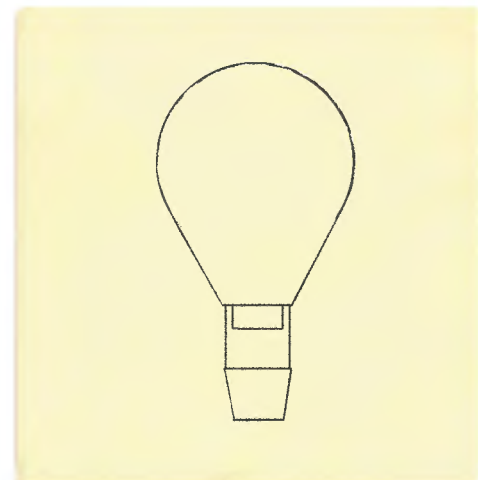


This looks like a _____ (doko/tokray)



These are _____ lines!

Step 7 -



Now can you draw the lines on the balloon?



Yes!



The lines on the balloon are _____ (straight/curved) lines.

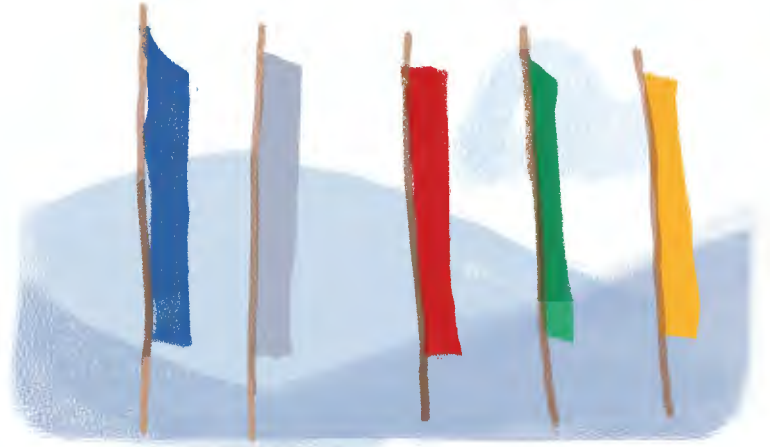
Draw those lines on the balloon and colour it.



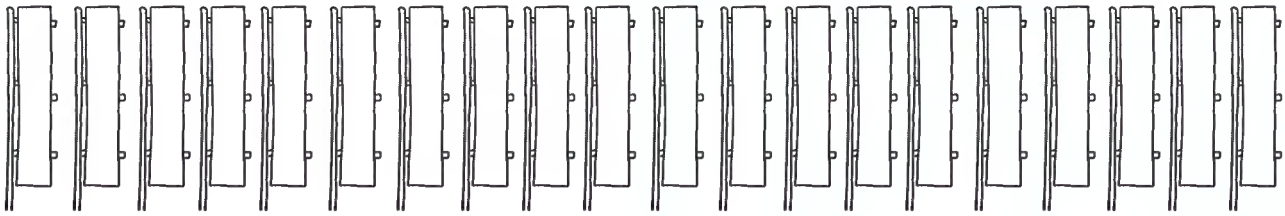
Oh look at the prayer flags there. Does it always come in this order?



Yes.



1. Colour these flags in the right order.



They found a stall with colourful beads in different shapes. They bought some beads and the children made some malas with them.

Virat's mala



Rhea's mala



2.

			
Number of beads (Virat)			
Number of beads (Rhea)			

3. Create your own mala using   



We had a lot of fun. Thank you Amma and Papa for this outing.



• NUMBERS •

In Class 1, children learn the number names up to hundred and associate them with the respective quantities. They get some experience in playing with the numbers up to twenty in terms of comparison and their positions on the number line as well as addition and subtraction. They also get some exposure to bundling in tens as well as how numbers between twenty and hundred can be considered as bundles (i.e. tens) and singles (i.e. ones), and how that is linked to the corresponding numerals. But in Class 2, they get explicit experience of dealing with the number names, bundling in tens and how both are related to the corresponding numerals – in short, the beginning of understanding place value. They explore addition-subtraction with 2-digit numbers and get their first exposure to counting in groups.

Chapter 1: Bundles and Sticks, The key idea behind place value (at this level) is

1. To bundle in tens
2. To count the number of tens i.e. bundles
3. To count the number of objects outside the bundle(s) i.e. the ones
4. To write the number of tens followed by the number of ones
5. And when there are 10 bundles of tens, make a bigger bundle and give it a new name, 'hundred'

It is important that children get sufficient experience of counting many 2-digit numbers, where they realise grouping makes it easier. If they have to count something small, like grains of rice etc. then counting in groups will help minimize mistakes. The teacher should understand that place value is essentially a base system with ten as the base (like binary has base two). This ten comes from the fact that most human beings have ten fingers. Therefore, we bundle in tens. Children may ask why we should write the number of tens on left and the number of ones on the right. This convention can be explained by the ganitmalā as shown in the chapter, 'Bundles and Sticks.'

This chapter addresses a major difficulty with mismatch between the number names eleven to nineteen with the corresponding numerals – e.g. in fourteen, four comes first but in 14, 1 is written first. However, this does not happen from twenty onwards e.g. in both sixty-one and 61, six i.e. 6 come first. This problem exists to varying degrees in other Sikkimese languages as well. Hence while teaching children to record numbers from 11 to 20 it is necessary to emphasize their decomposition: ten and one make eleven, ten and two make twelve, etc., so they associate the tens place digit and units place digit with the correct number. In many Indian languages, the number names are difficult and remain confusing after twenty as well. Children require a lot of practice associating those names with the numerals. 5-10 minutes of daily practice with a hundred's chart (10×10)

grid of numbers) going row-wise and identifying common patterns as well as going column-wise and observing common patterns would help. Each day few rows and few columns can be revised till children identify and learn the patterns.

The teacher can practice the number names twenty, thirty ... ninety and associate them with 2 tens, 3 tens ... 9 tens before getting into general 2-digit numbers. Here are some suggested activities using ganitmala, bundle-sticks and arrow cards. Sticks are very useful since they can be easily bundled and unbundled. Toothpicks, matchsticks (ideally with the heads removed), broomsticks (cut to about 10cm pieces), ice-cream sticks or dried-up sketch pens can be used as sticks and can be bundled with rubber bands. A layout of the arrow cards (up to 100) is given at the end. [All of page 1 and one row of page 2 completes a set, so four of page 1 and all of page 2 make four sets.]

Activity 1: Ganitmala, bundle-sticks and arrow-cards can be used to make these associations. The teacher can say “forty” and ask different children to show it (i) with bundle-sticks i.e. 4 bundles or 4 tens, (ii) on the ganitmala – again 4 tens will be clearly seen and (iii) with the arrow card i.e. 40.

Activity 2: Later, the teacher can pick an arrow card, say 50 and ask children to (i) say the name i.e. fifty, (ii) clip in the right place on the ganitmala and (iii) pick as many sticks i.e. 5 bundles.

Activity 3: The teacher can do a rapid-fire round of saying thirty, seventy etc. at random and the children will have to pick and show the corresponding arrow card immediately. In a subsequent version, the teacher can ask children to write the numerals in their notebooks instead of showing the arrow cards.

Activity 4: The teacher can do the reverse rapid-fire round by showing the arrow cards 90, 20, etc. at random and the children will have to say the correct names, ninety, twenty etc. In a later version, the teacher can write these numbers on the board.

After this, general 2-digit numbers can be played with in similar manner. Arrow cards help in associating number names (other than eleven-nineteen) with the numerals since e.g. seventy-four is made with the arrow cards 70 and 4.

Once children can associate the number names with the numerals, the teacher should ensure that they are able to do these without concrete objects. As an intermediate semi-concrete step, the teacher can ask them to draw thirty-eight and children should draw $\text{|||||} \text{|||||}$ (where ||||| represents a bundle or ten). Conversely, the teacher can draw $\text{|||||} \text{|||||} \text{||}$ and ask children to say the number name (i.e. fifty-two) and write the numeral (i.e. 52).

Finally, the teacher can ask them to open their textbooks to say page forty-three. Conversely the teacher can ask them to open any book at random and ask them which page it is. At this step, children should be able to associate the number name with the numeral without any concrete object or picture.

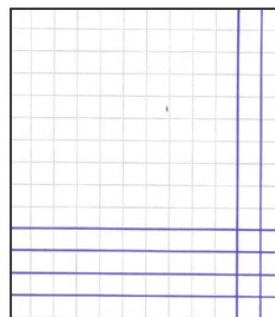
While ganitmala, bundle-sticks and arrow cards should be used to develop a solid understanding of place-value, it is equally important to help children become independent of concrete materials. So, after some time, children should be encouraged to write the numerals directly without arrow cards.

Similarly, the ganitmala, should be slowly replaced by the open number line. Unlike a scale, in an open number line, the numbers are put in the correct sequence but the gaps between any two numbers are not scaled. So while the gap between 3 and 4 is the same as that between 10 and 11 on a scale, it need not be so on open number line. This makes it easier to draw. It can be used for forward and backward counting, and to understand the succession of numbers. The teacher can create many activities using the open number line.

INTRODUCING HUNDRED

As mentioned above, when we have 10 bundles, we have to create a bigger one and give it a new name. So 10 tens is a hundred. This can be easily illustrated with a ganitmala which has 10 groups of 10 beads each. It is a good idea to introduce Flat (a square made with 10×10 small squares). It is a good idea to use Units (small squares) and Longs (strips of 10 such small squares) for numbers bigger than 50 to speed up counting. The teacher can show children how a Flat takes the same space as 10 Longs.

To make Flats, Longs and Units (FLU), paste sheets of square grid notebooks on any card type material and cut of 10×10 squares from one corner. Then cut of longs i.e. 10×1 rectangles from the remaining L shape. Finally cut the remaining part into Units.



Since hundred is a new bundle, it has a new place before the ten and a new arrow card. The teacher can help children relate Flats to Hundred, Longs to Tens, and Units to ones.

e.g. eighty-four can be made with 8 Longs and 4 Units and is written as

Tens	Ones
8	4

while fifty is 5 Longs and no Units i.e.

Tens	Ones
5	0

Now hundred is 1 Flat, no Long and no Unit, so it is

Hundreds	Tens	Ones
1	0	0

MAKING NUMBERS WITH DIGITS

An important step in understanding place-value is to create all possible numbers with given digits and compare (or sequence) them. The teacher can have a set of digit cards labelled 0-9 and ask children two cards at random, say 2 and 7. Note: Digit cards should be rectangular. Now the numbers 27 and 72 can be made with these cards. To figure out which is more, children can make these numbers with bundle-sticks or Longs and Units and compare. It is important that they realize that the bigger digit in ten means more bundles and therefore a bigger number.

Chapter 2: Combining and Removing, It is a good idea to start addition and subtraction with stories or contexts to bring out the meaning of each operation. This can be done with situations involving smaller numbers in the beginning, so that the computation is easy and the focus remains on the meaning making. It is a very good idea to give sums and differences and ask children to create their own stories around them. These, in turn, can be used the following year with a new group of children.

There are two meanings of addition and three of subtraction. It is good to ensure that children get exposed to all the meanings and play with each one.

1. **Addition 1:** combining two groups, e.g. mother washed 3 plates and father washed 5, how many did they wash together?
2. **Addition 2:** increase a number or more than a number, e.g. I can hold 2 books but my sister can hold 3 more, how many books can my sister hold?
3. **Subtraction 1:** take away or remove, e.g. we got 7 eggs, but 3 broke on the way, how many eggs remained?
4. **Subtraction 2:** comparison, e.g. I slipped on the ice 7 times but my friend slipped only 3 times, how many more times did I slip?
5. **Subtraction 3:** inverse of addition, e.g. my friend finished all 9 sums and I have done only 5, how many more do I need to do?

Also, it is important to understand that each addition fact can be expressed as two subtraction facts, e.g. $67 + 14 = 81$ can be expressed as $81 - 67 = 14$ and $81 - 14 = 67$. This understanding helps children in solving word problems without getting tricked by key words like sum and difference. E.g. the sum of the numbers my friend and I got by rolling our dice is 9. I got 5. What number did my friend get? If a child focuses blindly on the word sum, then s/he may try $9 + 5$. But if the child understands the situation, then s/he will think of this as $9 = 5 + \underline{\quad}$ and then convert this to $9 - 5 = \underline{\quad}$ and solve.

The teacher should take every opportunity to pause for word problems. It is a good idea to pause and ask children to create a word problem or story around a sum or difference they are working on.

PROPERTIES OF ADDITION AND SUBTRACTION

The commutative and associative properties of addition has been visually explained in the chapter.

The teacher can show other examples of commutativity of addition as follows: $25 + 64$ can be shown by placing 2 Longs and 5 Units on the left half of the attendance register, and 6 Longs and 4 Units on the right half of the same. Give the register a half turn (180° rotation). Now 6 Longs and 4 Units will be on the left, and 2 Longs and 5 Units will be on the right. So it has become $64 + 25$. Since there has been no change in the total number of Longs and Units on the register the sums before and after the turn must be the same i.e. $25 + 64 = 64 + 25$. It is important to do this with different pairs of numbers, which can be selected by the children, to get them to understand that this will work with any two whole numbers.

For associativity, it is a good idea to use chalk pieces, pebbles, buttons or any such counters and similar steps can be followed as shown in the chapter. The key idea is that any two adjacent groups (representing the corresponding numbers) can be combined first. Again, the teacher can show several examples with numbers selected by the children. The goal is for children to understand that it works for any three whole numbers.

It is good to highlight how associativity and commutativity can be used along with partitions of 10 to add certain combinations of single digit numbers fast.

E.g. $8 + 7 + 2 = (8 + 2) + 7 = 10 + 7 = 17$.

The first step actually uses both commutativity and associativity.

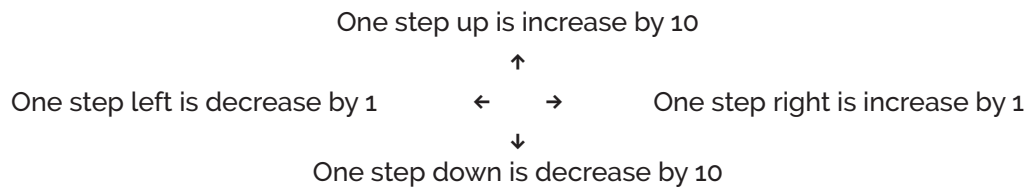
$$\begin{aligned} 8 + 7 + 2 &= 8 + (7 + 2) \\ &= 8 + (2 + 7) \rightarrow \text{Commutativity} \\ &= (8 + 2) + 7 \rightarrow \text{Associativity} \end{aligned}$$

It is also a good idea to let children explore these for subtraction. It is important to tell them that they may not be able to subtract 7 from 4 now, but they will learn that in upper primary. It is not a good idea to tell them it can't be done.

Before exploring the standard algorithm for addition and subtraction, it is highly recommended that children try these operations in different ways. This develops number sense by allowing them to experience multiple ways of solving problems.

ON THE HUNDRED'S CHART

This acts as an excellent visual aid in solving addition and subtraction problems. While tracing paths on the chart, children should notice patterns in the addition and subtraction processes and in the organisation of numbers, and it caters both to their kinaesthetic and visual abilities. The teacher can help children understand the following movements on this chart:



Before discussing addition and subtraction, it is a good idea to explore and practice going from one number to another on this chart. This helps children develop a mental image of the mutual relationship numbers have with each other.

ON GANITMALA/NUMBER LINE

Both the hundred's chart and the ganitmala (and then the open number line) can be used for jumps of 10, forward and backward. Initially, children may be comfortable jumping to a multiple of ten first i.e. $67 \rightarrow 70 \rightarrow 80 \rightarrow 90 \rightarrow 95$ i.e. a total jump of $3 + 10 + 10 + 5$. But later, the teacher should encourage them to use jumps of ten from any number i.e. $67 \rightarrow 77 \rightarrow 87 \rightarrow 97 \rightarrow 95$ i.e. a total jump of $10 + 10 + 10 - 2$. This can be further accelerated to $67 \rightarrow 97 \rightarrow 95$ i.e. a total jump of $30 - 2 = 28$. As before, these should be practiced first on ganitmala and then on the open number line.

The open number line also facilitates count on rather than count all since the jumps can start from the first number rather than from zero.

The teacher should use ganitmala and open number line to enact and discuss word problems as well. Cloth clips can be placed on the ganitmala to indicate the numbers as they come up. Similarly, numbers from a word problem can be marked on the open number line.

FUN CHALLENGES

The teacher can foster further computational skills by posing a sequence of questions as suggested:

What is $7 - 4$? So, $17 - 4$ is how much? So, what is $47 - 4$? And how much is $70 - 40$?

Another set of challenges can be sums and differences with missing digits, e.g. $7_ + 23 = 97$, $83 - _6 = 57$, $3_ + _2 = 77$. The teacher can create many such problems. It is a good idea to ask children to create these and challenge each other.

STANDARD ALGORITHM

A good way to understand standard algorithm is to use bundle and sticks. For addition, children should actually make a bundle of ten whenever there are 10 or more sticks and record the process. This is commonly known as 'carry over'. Similarly, for subtraction, they should un-bundle a ten if sufficient sticks are not there and record it as well. This will help them understand what is usually called 'borrowing'. Once children are familiar with the process with bundle-sticks, they should try with Longs and Units as well. The difference is that bundles get taken apart to sticks but Longs have to be exchanged with 10 Units.

Chapter 7: Grouping and Skipping, As mentioned above, if children are asked to count something small like grains of rice or dal, then the chance of making mistakes is reduced by making groups. This can be revisited at the beginning of this chapter. However, this time there is no restriction on the size of the group. It need not be ten only.

The teacher can start this chapter with this story and activity:

The Elves and the Shoe-Maker

Once there lived a shoemaker and her husband. They were very poor indeed. The husband took care of the house and meals while his wife was at her workbench.

"We're down to our last piece of leather," said the shoemaker. "I have enough to cut out one more pair of boots to sell. With all the big factories springing up all over the city, it's hard to make a living as a shoemaker these days."

The shoemaker cut out the last strip of leather and left it on her workbench.

In the morning, just as she was about to sit down to work, she saw the two boots standing quite finished on her table. A young man came into the shop, and as the boots pleased him so well, he paid more than the usual price. Now the shoemaker had enough money to buy leather for

two pairs of shoes. That night, she left the cut leather on her workbench. In the morning, she found 2 beautiful pairs of boots. Then she bought leather for 4 pairs of boots, and so it went for 10 days!

Show how many boots the elves made:

Night	1	2	3	4	5	6	7	8	9	10
No. of boots made	2	4								


What pattern do you see?

“We’ve got to pay our night time helpers back somehow,” the shoemaker said to her husband. “Let’s stay up and see who’s been coming here to work.” Then they hid themselves in a corner of the room and watched. When it was midnight, two little elves came into the room and set to work. “Those poor young elves,” said the shoemaker. “The little men have made us rich, and we really must show that we are grateful for it. They run about so, but have nothing on, and must be cold. “Let’s sew them some new shirts and pants and tiny boots to repay them,” suggested her husband. The shoemaker and her husband left the tiny clothes along with gifts on the table. The delighted elves dressed up in their new clothes. They danced to the guitar music and left. They never returned.

The shoemaker and her husband had been touched by magic, and they were prosperous and happy for the rest of their lives.

Once children get the practice of grouping and they can count faster using skip counting. So instead of 1, 2, 3... till say 54, they can go 3, 6, 9... They should get the experience of observing that it is a faster way to count. They can collect a mug of pebbles. Then let 4 children count say 60 pebbles – child 1 can count one by one while child 2, 3 and 4 counts in groups of two/three/four respectively. Observe who gets 60 pebbles first.

This chapter paves the way for multiplications. But it is important for children to notice that skip counting do not always generate multiples of the first number. So, children should be exposed to situations involving 1, 3, 5... or 3, 7, 11... etc. Match stick patterns in the chapter ‘Playing with Patterns’ provide some such examples.

 The teacher can refer to <http://www.teachersofindia.org/en/article/atira-pull-out-place-value>, <http://teachersofindia.org/en/article/atira-pullout-section-july-2013> and <http://teachersofindia.org/en/article/pullout-section-november-2013-teaching-subtraction> for further activities with numbers.



• SHAPES AND SPATIAL UNDERSTANDING •

In Class II, the understanding of 3D and 2D shapes are further consolidated. For 3D shapes, along with rolling and sliding new vocabulary round and flat are also introduced. Children are asked to identify objects that roll and slide. These properties are used to classify objects into four groups and the vocabulary cuboids

(including cubes), spheres, cylinders and cones are introduced.

Apart from that, there are activities where children have to touch and feel an object without seeing it, then describe it accurately so that other children can identify what the object is. This helps not only in developing strong sense of shapes but also provides opportunity to express the geometric attributes precisely and thus facilitates mathematical communication.

Guess its name: This chapter helps children to understand the corners, edges, plane and curved surfaces without seeing the object. In the activity, the teacher can get them to describe the objects like box. If a child holds a chalk box, s/he can describe it as flat surfaces, corners, number of corners etc. Children should be encouraged to tell other features of this objects. Teacher can take them to nature walk to show them the corners, edges of different objects available in the surrounding.

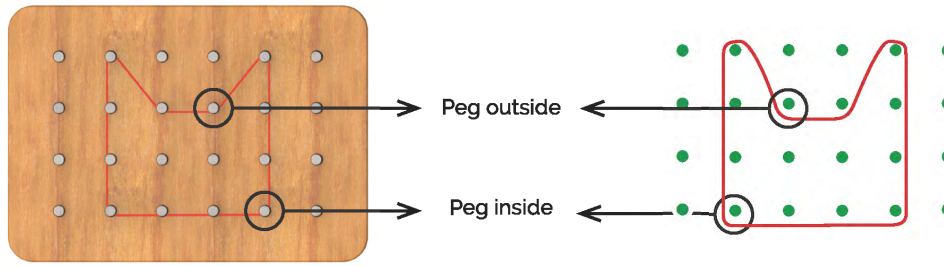
Rolling and sliding: The teacher can collect objects like marbles, matchbox, coins etc. S/he can create an inclined plane with a hard-bound book against the chalk box (say) and then show them sliding and rolling. It is important that children also experience rolling and sliding these objects. Then teacher can ask them to name some objects (i) which rolls but does not slide, (ii) which slides but does not rill and (iii) which rolls and slides.

Sorting: The teacher should collect various objects that can be sorted in to cuboids, spheres, cylinders and cones. It may be a bit difficult to get examples of cones. Ask children to sort them. Explore if there are different ways of sorting and ask them on what basis they have sorted. This will help them not only observe the geometric properties of these shapes but also articulate their spatial reasoning. Once the children understand the vocabulary – cuboid, sphere, cylinder and cone – they should be asked to sort things blind folded by touching and feeling.

To transition from 3D to 2D, the chapter includes tracing. It starts with printing and tracing various objects and then matching the object to the respective print/trace. These need not be exact geometric shapes, but leaves with their prints and hands of children, various boxes etc. with their traces. This will reinforce that only flat surfaces can be traced.

Trace: The teacher can get children to bring objects and collect some mud or fine sand. Keep the objects on loose mud or fine sand so that after removing the objects they can observe the shapes left behind. Then ask children to guess which object left which shape. This can be cross checked by placing the objects close to the mud/sand but not touching them. Then ask children to trace these objects on paper – these will be more permanent than the imprints on mud/sand.


Geoboard and rectangular dot sheets can be combined to make and draw shapes. Children can make shapes on the geoboard with rubber bands and then draw them on the rectangular dot sheet and vice versa. This can also be done in pairs. In particular, if a concave shape (polygon) is drawn, then children can figure out that the peg for any corner (vertex) with a reflex angle (angle more than 180°) must be outside the rubber band boundary. On the other hand, if the peg corresponds to a corner with an angle less than 180° then the peg is inside the rubber band boundary.



At this level, three geometric 2D shapes are important – circle, triangles and rectangles (and squares). Children should be able to distinguish these 3 or 4 shapes. It is important to group rectangles and squares together since all squares are rectangles. Children should be asked which 3D objects can be traced to generate circles and which ones will generate rectangles. It may be difficult to find objects which can generate triangles.

Playing with shapes: To play with shapes further, the teacher can get children to trace ₹5 coins, bangles and bottle caps on chart paper or any card type material to get a large collection of circles. Match boxes (or other such boxes) can be cut up to get at least three types of rectangles. Some of these rectangles can be halved along their diagonals to get triangles. It might be helpful to color all triangles red, all circles yellow and all rectangles blue. Dice can be traced to get squares which can be colored green. Children can join these in different ways to create various animals, things even pictures. This allows free play and provides great opportunity for children to use their creativity. Later teacher can ration the material and ask children to make something with say three rectangles, two circles and one triangle. This makes it more challenging, fun and fosters further creativity and critical thinking.

Understanding shapes is crucial for understanding our surrounding better. Certain shapes have certain advantages and disadvantages. E.g. if something is round, then it can roll and therefore it can be moved easily. On the other hand, it will not stay put especially on a slope; neither can things be stacked on it. For stacking, flat surface is needed. Thus, understanding these properties of shapes help children in dealing with various objects in their environment. These experiences and their developing vocabulary will enable them to communicate about their community's needs.

 The teacher can refer to <http://www.teachersofindia.org/en/article/pullout-section-november-2014-geometry> and <http://teachersofindia.org/en/article/pullout-section-march-2015-geometry-ii> for various pedagogical concerns and many age-appropriate activities.



• LENGTH AND WEIGHT •

Length and weight were introduced in Class 1 by comparing objects and understanding the vocabulary related to long-short, tall-short, thick-thin, near-far

and heavy-light. In addition, children started measuring lengths with non-standard units like hand span, arms and feet.

In Class II, fingers are also used with hands and feet to measure **lengths** and distances. The teacher can do some activities where measuring becomes necessary. E.g. if there is a cupboard in the school, ask children if can it be brought inside the classroom? This would require comparing the width of the cupboard with that of the classroom door. But if they are not together, they cannot be compared without measurement. Two strings can be used to measure the cupboard and the door. Then the strings can be laid side by side to compare.

Another question can be: 'Which wall of the classroom is the longest?' If there is not enough string, then a new strategy is needed to compare these lengths. This is when a unit is needed. It can be a stick or a duster. Care should be taken to show children how the non-standard unit should be iterated without overlapping and without leaving gap. Also, the same unit has to be repeatedly used to measure.

To practice measuring length various material like straws, used sketch pens, ice-cream sticks or toothpicks, colored paper strips or wooden rods of different lengths, colored ropes or shoe laces of different lengths, pencils, beads and rope can be used. Selection of materials is to be done carefully so that children can focus on one dimension. Large 2D shapes and 3D objects can be introduced at a later point as they have more than one measure (length, width and height). It is a good idea if children write down their measurements e.g. 7 fingers or 3 hand spans and label the objects measured.

Get the children to identify what would they do while comparing two or more of the above-mentioned objects. To compare two objects, both have to be measured with the same unit. Seriation of more than three objects can be introduced at this stage with the help of measurement.

Measurement skills allow children to identify changes in their environment, which is important for sustainable living. You could grow a plant and measure it each week, recording the growth on a chart, to sustain the measurement skills and to connect the skills to understanding the environment.

It is good if children get to measure not just straight lengths, but curved ones as well. Head span (length around the head) can be measured with string while a curved line on the floor can be measured with fingers or feet.

Children should measure the same thing with different units like fingers and hand spans and observe that the smaller unit requires more iterations resulting in bigger count e.g. the same textbook can be 2 hand spans long or 23 fingers long. Thus, they should be able to choose which unit should be used to measure which length.

The teacher can make a circle on the classroom. Let children take turns to stand in the circle and jump out. Let them mark the spot where each jumped to. Now get them to measure the distances and see who jumped the furthest. If bigger space is available, children can be asked to throw a stick and see who threw the furthest.

In the **weight** chapter, the emphasis is to experience this attribute and explore it in the life of the children. Since weight has to be felt and not seen, the teacher has to

provide certain experiences.

Kilogram (kg) as the main unit of weight is introduced. The teacher can bring in an object that weighs roughly one kg. Children can take turns to hold and feel how heavy a kilogram is. Then they should name objects which are lighter than a kilogram and things which are heavier. They should be encouraged to include birds and animals in this list as well.

Weighing is very common to grocery shopping and vegetable markets and kilogram is the common unit used there. The two-pan balance is also commonly used. The teacher can make a simple balance or show such a balance to children if they are not already familiar with it. Usually children enjoy weighing things and comparing their weights with such a balance. The teacher can refer to Class III textbook on how to make a balance.

With the help of the balance the children can find out:

1. A larger number of smaller objects may weigh more than one large object – e.g. many chalks can weigh more than one pencil box
2. A larger number of objects can weigh less than a smaller number of objects – e.g. 10 sheets of papers can weigh less than 2 steel spoons

The teacher can refer to <http://www.teachersofindia.org/en/ebook/pullout-teaching-measurement-for-further-details-including-principles-of-measurement-and-age-appropriate-activities>.



• CAPACITY •

Like length and weight, capacity and volume are also measurements that are widely used in everyday life especially w.r.t. food and water and thus cooking. The teacher should utilize these contexts from the lives of children.

It is important to avoid using the word capacity and instead ask ‘How much can this bowl hold?’ or ‘Which bottle holds more?’ etc.

Since this involves 3D space, the teacher has to provide children with adequate exposure and experience with filling and pouring to understand this attribute. So, the activities in this chapter suggest a lot of pouring and filling which requires and fosters eye-hand coordination. So, children should get the opportunity to practice pouring without spilling.

Vessels of various sizes should be used in class and children should try to fill bigger ones with smaller ones. After some practice they should be asked to guess how many cups will fill a jug or how many spoons will fill the plate. Whether these are done in class or at home, children should be encouraged to record their observations and guesses. These can be discussed in class to compare the capacities of various vessels. Water or sand can be used to fill. Using different materials will develop children’s understanding of the properties of these materials and how they fill a container.


While using water, children should be made aware that it should not be wasted. The teacher should have a discussion on how water is essential and precious for

people and for plants and animals. As part of that, the teacher can ask the children to find out how much water is used for what purpose. This will sensitize children to the need of water for day-to-day life.

Children may confuse volume of a fluid with its height within a container and not consider the shape of the vessel. The teacher can help them understand by using two vessels – (i) one with smaller base/cross section and (ii) the other with a wider one. The first one can be filled to a level less than the height of the second one and this level marked in the second one. Ask children to guess where the level would be if the first vessel is emptied into the second one. Then actually empty it and let them see the actual level.

As in the case of length, here too non-standard units are used. But unlike length, in case of capacity and volume, the use of non-standard units is quite common even in day to day lives. So that should be utilized to develop the sense of measuring capacity.

Like in length, the teacher can reinforce that smaller units imply bigger counts. A jug can be filled with say 12 cups or with 5 glasses. So, capacity of which vessel relates volume of which item and how much is consumed is very relevant for this chapter. This also make children aware of consumption of food and water and can prevent wastage.

 The teacher can refer to <http://www.teachersofindia.org/en/ebook/pullout-teaching-measurement> for further details including principles of measurement and age-appropriate activities.



• THEME - MELA •

There are two types of chapters in this book – (1) theme-based chapter and (2) concept-based chapters. The latter ones are common in most mathematics textbooks. A concept chapter is organized around a concept and should develop the concept out of some well-chosen contexts. A theme chapter on the other hand takes a theme or a particular context and explores a lot of mathematics linked to it. The mathematics usually involves a range of concepts.

School mathematics has a lot of use in daily life and most (if not all) can be connected to the lives of children and their communities. Theme chapters make mathematics contextual and realistic to children. It helps children visualize mathematics in real life events and more importantly help them get a feel of how the subject is involved in the day-to-day activities of their community.

Mathematics by nature is abstract and thus difficult for children. Theme chapters help by exposing children to how this abstract subject comes from real life problems and how it gets utilized in such situations. It helps them to see possibilities where their mathematical knowledge and skills can be used for problem-solving. Theme chapters are especially important for education for sustainable development (ESD) because they situate mathematics in community activity and the environment. In this book the theme is a mela. In particular, it can connect multiple concepts and

skills to real life and encourage children to use mathematics in different situations. It can also provide examples of how mathematics helps in solving problems or tackle challenges. This theme chapter revisits various concepts from other chapters of this textbook.

Maghey Mela is the theme chapter in this textbook. This theme shows a glimpse of culture of Sikkim. It includes concepts like money, addition and subtraction, time, grouping, patterns and shapes through a story and a lot of dialogue. Here, one finds contexts where children are given space to come up with strategies to solve problems or make decisions.

The teacher can enhance the experience of children by taking them to any mela that happens close by or help them find the mathematics linked to it through discussion. Encourage children to speak about their observations and the choices they make based on their experiences. Children can be encouraged to collect data from their surroundings and use them to develop a deeper understanding of their world with the help of mathematics.

Suggestive themes:

1. Mathematics in celebrations (birthday and festivals)
2. Mathematics in the games I play

