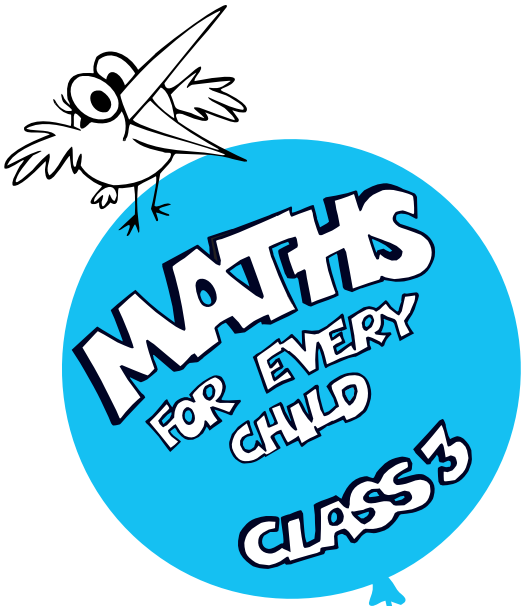
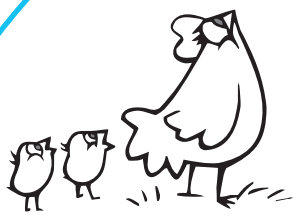


PART A

Text-cum-workbook

Author
K. Subramaniam



Homi Bhabha Curriculum for Primary Mathematics

Pilot Version

Homi Bhabha Centre for Science Education
Tata Institute of Fundamental Research, V. N. Purav Marg, Mankhurd, Mumbai 400 088

Maths for Every Child

Text-cum-workbook

Class III

Pilot Edition, 2001 Reprinted, 2006, 2011

Author

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Published by

Homi Bhabha Centre for Science Education
Tata Institute of Fundamental Research
V.N. Purav Marg, Mankhurd. Mumbai 400 088

Printed at

Sai Printers, Gala No. 50, Bharat Bazar,
Gandhi Nagar, Worli, Mumbai 400 018

General preface

Not a day passes in our country when somebody somewhere has not criticized our system of education, particularly our school education. A great many ills and inadequacies of the system probably flow from extraneous causes and need socio-political initiatives that go beyond mere reforms in the school curriculum. Some problems however arise directly from the curriculum – text books, teaching and evaluation practices. We need to keep these problems in view and to continually devise new curricula to overcome them.

Curricular reform efforts and innovations are not new to our country. Nearly every decade, there have been initiatives by the Central and State government agencies to effect changes in curricula. Several independent school networks and voluntary groups have brought out their own textbooks and related materials. There is no doubt that significant progress has been made by the country in better conceptualization of the school curriculum at primary, middle and secondary levels. The paradigms of school curriculum in India have steadily evolved and become more relevant and modern. Unfortunately, the over-all deterioration of the system due to extraneous factors has tended to obscure these gains. Also, and most important for our purpose here, there is a large gap between the generally agreed objectives of the curriculum and their actual translation into textbooks and teaching practices.

Homi Bhabha Curriculum is basically an attempt to close this gap as much as possible. It is not conceived to be a revolutionary curriculum. The broad aims of the curriculum are much the same as those articulated in countless reports and articles of different education departments and agencies. The idea is not to produce a fanciful, 'museum-piece' curriculum that nobody would adopt, but to attempt to discover a sound and wholesome curriculum that is practical to implement in our school system. 'Practical' is, however, not to be regarded as a euphemism for the status quo. As the users will find out, the alternative textbooks of the Homi Bhabha Curriculum are full of radical unconventional ideas that we believe are both urgent, necessary and, given enough efforts, feasible. But rather than describe here what we believe to be these innovative aspects, we leave the users, students and teachers, to find and experience them. In the simplest and most favourable situations, devising a curriculum and translating it into books, laboratories and teacher manuals is a daunting task. In the complex parameters and constraints that govern our country's educational system, the task is formidable. Only time will tell if and to what extent the Homi Bhabha Curriculum is an effort in the right direction.

Arvind Kumar

Note to teachers and parents

As you skim through the pages of Maths for Every Child, you will notice some differences from other textbooks. We have tried to make the book attractive in appearance and interesting to children. However, the most important differences are not in the appearance.

Our aim is to move away from an emphasis on merely knowing procedures to an emphasis on reasoning and understanding. In addition to the learning of facts and procedures, we have laid stress on the connections between concepts and procedures, on finding patterns and on mental arithmetic skills. In many places, we have provided the child with enough concrete experience that will form a strong foundation for further mathematical learning. While doing all this we have retained the positive elements of the traditional approach: systematic organization of topics, careful sequencing and plenty of practice.

If children do not develop a strong sense of the two and three-digit numbers and their operations, it can become a handicap later on. To build a strong number sense, children need plenty of opportunity to play with two and three-digit numbers, to explore patterns and connections and to carry out simple addition and subtraction mentally. Units 1, 3 and 4 give them this opportunity. Unit 5 introduces a systematic approach to word problems using key diagrams, which will be developed further in class IV and V.

In Unit 2, it is important that students get an opportunity to work individually at adding and subtracting with actual matchstick bundles and sticks, at least at home if not at school. This helps children understand the basis for the 'carry' and 'borrow' procedures. The 'games for two', spread through different units, are also intended for playing outside the classroom, possibly at home. The measurement units (9-13) are all activity based and much will be lost if these activities are omitted. To make it easier for the student to carry and use the text-cum-workbook, we have bound it in two parts - Part A (Units 1 to 7) and Part B (Units 8 to 14).

The text-cum-workbook has been designed to be teacher friendly and easy to implement in the classroom. The material in the book has been developed through a process of continuous classroom trials with the participation of able teachers. However we realize that the needs of different kinds of classrooms vary. To take care of such needs we have provided additional help in a separate teachers' book.

We hope that this book takes us part of the way towards an educational culture where mathematics is no longer a source of fear and mystery. Do write and tell us how successful we have been in our endeavour. We would appreciate your feedback about how you used the books and your suggestions.

K. Subramaniam

subra@hbcse.tifr.res.in

Acknowledgement

Porus Lakdawala, my colleague, produced the initial drafts of the first few units. His contribution to the overall approach and framework of the curriculum has been fundamental.

Venola Fernando shouldered both the teaching and the organizational responsibilities of the trial programs. I thank her for her steady support and all-round contributions to the design of the curriculum.

Sumant Rao, Anagha Deshpande and Chetan Sharma, together with the team of Animagic Special Effects, not only produced the beautiful layout and illustrations but also greatly enhanced the quality of the book through their design and content suggestions. The book owes a great deal to their efforts.

I thank my colleagues at HBCSE for their support, feedback and encouragement through the long gestation period of the books. Arvind Kumar, Centre Director, HBCSE, initiated the Homi Bhabha Curriculum project and supported the work on these books at all stages. H.C. Pradhan, co-ordinator, Mathematics Curriculum, helped shape the framework underlying the books besides providing detailed criticism and feedback. Chitra Natarajan, Jayashree Ramadas, G. Nagarjuna and Arun Mavlankar shared their insights and criticisms and helped to make significant improvements in the content and presentation.

Adarsh Gupta helped me learn something about the fine art of teaching. I am indebted to her and to Hemakshi Selani for handling the bulk of the teaching in the vacation trial programs and for their contributions to the design of the learning material.

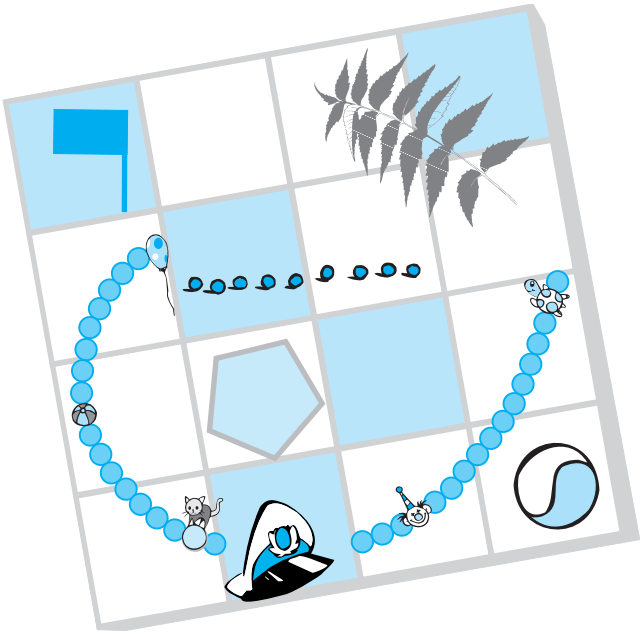
I thank the principals and teachers of the following schools in Mumbai for permission to try the curriculum material in their classrooms: Atomic Energy Central Schools no. 3 and no. 5, Children's Aid Society, Deonar Pada Municipal School, and Nutan Vidya Mandir.

I also thank U. Subbaraju of Timbaktu School, Andhra Pradesh, and Nilesh Nimkar of Grammangal for help with trials with the children of their schools and for valuable feedback and suggestions.

I thank P. R. Fadnavis of HBCSE and his team for providing administrative support. Gajanan Mestry and N. S. Thigale gave prompt help in the production of drafts.

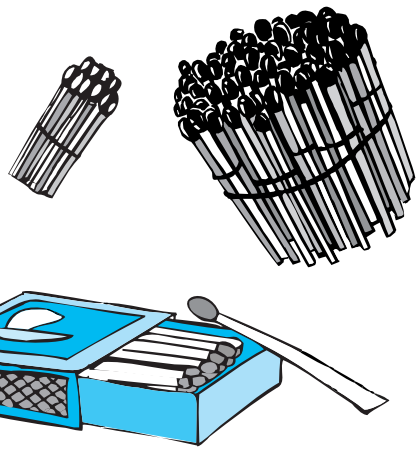
Leena and Chaitanya gave unflinching support and made many criticisms and suggestions.

K. Subramaniam

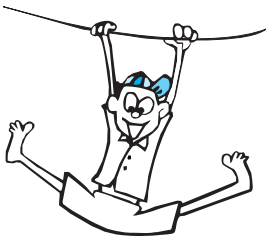


UNIT 1
Number Warm-up

UNIT 2
Matchstick Maths

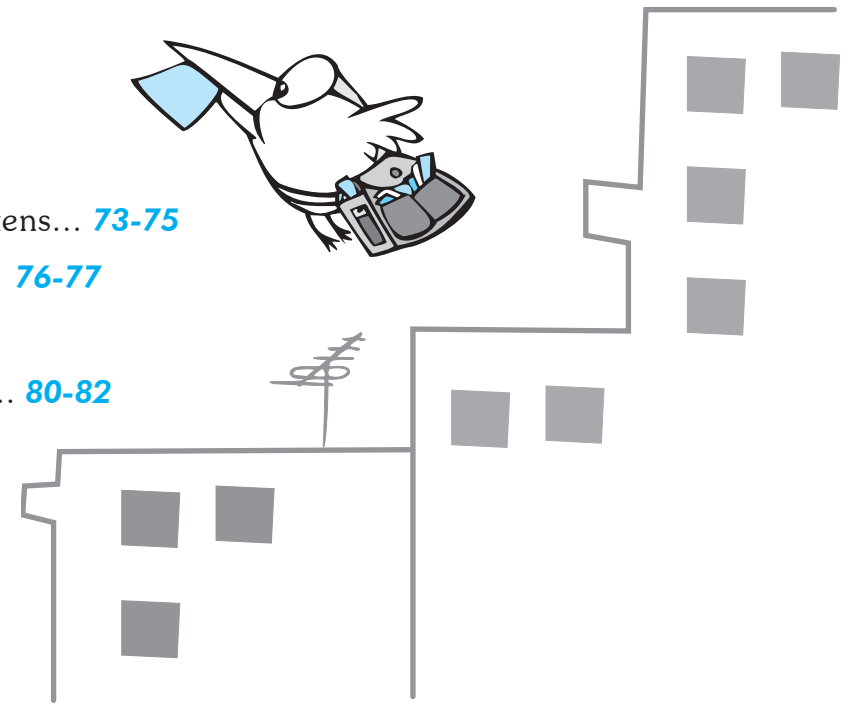


UNIT 3
Number Building



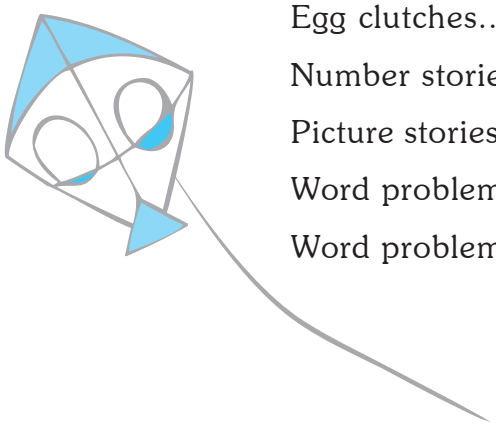
UNIT 4

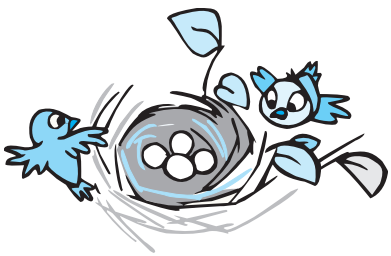
Bigger Numbers



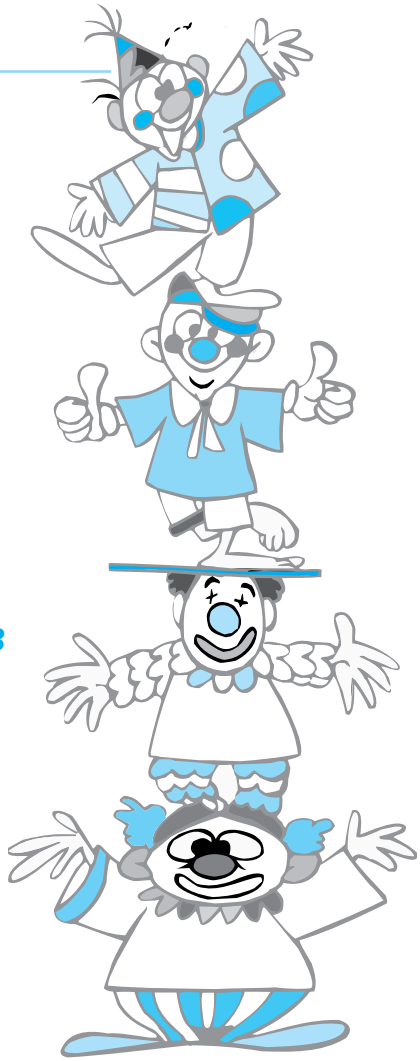
UNIT 5

Numbers in the World

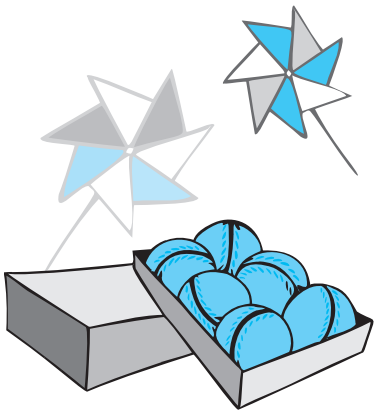




UNIT 6
Multiplication

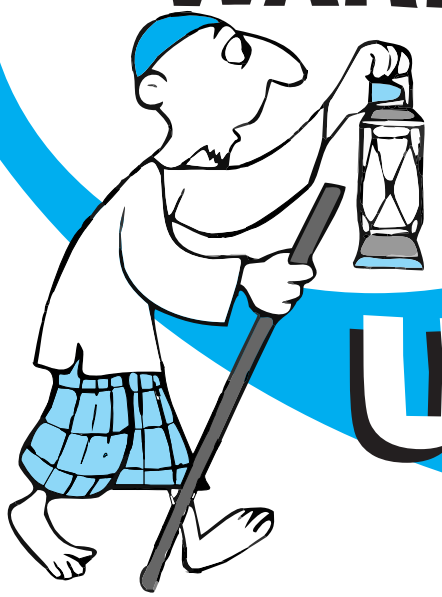


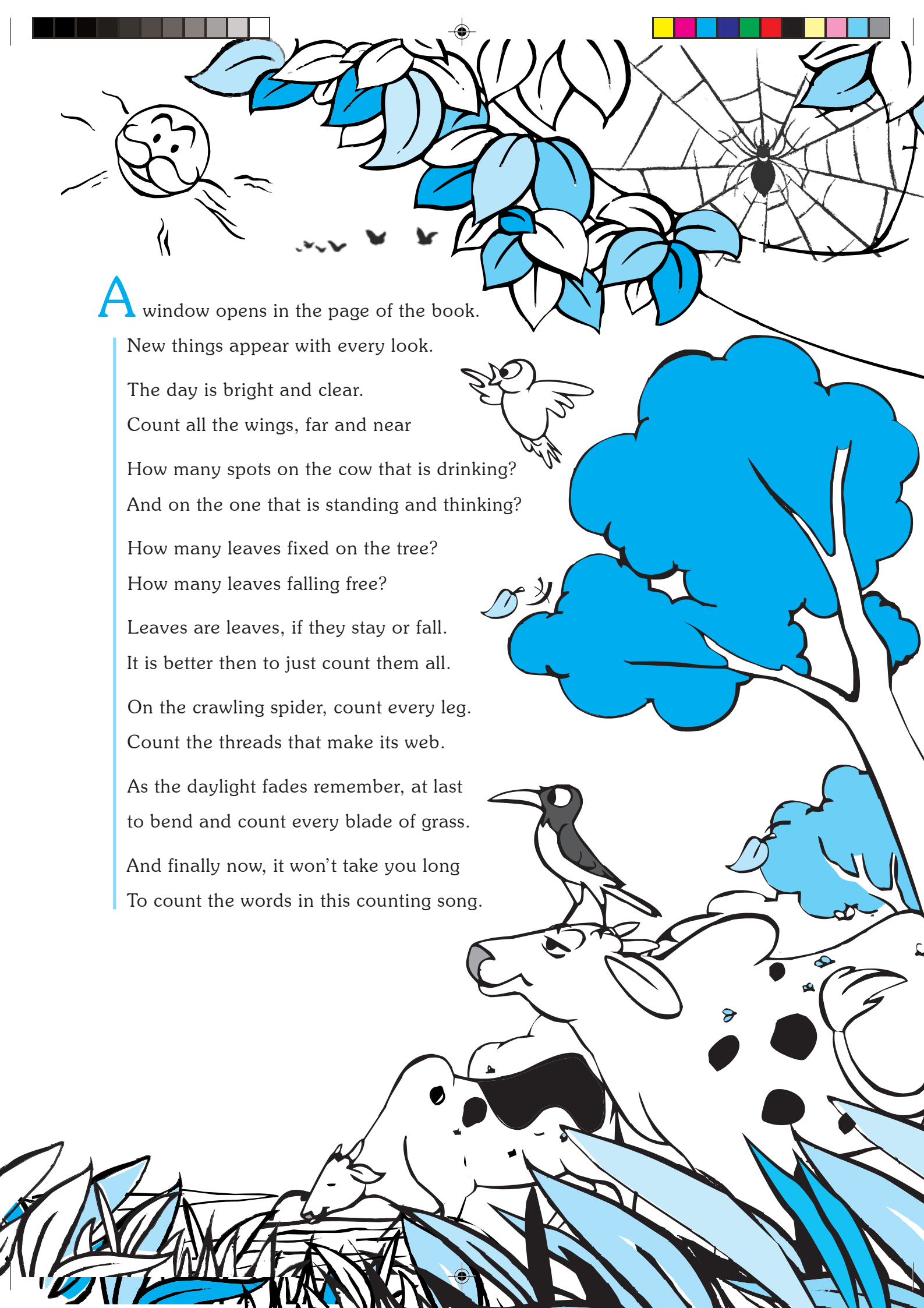
UNIT 7
Division



Unit 1

NUMBER WARM-UP





A window opens in the page of the book.
New things appear with every look.

The day is bright and clear.
Count all the wings, far and near

How many spots on the cow that is drinking?
And on the one that is standing and thinking?

How many leaves fixed on the tree?
How many leaves falling free?

Leaves are leaves, if they stay or fall.
It is better then to just count them all.

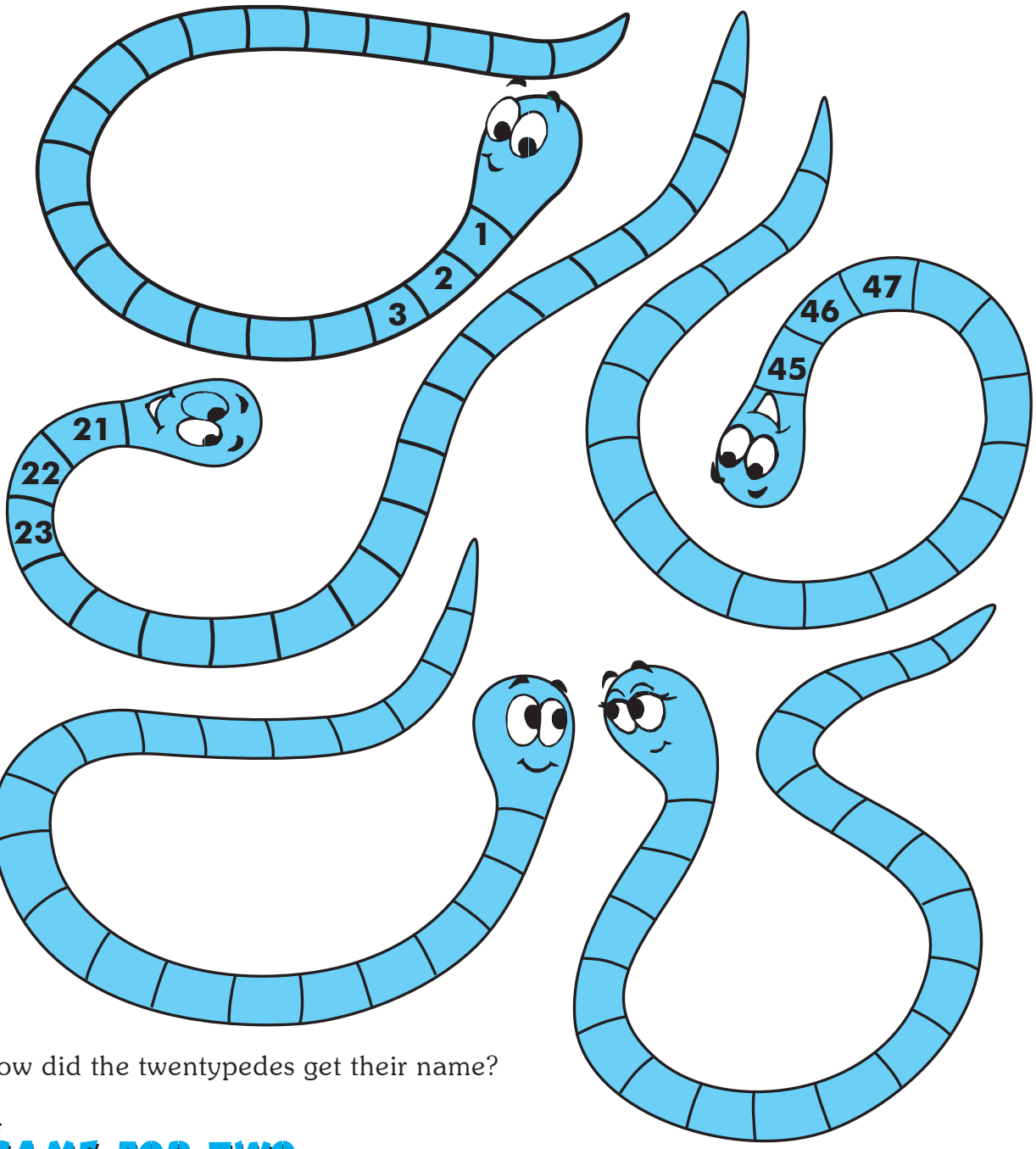
On the crawling spider, count every leg.
Count the threads that make its web.

As the daylight fades remember, at last
to bend and count every blade of grass.

And finally now, it won't take you long
To count the words in this counting song.

Meet the twentypedes

Write the numbers on each twentypede. Start with any number you like for the last two twentypedes.



How did the twentypedes get their name?

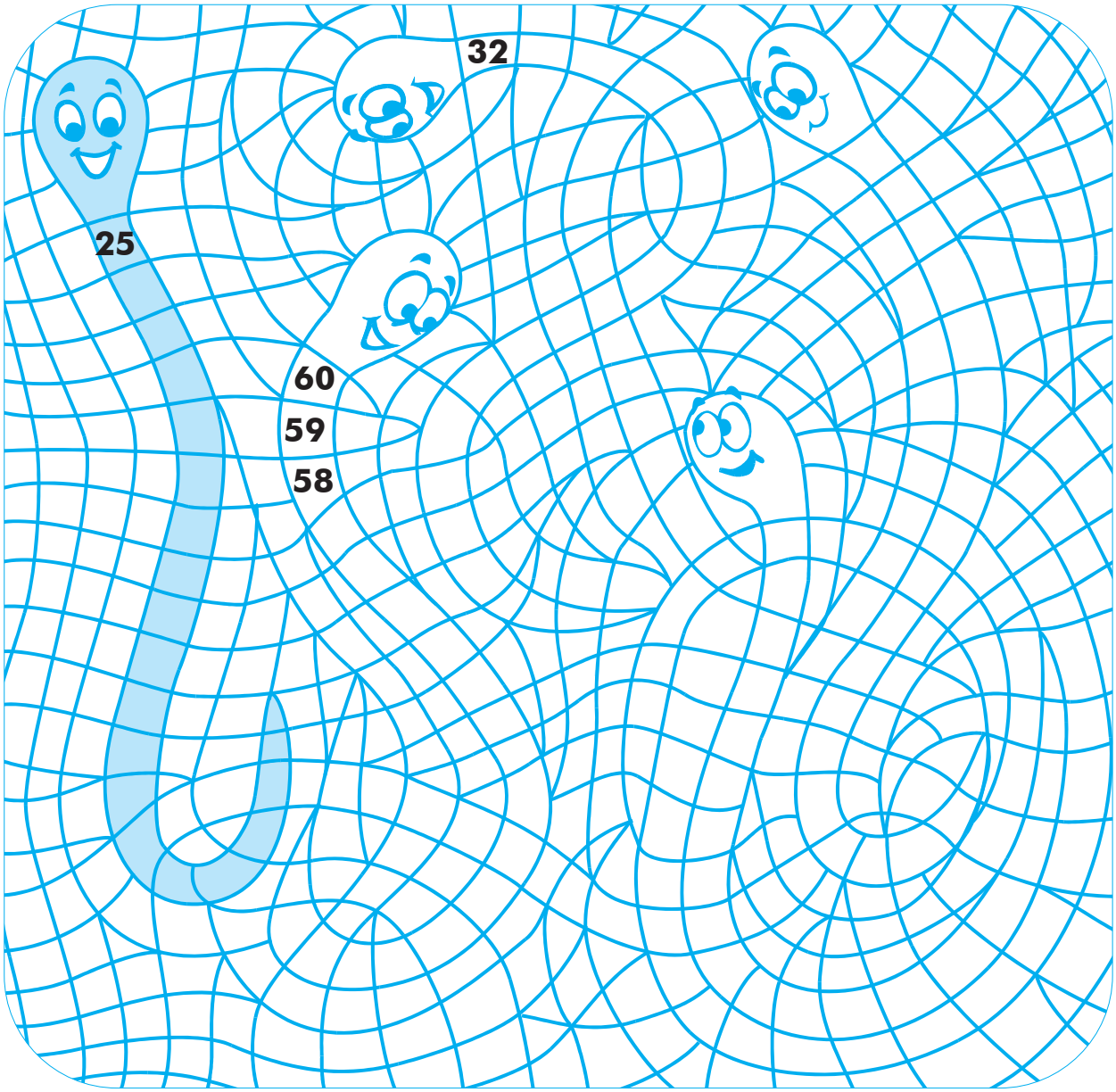
GAME FOR TWO

Counting games :

Count as fast as you can from 50 to 100.
As you count ask your friend to draw faces like this.

How many faces did he draw?

Now write the numbers in reverse order on each twentypede.



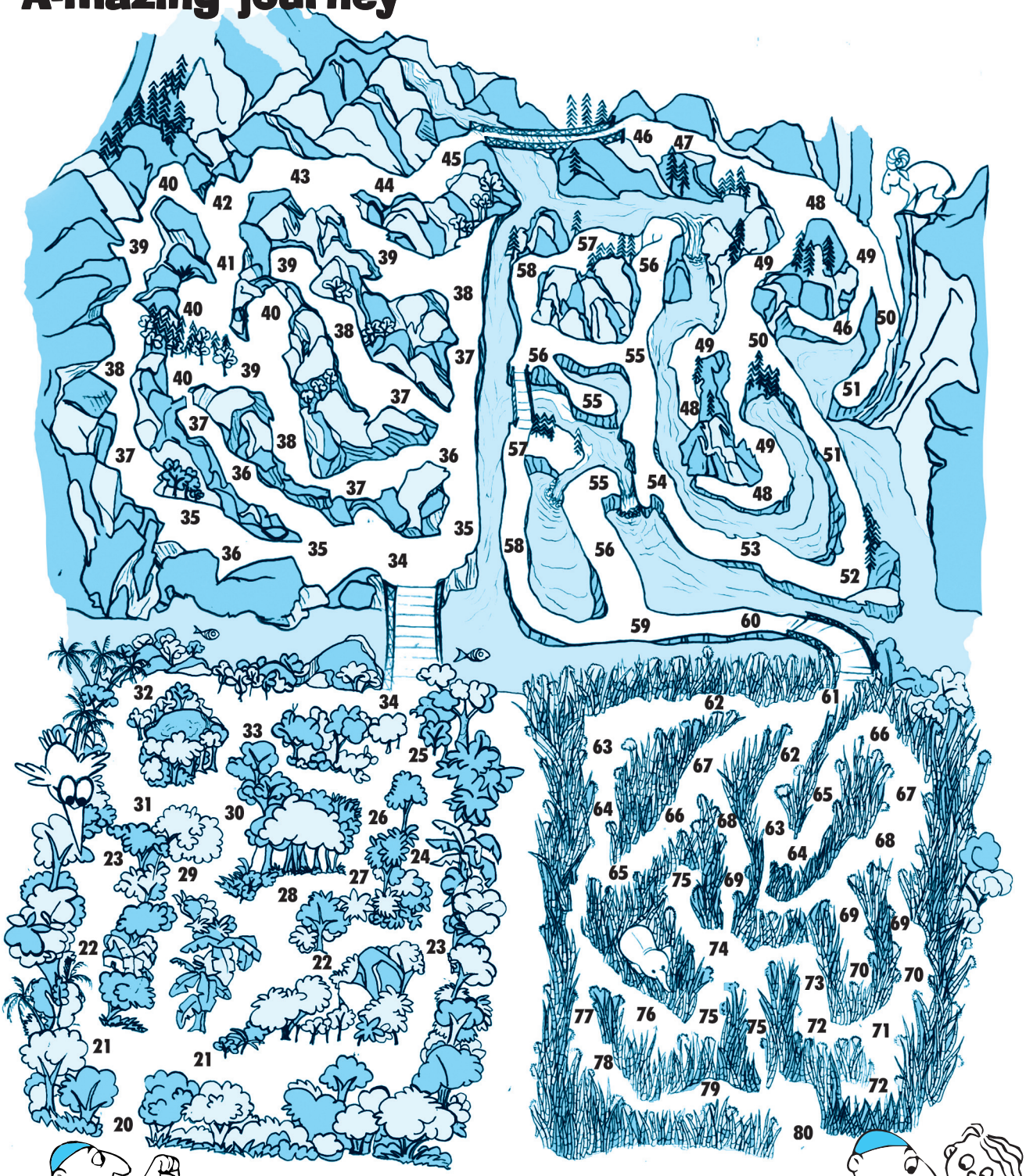
GAME FOR TWO

Counting games :

Count backwards from 20 to1 while your friend draws faces.

Try counting backwards from 30 to 20 and from 50 to 20.

A-mazing journey



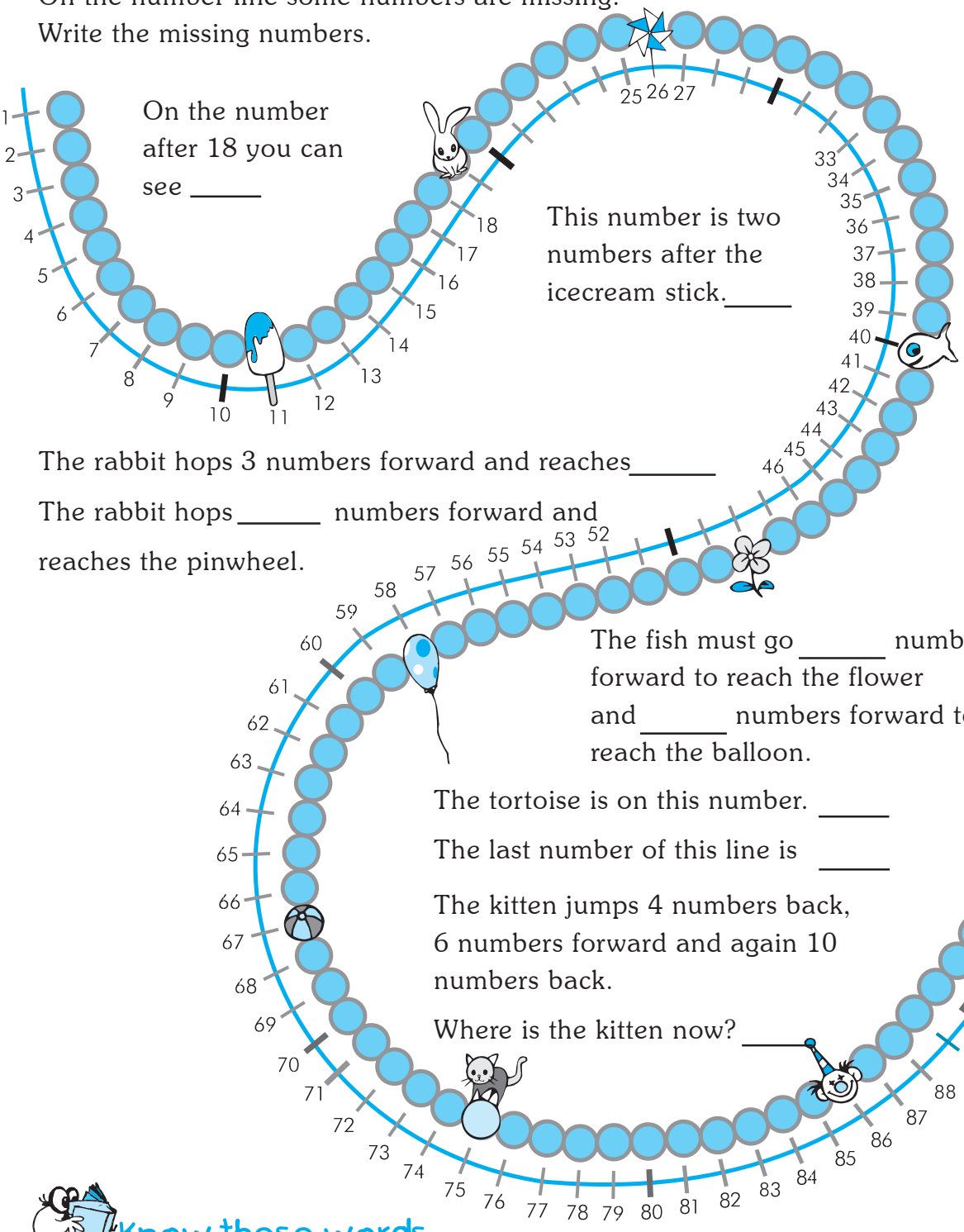
Rahim chacha is looking for Javed and Parveen who are wandering around in the forest.

The only safe path through the forest has all the numbers from 20 to 80 in the correct order.

Help Rahim chacha by tracing the safe path.

Number line

On the number line some numbers are missing.
Write the missing numbers.



On the number after 18 you can see _____

This number is two numbers after the icecream stick._____

The rabbit hops 3 numbers forward and reaches_____

The rabbit hops_____ numbers forward and reaches the pinwheel.

The fish must go _____ numbers forward to reach the flower and _____ numbers forward to reach the balloon.

The tortoise is on this number. _____

The last number of this line is _____

The kitten jumps 4 numbers back, 6 numbers forward and again 10 numbers back.

Where is the kitten now? _____

Know these words

greater than, less than

Do you remember the sign for **'greater than'** and **'less than'**?

25  22 25 > 22 36  45 36 < 45

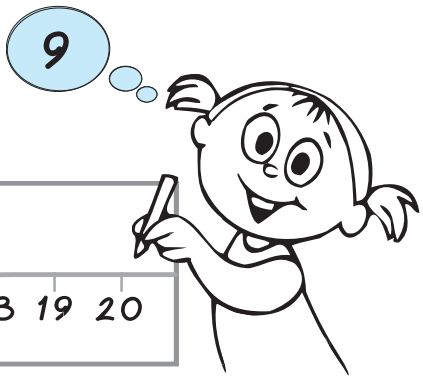
Bury the flags

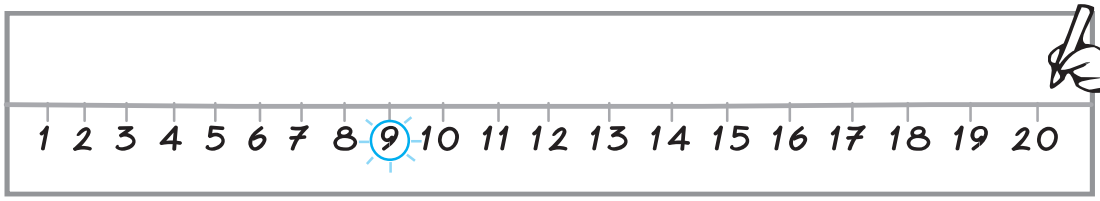
How to play

Mini draws a line on the blackboard.

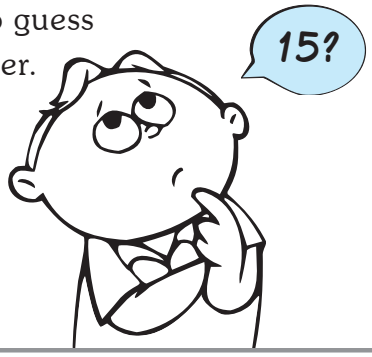
She writes numbers upto twenty.

She thinks of a number betweeen 1 and 20.

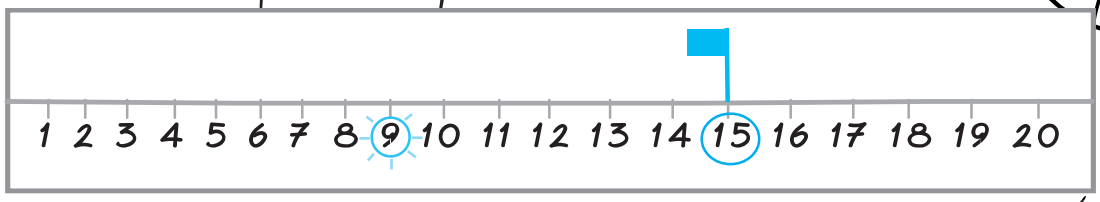




Tuttu tries to guess Mini's number.



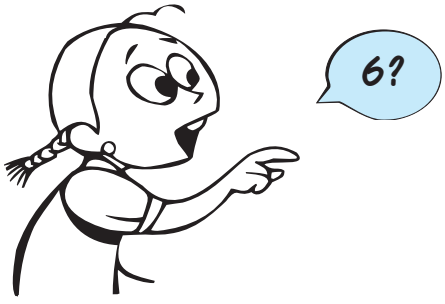
Mini makes a flag on 15.

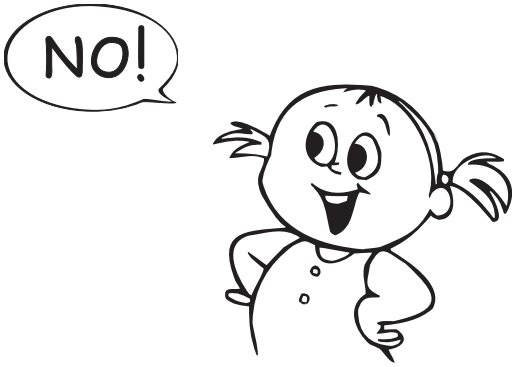


Why does the flag point to the left ?

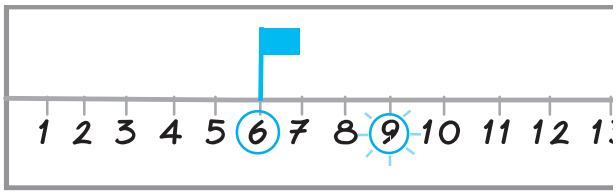
Because Mini's number is smaller than 15.

Now Smita tries to guess Mini's number.



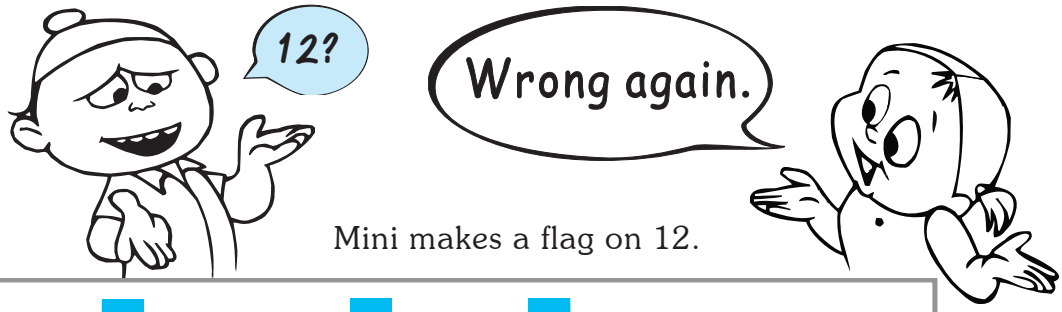


Mini makes a flag on 6.

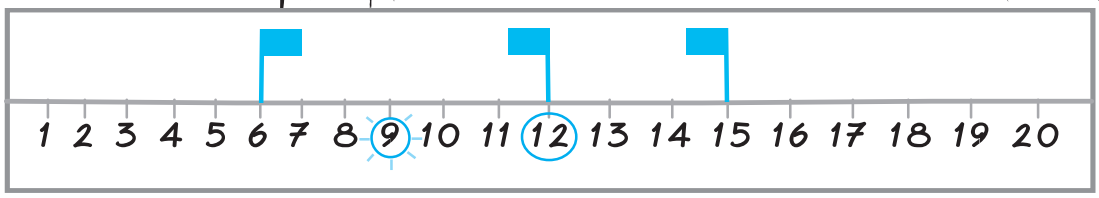


Why does the flag point to the right?

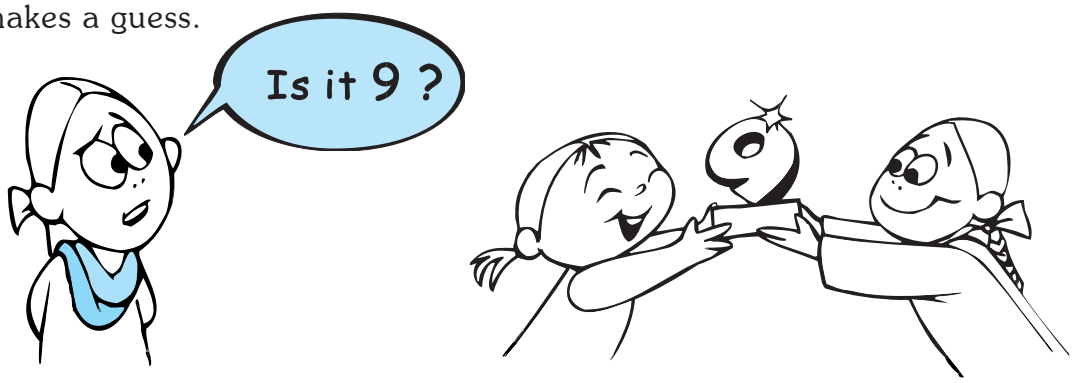
Chunindar tries to guess too. . .



Mini makes a flag on 12.



Razia makes a guess.



GAME FOR TWO

1. Draw a different number line in your notebook, for example, from 21 to 40. Play the game on this number line.

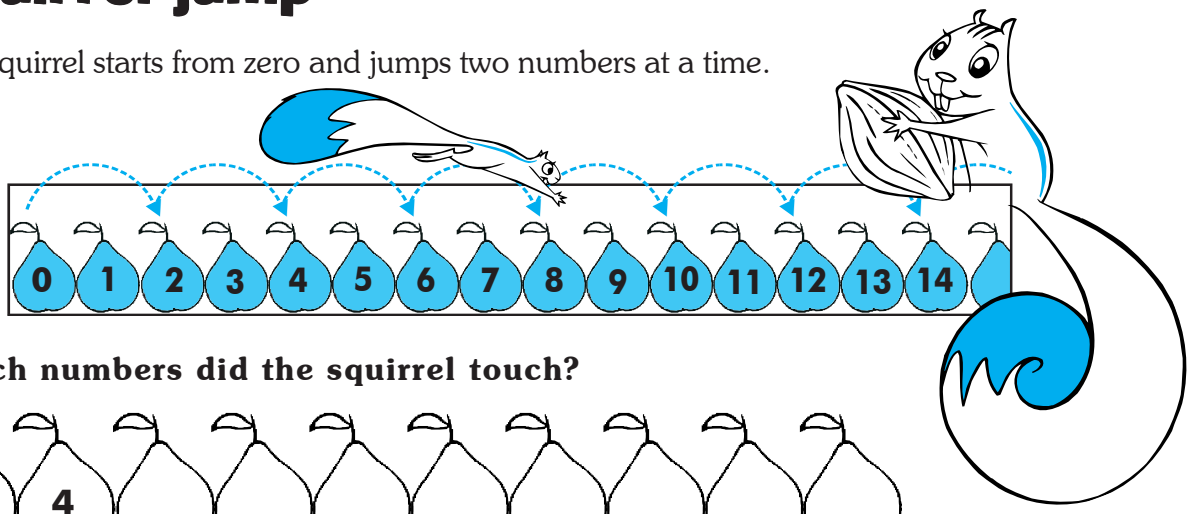
   Try to guess the number in less than 5 chances.

2. Guess the number written on the folded paper from the clues.

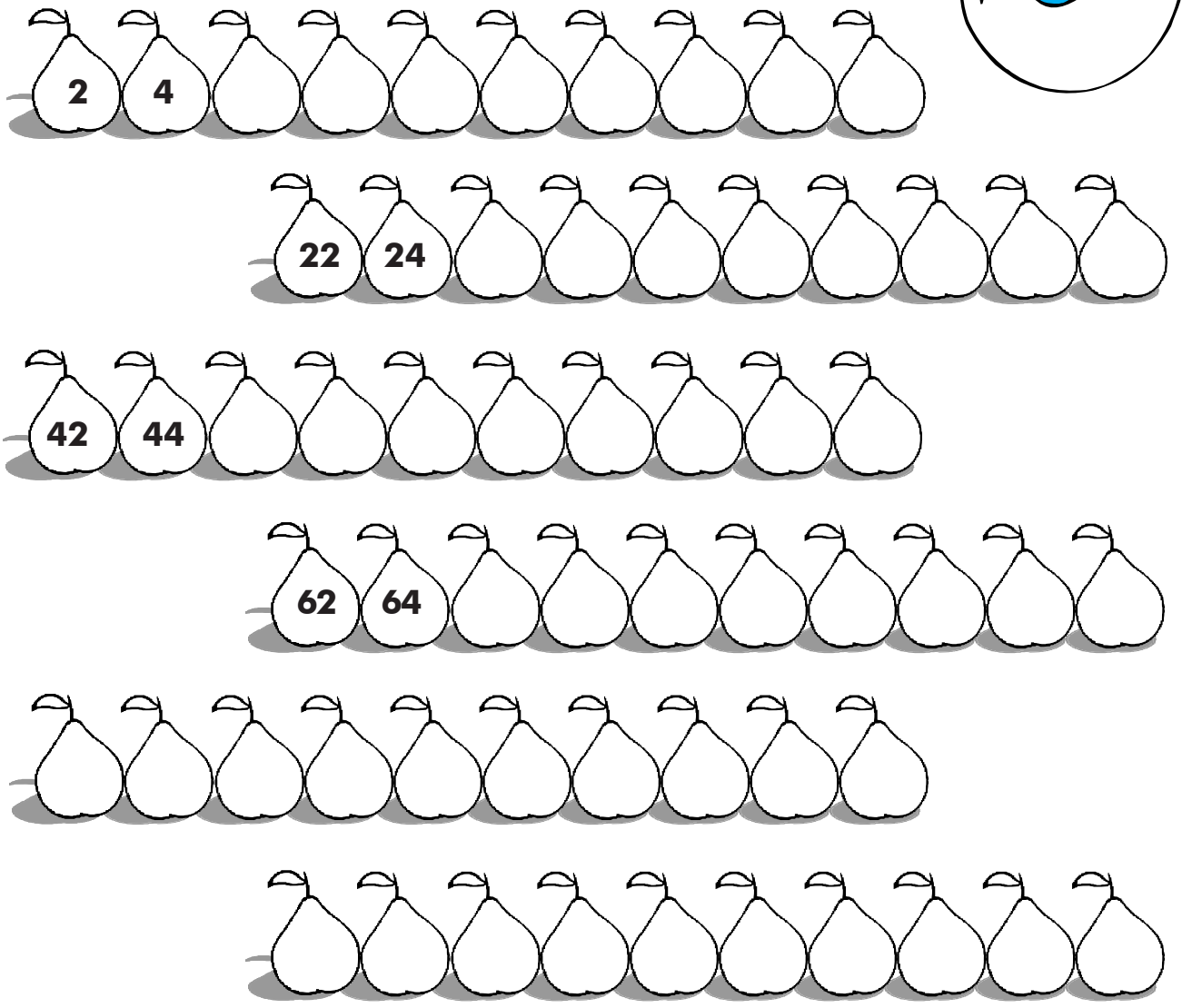
   Clues: ? > 43 ? < 54 ? < 50 ? < 45

Squirrel jump

The squirrel starts from zero and jumps two numbers at a time.



Which numbers did the squirrel touch?

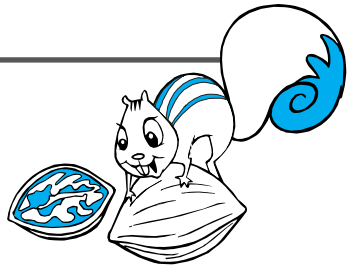


EXERCISE

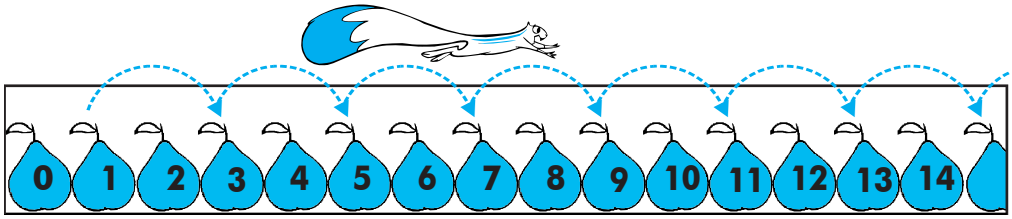
Write down ten numbers after 190 that the squirrel touched.

Circle the numbers that the squirrel touched:

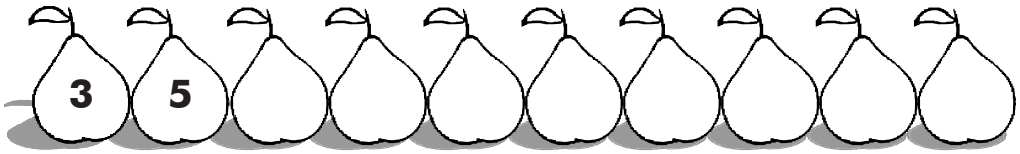
23, 27, 28, 88, 96, 121.

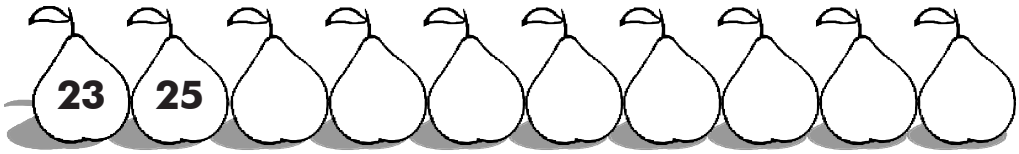


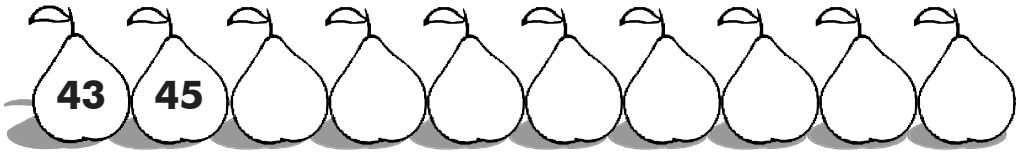
Now the squirrel starts jumping from one.

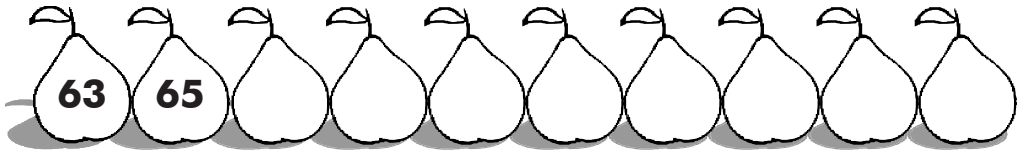


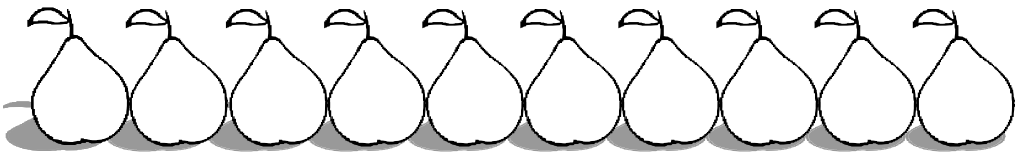
Which numbers did the squirrel touch?

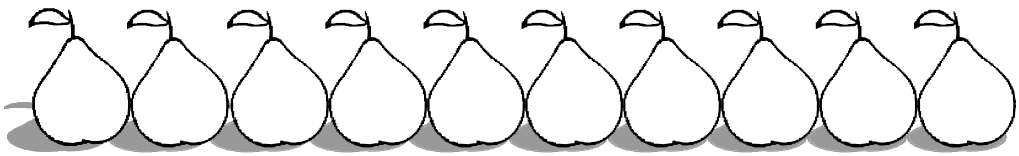












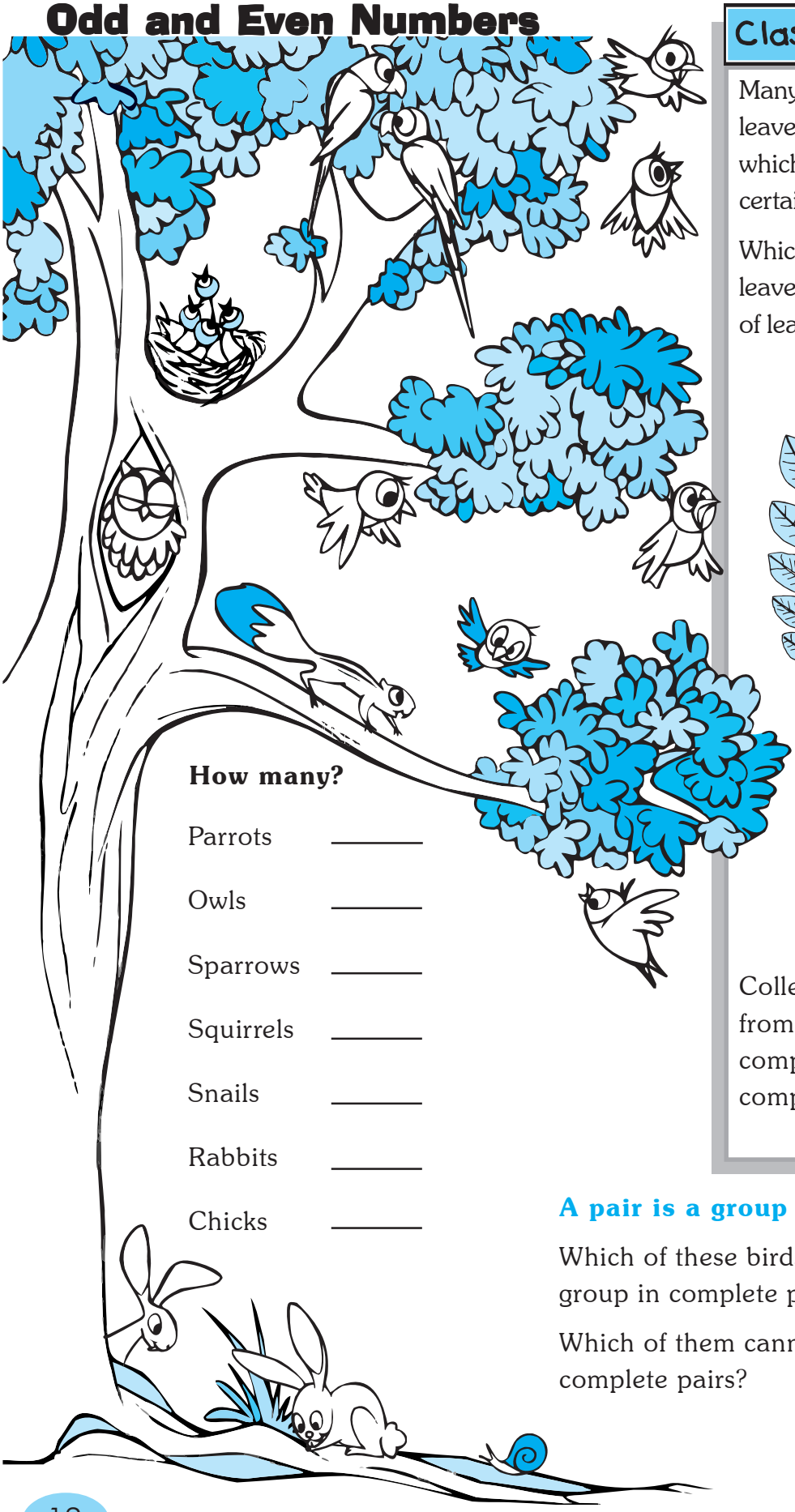
EXERCISE

Learn these different ways of counting:

Count up and count down starting from any number.

Count in jumps of 2, 3, 5 and10.

Odd and Even Numbers



How many?

Parrots _____

Owls _____

Sparrows _____

Squirrels _____

Snails _____

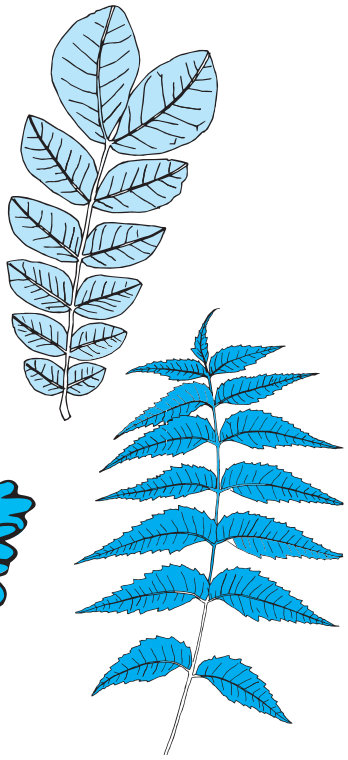
Rabbits _____

Chicks _____

Classroom Activity

Many trees have compound leaves made up of leaflets which are arranged in a certain pattern.

Which of these compound leaves has complete pairs of leaflets?



Collect compound leaves from nearby trees. Which compound leaves have complete pairs of leaflets?

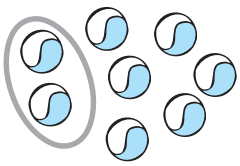
A pair is a group of two.

Which of these birds and animals can you group in complete pairs?

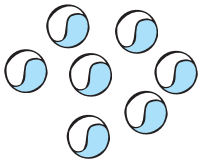
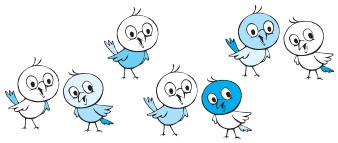
Which of them cannot be grouped in complete pairs?

When you have 8 things you can group them in complete pairs. So 8 is an **even** number.

Group these into pairs by drawing rings.



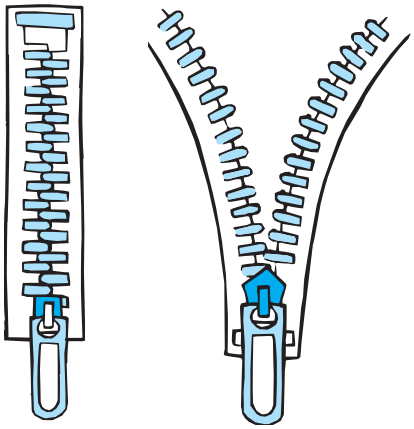
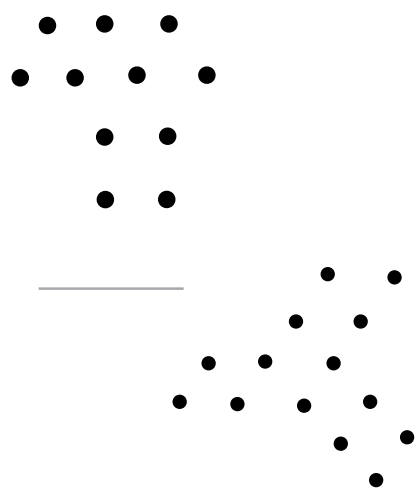
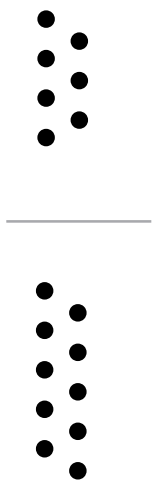
Now try to make complete pairs of these things.


7 is an **odd** number. Why? _____

Guess whether even or odd.

Then check your guess by counting and making pairs.

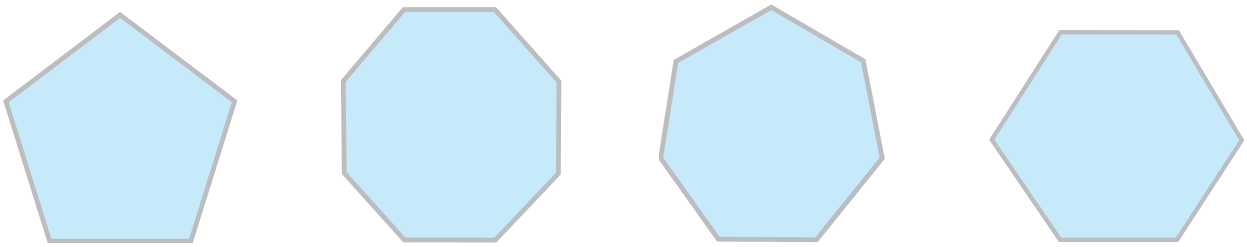
EXERCISE

Draw dots and find out if the numbers are odd or even.

Example: 12  12 is even.

4 9 2 10 5 1 3 15

Odd or even number of sides?



_____ _____ _____ _____

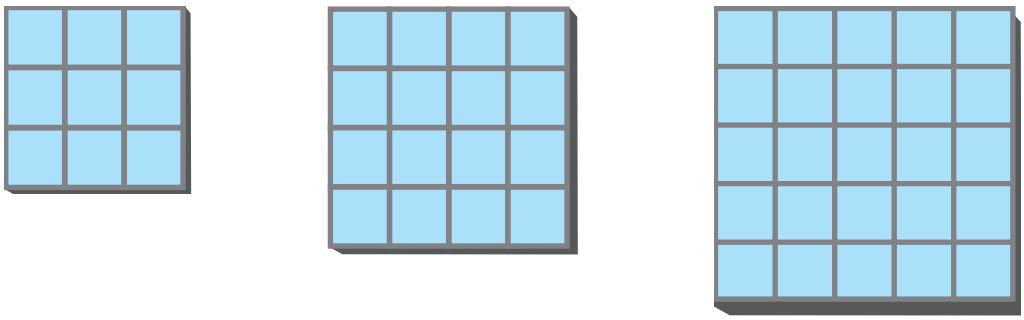
Classroom Activity

This is a domino shape. 

Trace the shape on paper and cut it out.

Make about 10 to 15 domino shaped pieces of paper.

Try to completely fill these checkerboards with the domino shapes. The domino shapes should not lie outside the checkerboards.



Which checkerboards can you fill?

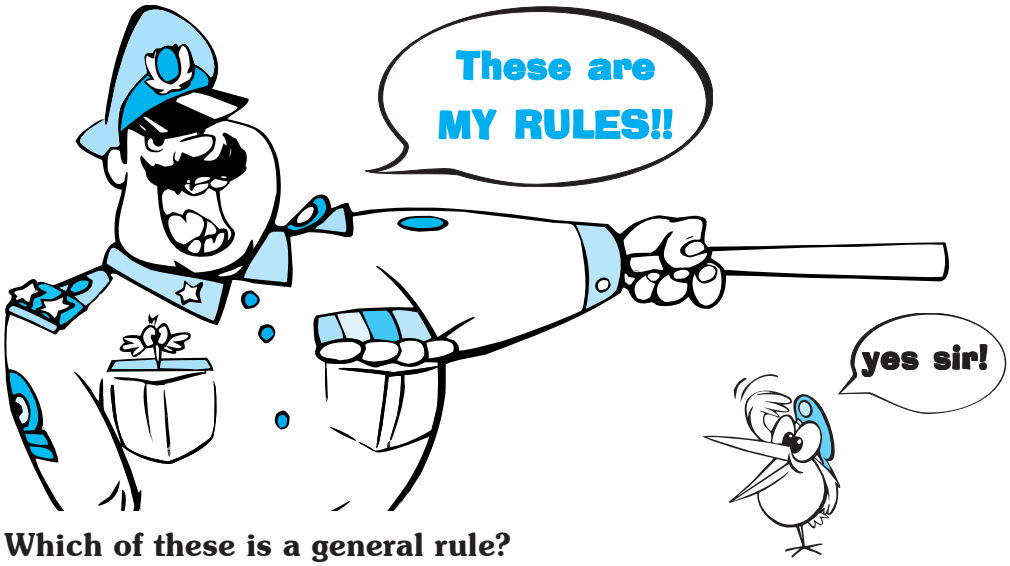
Why can't you fill some of them? _____

_____

EXERCISE

Write down the odd numbers between 10 and 20 and between 90 and 110.

Write down the even numbers between 11 and 21 and between 91 and 111.



Which of these is a general rule?

Rule 1 You must brush your teeth at night if you have eaten sweets.

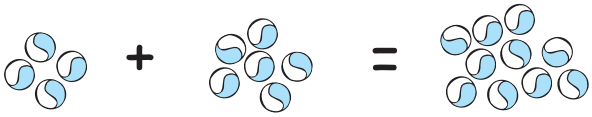
Rule 2 You must always brush your teeth at night.

What is the difference between a rule and a general rule?
Give some examples.

Another Rule

Even + Even = Even

Example



4 + 6 = 10
(even) (even) (even)

Check if the rule works for other even numbers.

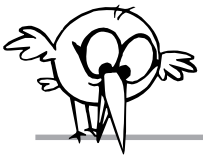
Why does the rule work?

An odd rule

Find this rule:

Odd + Odd = _____

Test these rules out with your own numbers and see if they work.



Rule to check if a number is even :

If a number ends in '0' it is even.

Check if the rule is correct.

Can the rule be used to check all even numbers?

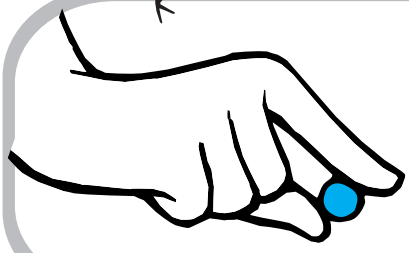
Make a general rule to check whether any number is even.

Nim game

It's time for the NIM GAME.

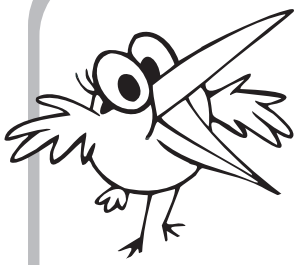
This is a game for two people.

You can play this game on a blackboard, in your notebook or simply with pebbles.*



Let`s play with pebbles. Put 10 pebbles in a row.

RULES

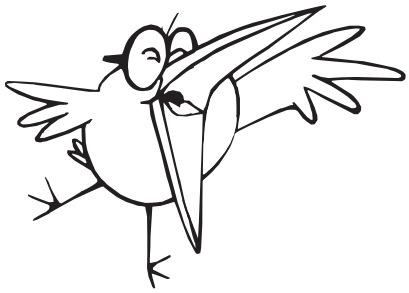


Take turns to pick up pebbles from each end.

You can pick only ONE or TWO pebbles at a time.

The one who picks the last one or two pebbles

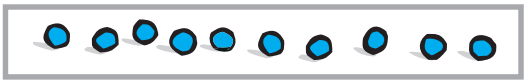
WINS THE GAME !



LET'S GO!

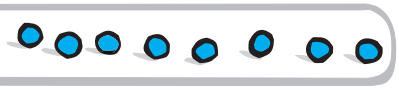
*To play on a blackboard or in a notebook, draw 10 circles. Rub out or cross out one or two circles at a time.

The game begins.



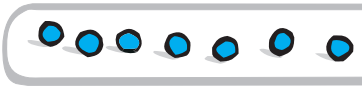
Bittoo

Bittoo picks up two Pebbles.



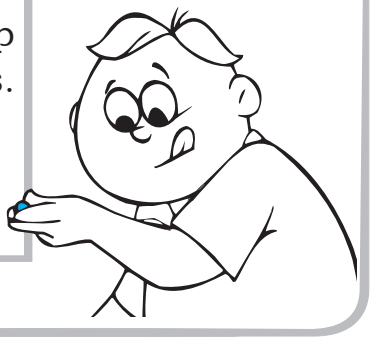
Tuttu

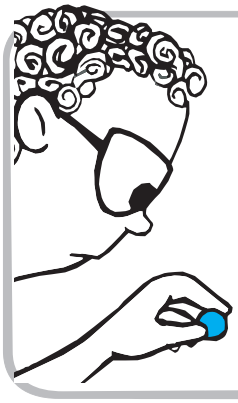
Tuttu picks up one pebble.



Bittoo again picks up two Pebbles.

Tuttu picks up two pebbles.



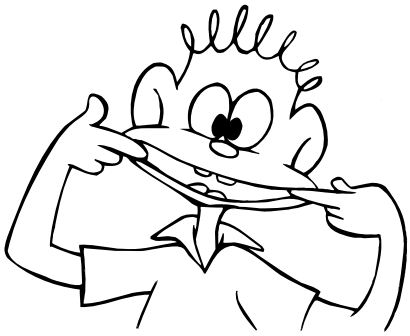


Bittoo picks up one pebble.

Tuttu picks up the last two pebbles.

WINNER!

Finding the opposite



Eti Soppo was a friendly child, but he had a naughty habit. When someone asked him to do something, he would do the opposite.

Once Eti's mother told him to clean his shoes. Instead Eti pasted it with mud. He got a pasting for doing that!

One day Eti's teacher gave him this sum: 5 + 3 =____

Eti knew the answer, but he wanted to do the opposite of adding.

What is the opposite of adding? _____

Eti wrote: 5 - 3 = 8.

Oops! Eti knew he had written something wrong.

So he struck it out . ~~5 - 3 = 8.~~

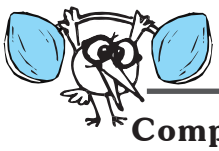
and wrote 5 - 3 = 2.

Although this was correct, Eti was not happy because he had a new number 2, in place of 8. He wanted the same three numbers: 5, 3 and 8.

Write a subtraction problem with these numbers 5, 3, 8 : _____

Eti found that there were actually two opposites of 5 + 3 = 8.
Can you find both of them? _____

If you ask Eti Soppo to write his name, how do you think he would write it?



EXERCISE

Complete these addition facts and write the opposites.

6 + 5 = *11*

11 - 5 = 6

11 - 6 = 5

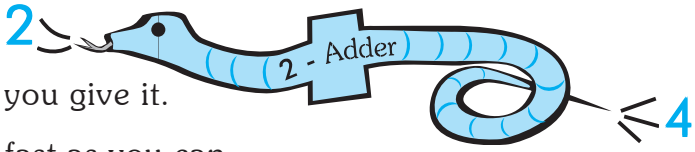
21 + 5 =

10 + 15 =

Adders

The adders add very fast.

The 2-adder adds 2 to any number that you give it.



Now you be different adders and add as fast as you can.

Add 2

3 → 5	7 → 9	1 →	5 →	8 →	4 →
9 →	12 →	15 →	10 →	13 →	11 →
17 →	26 →	19 →	28 →	46 →	59 →
78 →	89 →	98 →	99 →	106 →	118 →

Add 3

4 → 7	2 → 5	6 →	1 →	7 →	3 →
10 →	8 →	13 →	9 →	11 →	5 →
12 →	15 →	14 →	17 →	25 →	27 →

Add 4

2 → 6	3 → 7	1 →	5 →	7 →	4 →
6 →	8 →	11 →	14 →	10 →	15 →
13 →	16 →	22 →	26 →	36 →	48 →

Add 5

1 → 6	3 → 8	5 →	2 →	6 →	4 →
7 →	9 →	12 →	8 →	10 →	11 →
14 →	16 →	13 →	15 →	18 →	17 →

Notebook Exercise

Write down all the numbers from 40 to 60 and from 78 to 99.

Write the numbers backwards from 80 to 50.

Write down the odd numbers between 18 and 32.

Write down the even numbers between 27 and 45.

EXERCISE

Fill in numbers of your choice.

25 > __ 36 > __ __ < 41 __ > 10

Check Raju's answers. Put a `tick' for correct and a `cross' for wrong.

18 > 19 ☐	17 < 18 ☐	23 < 22 ☐	16 > 15 ☐
12 > 21 ☐	22 < 33 ☐	19 < 91 ☐	36 > 36 ☐

Fill in '>', '<' or '=' in the box.

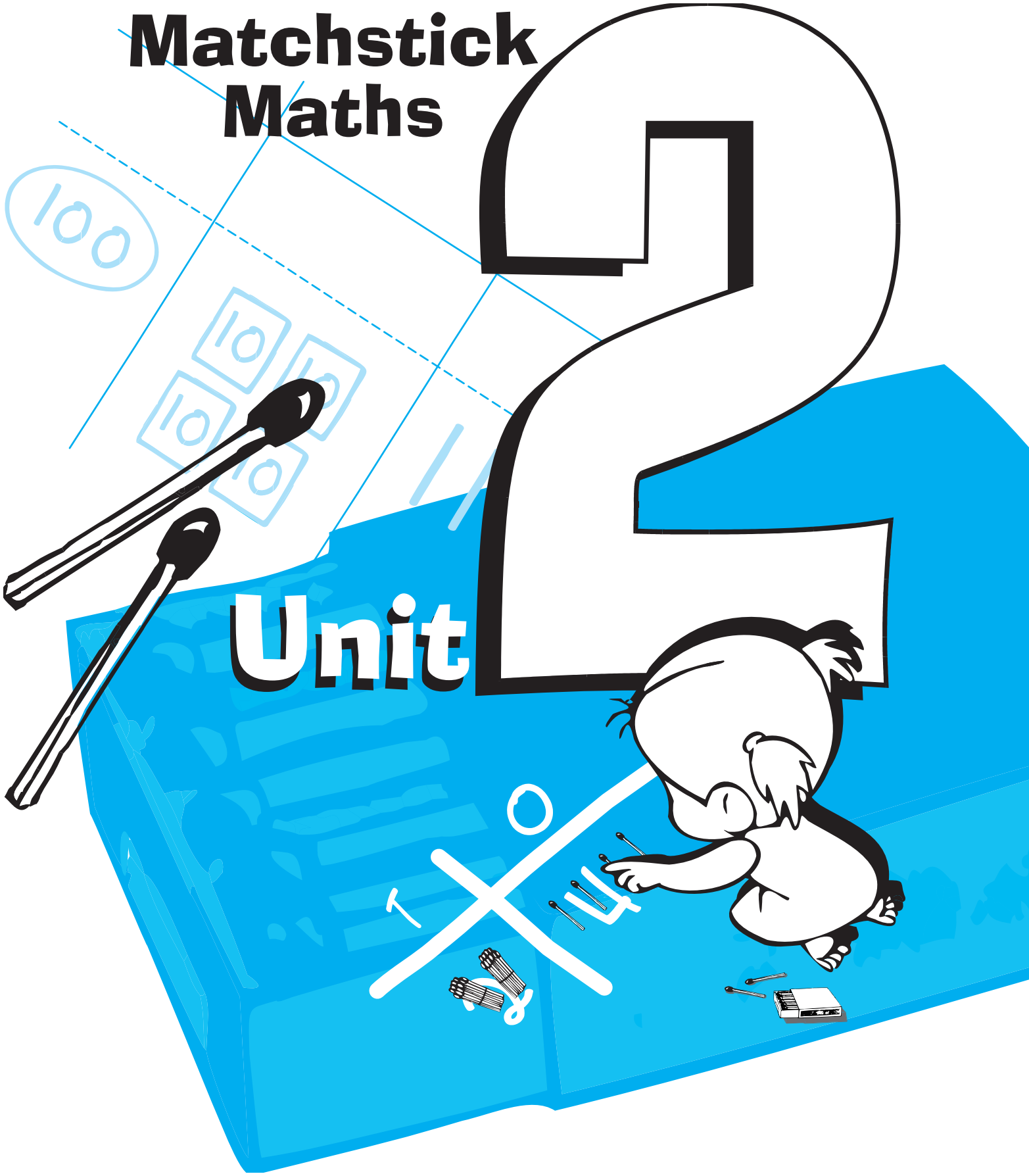
3 + 7 ☐ 11	3 + 18 ☐ 21	8 + 7 ☐ 15
15 + 5 ☐ 19	7 + 7 ☐ 13	12 + 9 ☐ 21
18 – 6 ☐ 13	17 – 10 ☐ 6	10 ☐ 19 – 9
31 ☐ 14 + 20	16 ☐ 20 – 4	23 ☐ 30 – 7

Complete these addition facts and write the opposites.

8 + 6 =	16 + 12 =	20 + 11 =
19 + 1 =	8 + 0 =	9 + 9 =

Matchstick Maths

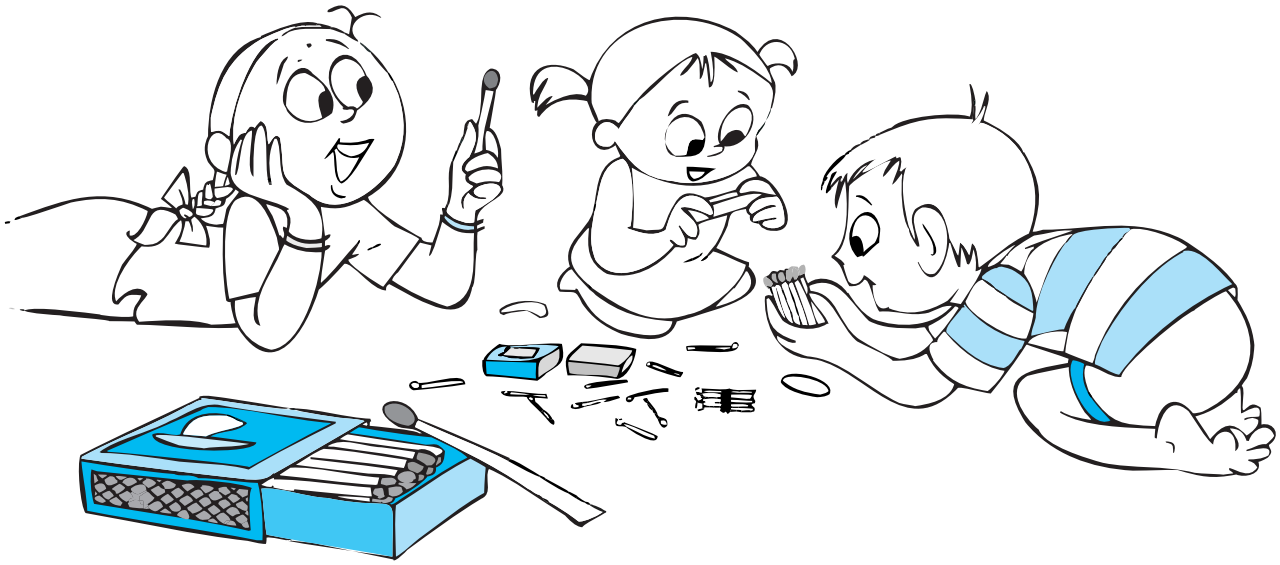
Unit 2



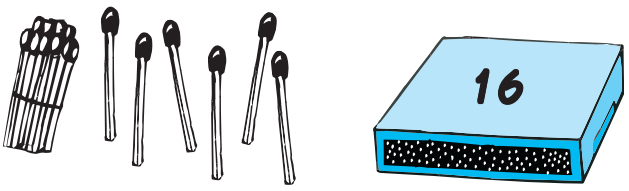
Making ones and tens

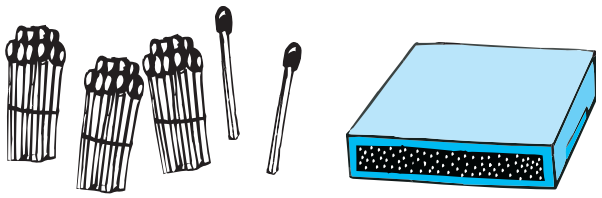
A single matchstick is a ONE.

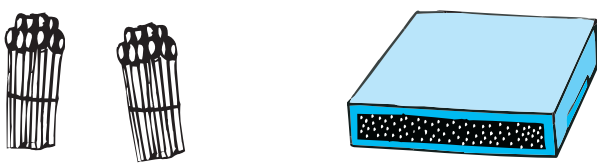
A bundle of ten matchsticks is a TEN.



Which numbers are shown?







Classroom Activity

Show these numbers using matchsticks.*

34 12

43 6

21 9

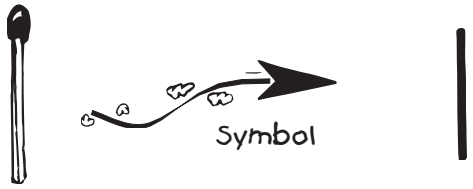
69 10

70

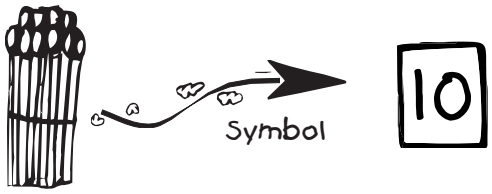
* Use actual matchsticks and rubberbands. See teacher's book.

Drawing ones and tens

Show a ONE by drawing a LINE.



Show a bundle of TEN by drawing a BOX. Write '10' inside the box.

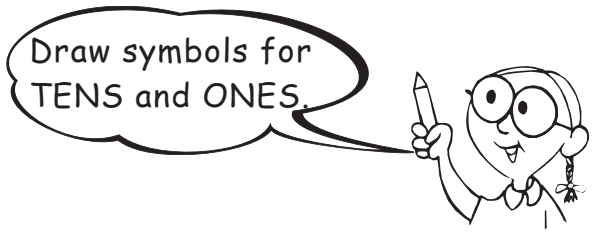


Draw ones and tens.

23

Tens column	Ones column
T	O
10 10	|||

T	O
2	3



28

T	O

T	O

46

T	O

T	O

64

T	O

T	O

19

T	O

T	O

20

T	O

T	O

8

T	O

T	O

Notebook Exercise

Write how many tens and ones.

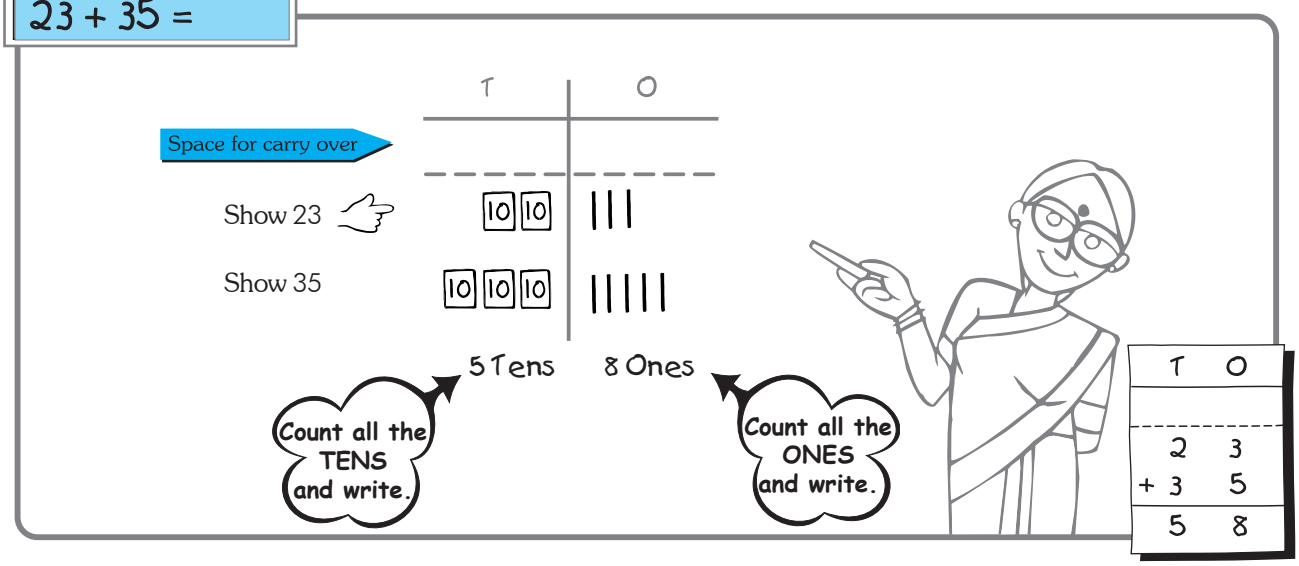
43 = 4 tens and 3 ones

37 55 19 78 16 61 5 6

Adding with matchsticks 1

example

23 + 35 =



Draw matchsticks and add.

34 + 12 = ____

T O

T O

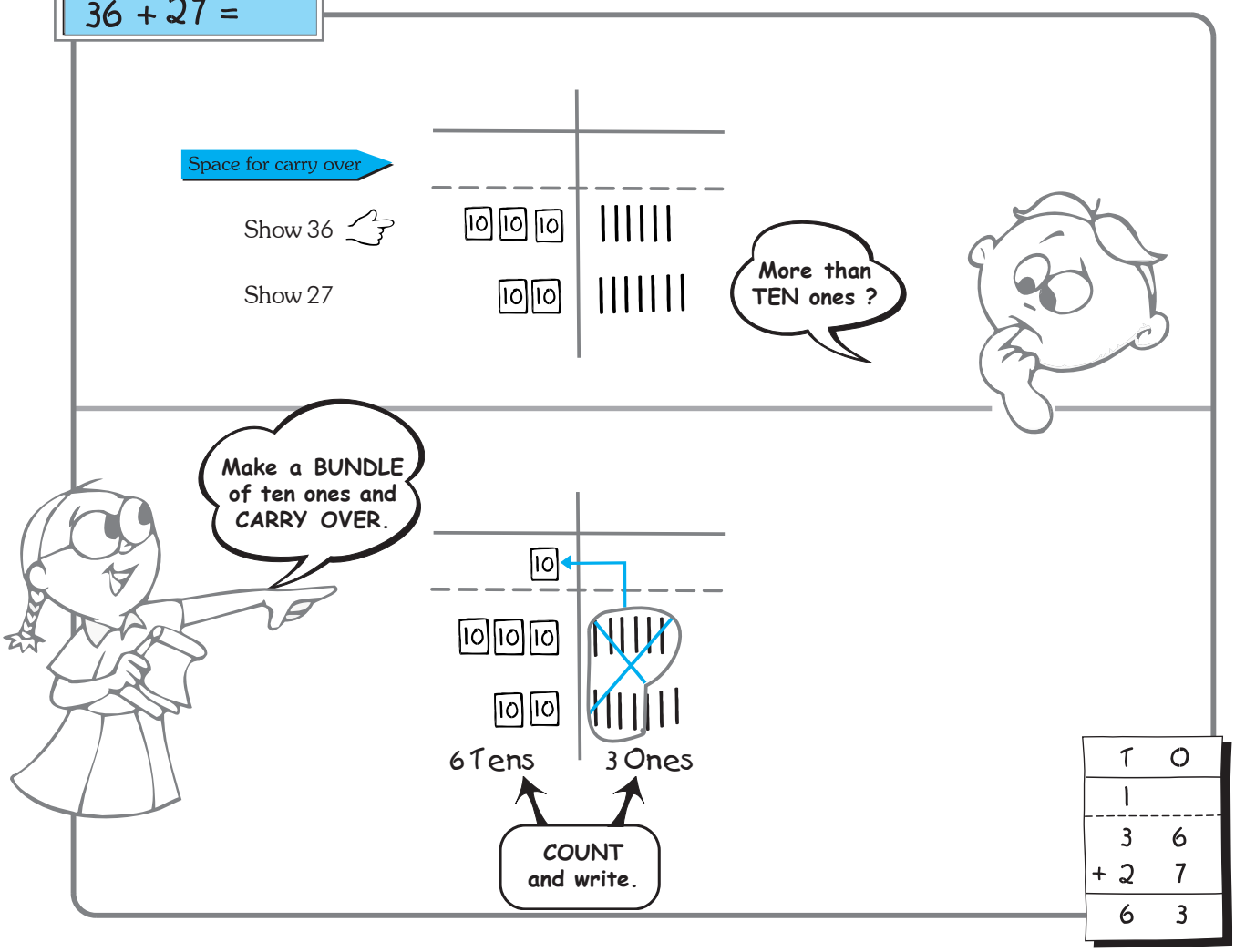
15 + 43 = ____

T O

T O

example

36 + 27 =



Draw matchsticks and add.

34 + 18 = ____

T O

T O

Notebook Exercise

Draw matchsticks and add.

27 + 16

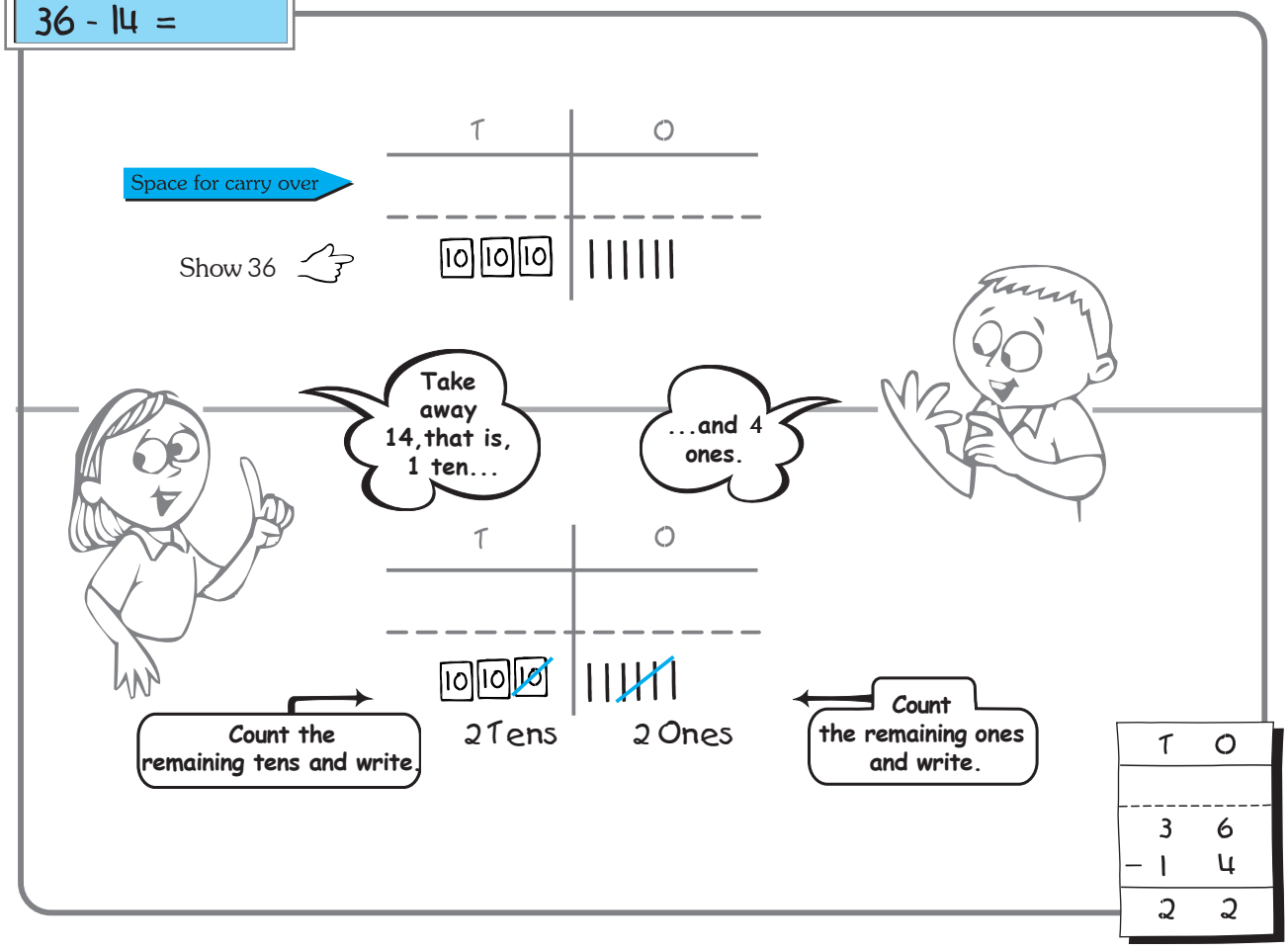
36 + 28

16 + 44

Subtracting with matchsticks 1

example

36 - 14 =



Draw matchsticks and subtract.

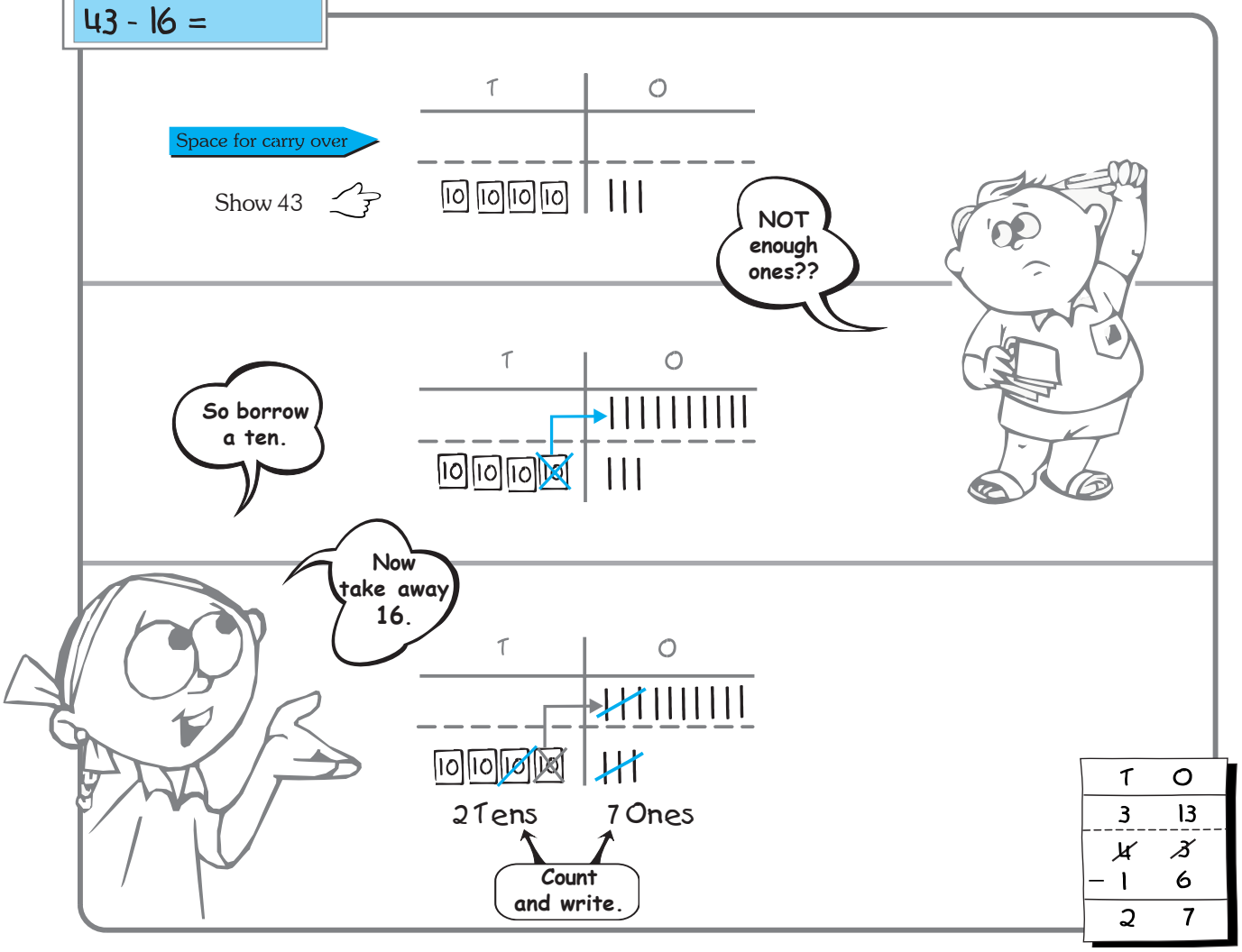
46 − 23 = ___

T O

T O

example

43 - 16 =



T	O
3	13
~~4~~	~~3~~
− 1	6
2	7

Draw matchsticks and subtract.

36 − 18 = ____

T O

T O

Notebook Exercise

Draw matchsticks and add.

28 + 42 25 + 14 + 23 36 + 28 + 19

Draw matchsticks and subtract.

52 – 27 40 – 18 20 – 19

PRACTICE SUMS

Add without drawing matchsticks.

T	O
4	6
+ 2	3

T	O
4	5
+	3

T	O
2	7
+ 1	3
+ 5	6

T	O
3	7
+ 1	8
+ 3	6

Subtract without drawing matchsticks.

T	O
6	4
– 3	2

T	O
3	9
– 2	3

T	O
5	6
– 1	8

T	O
1	7
–	9

Notebook Exercise

Add without drawing matchsticks.

7 + 34 8 + 39 49 + 4 + 17 6 + 22 + 67

Subtract without drawing matchsticks

54 – 48 62 – 45 80 – 17 16 – 9 38 – 19

Clap-snap game

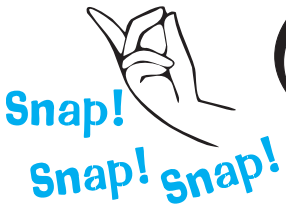
REMEMBER

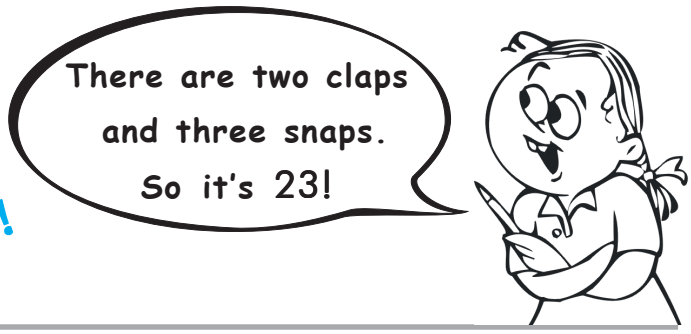
A Snap means 1.

Snap!

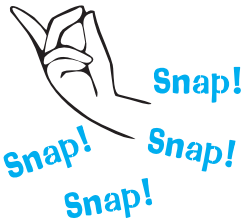
A Clap means 10.

Clap!





Count the claps and snaps and write the number.



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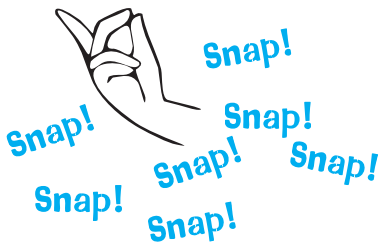

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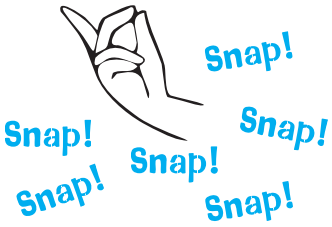

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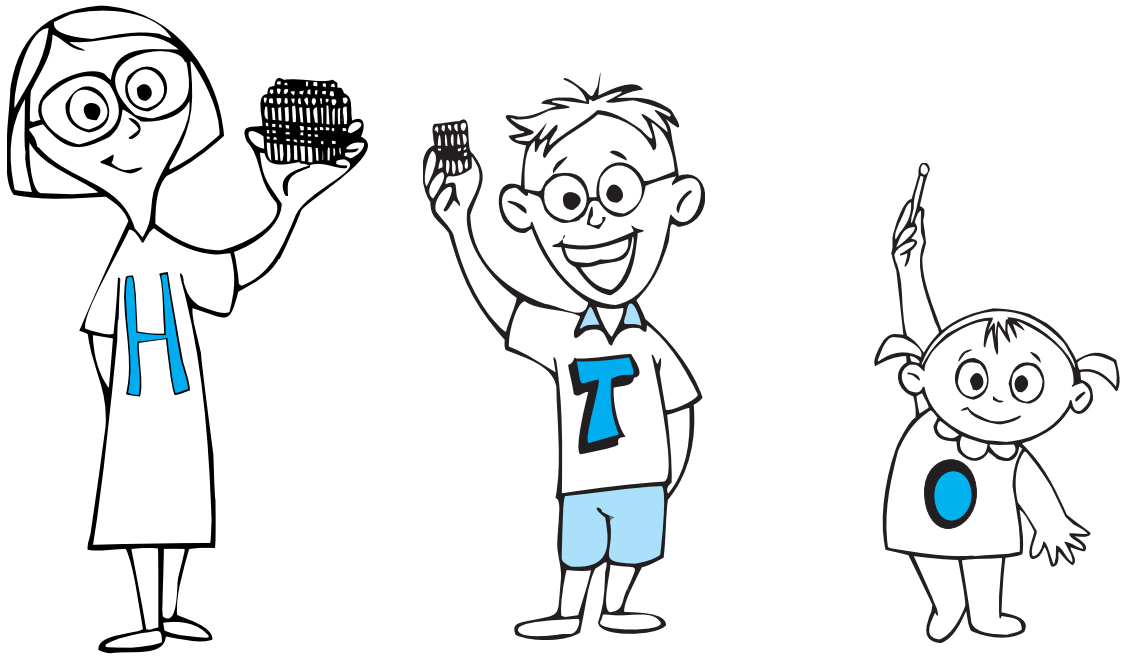
Play the clap-snap game in the class. One of you shows a number through claps and snaps. The others say which number it is.

Making hundreds

A single matchstick is a ONE.
A bundle of ten matchsticks is a TEN.
A bundle of ten TENS is a HUNDRED.



Which numbers are shown?

Classroom Activity

Show these numbers using matchsticks.*

317

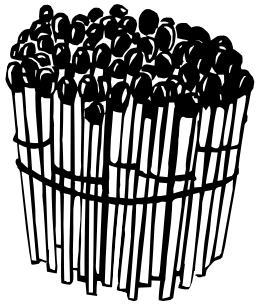
256

109

199

200

* Use actual matchsticks and rubberbands. See teacher's book.



Show a HUNDRED by drawing a CIRCLE.
Write '100' inside the circle.

100

Draw hundreds, tens and ones.

213

H	T	O
100 100	10	III

H	T	O
2	1	3

Draw symbols for HUNDREDS,
TENS and ONES.

101

H	T	O

H	T	O

110

H	T	O

H	T	O

111

H	T	O

H	T	O

99

H	T	O

H	T	O

100

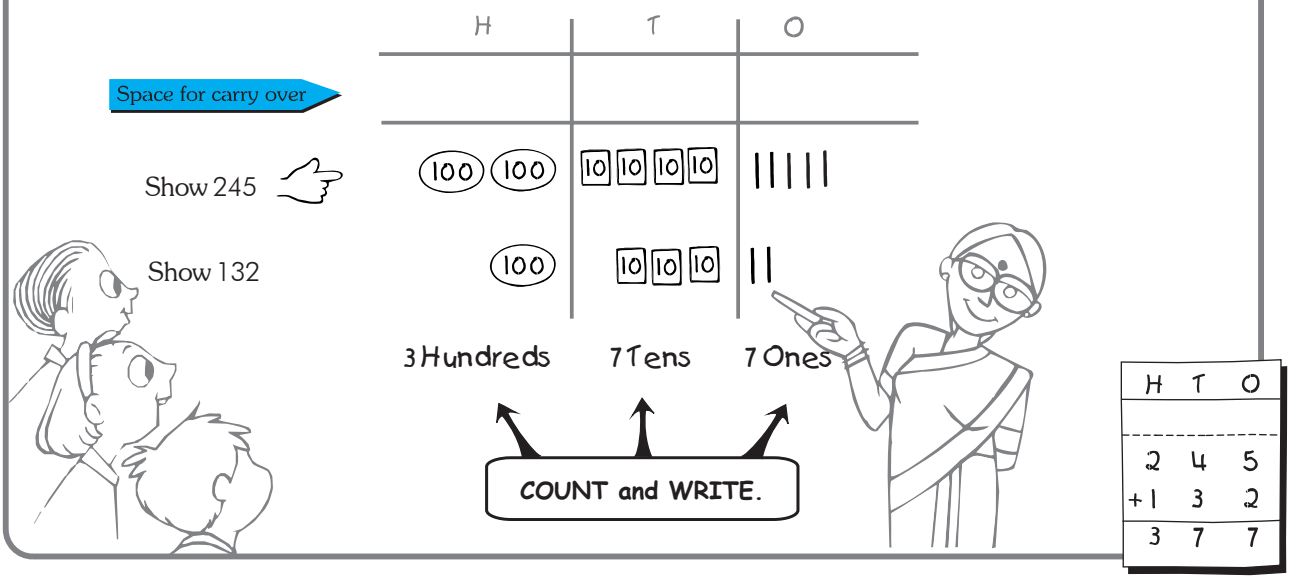
H	T	O

H	T	O

Adding with matchsticks 2

example

245 + 132 =



243 + 155 = ___

H	T	O

H	T	O

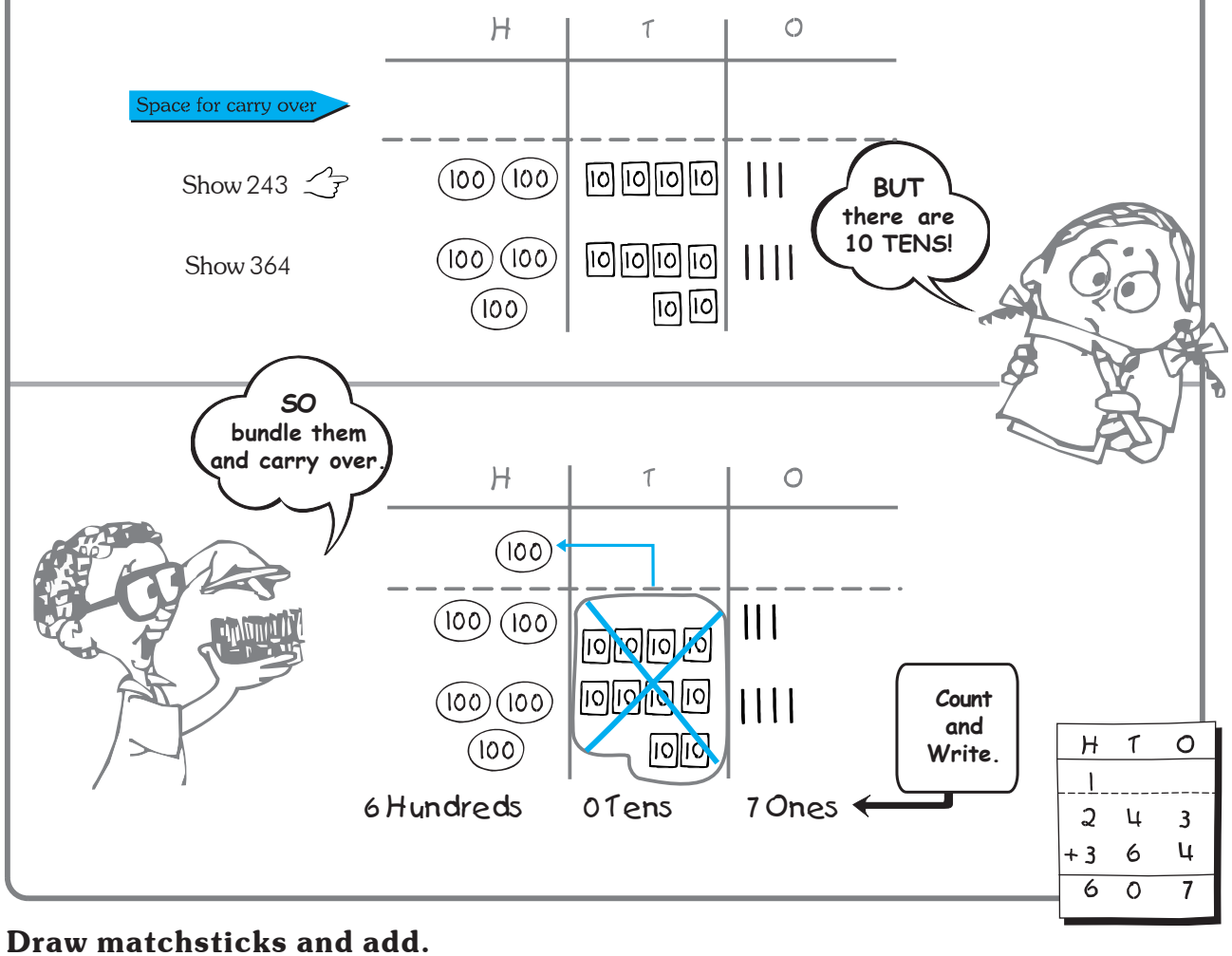
Notebook Exercise

Draw matchsticks and add.

316 + 272 153 + 326

example

243 + 364 =



Draw matchsticks and add.

273 + 256 = ____

H T O H T O

Notebook Exercise

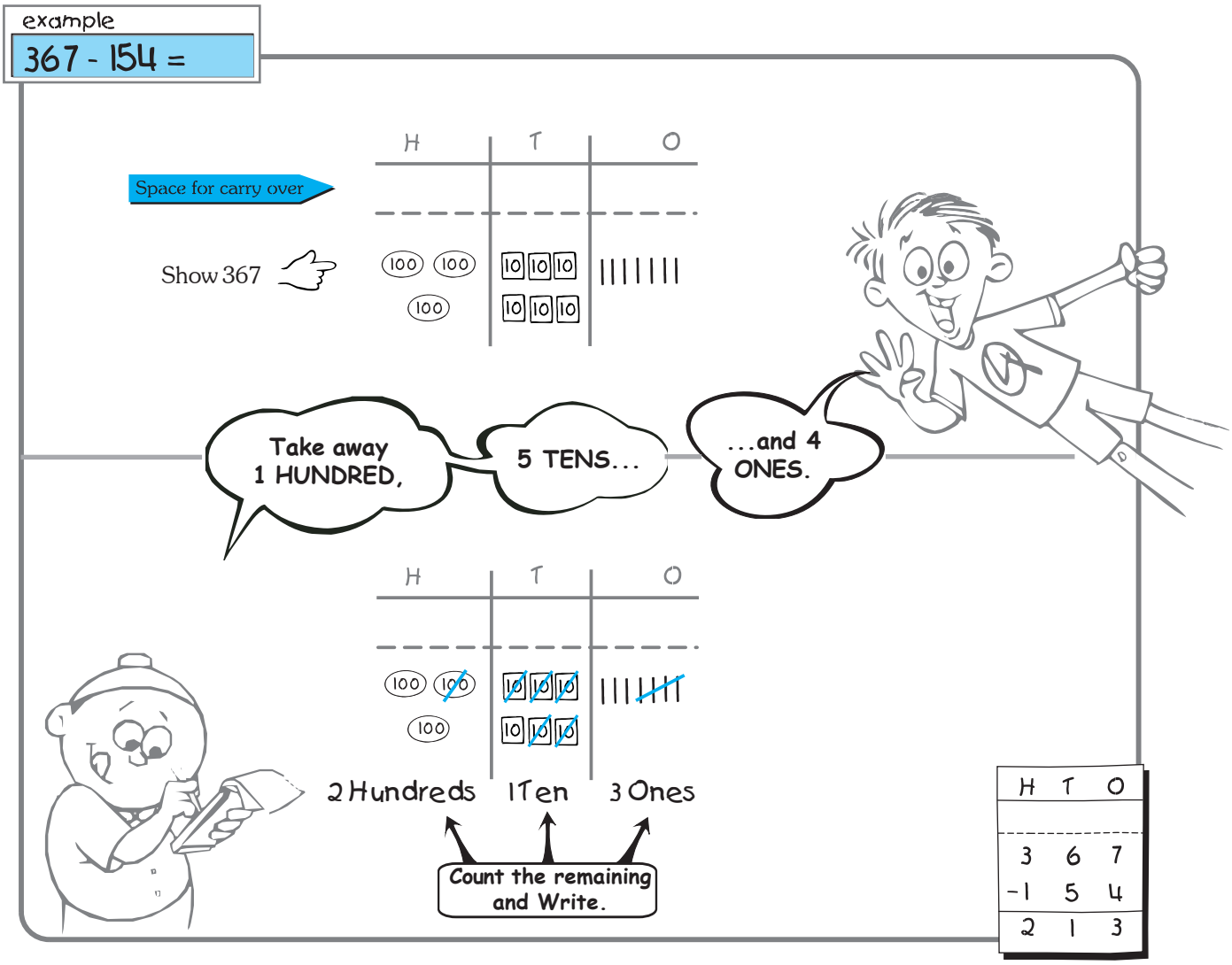
Draw matchsticks and add.

383 + 175 293 + 15

Subtracting with matchsticks 2

example

367 - 154 =



H	T	O
3	6	7
-1	5	4
2	1	3

Draw matchsticks and subtract.

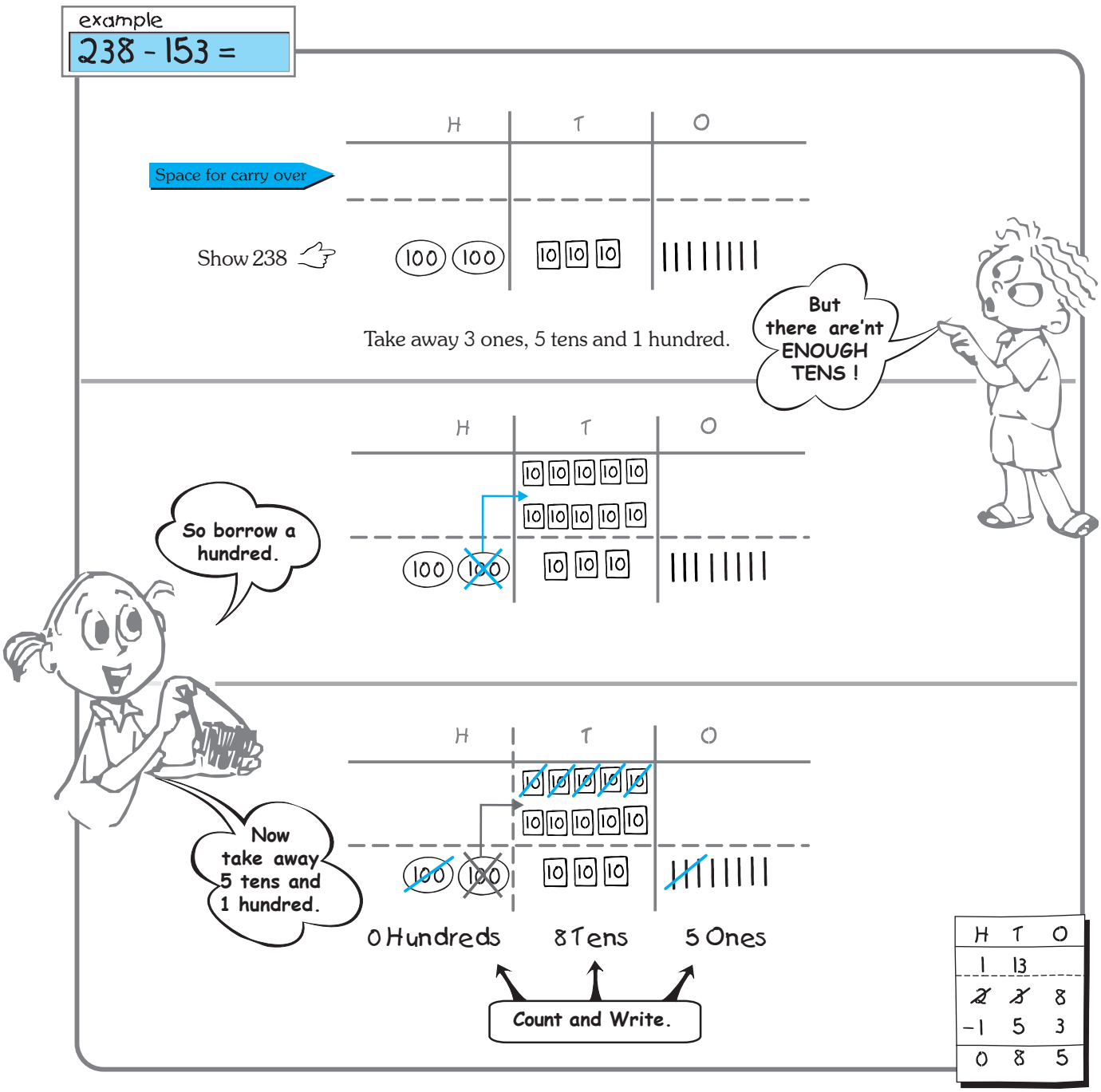
236 – 125 =____

H	T	O

H	T	O

example

238 - 153 =

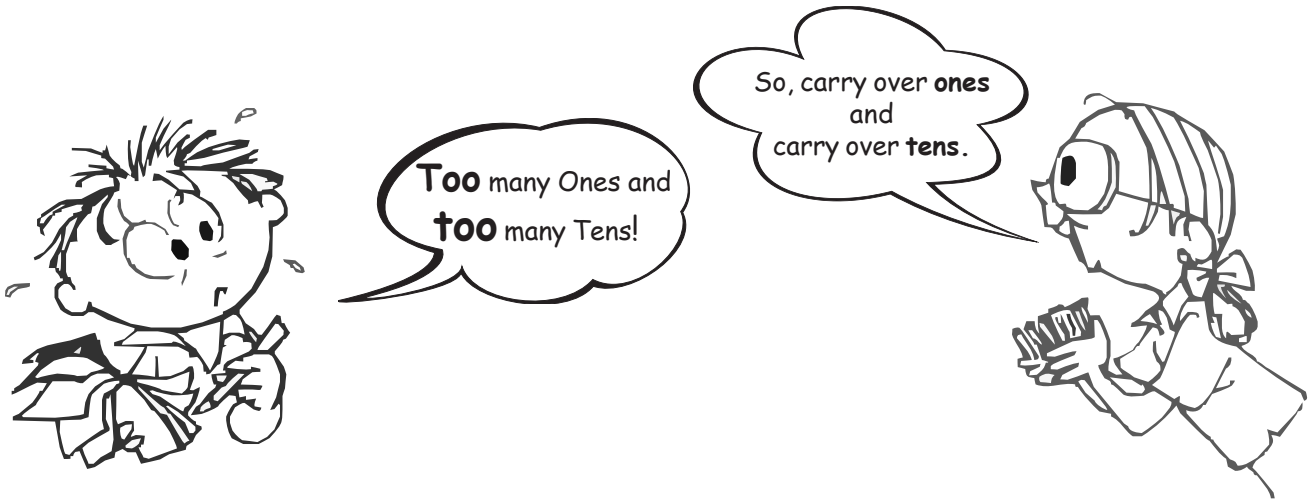


Notebook Exercise

Draw matchsticks and subtract.

346 – 254 303 – 172 215 – 45

Adding with matchsticks 3



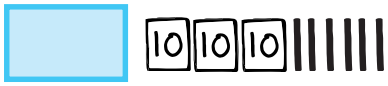
Draw matchsticks and add.

246 + 167 = ___

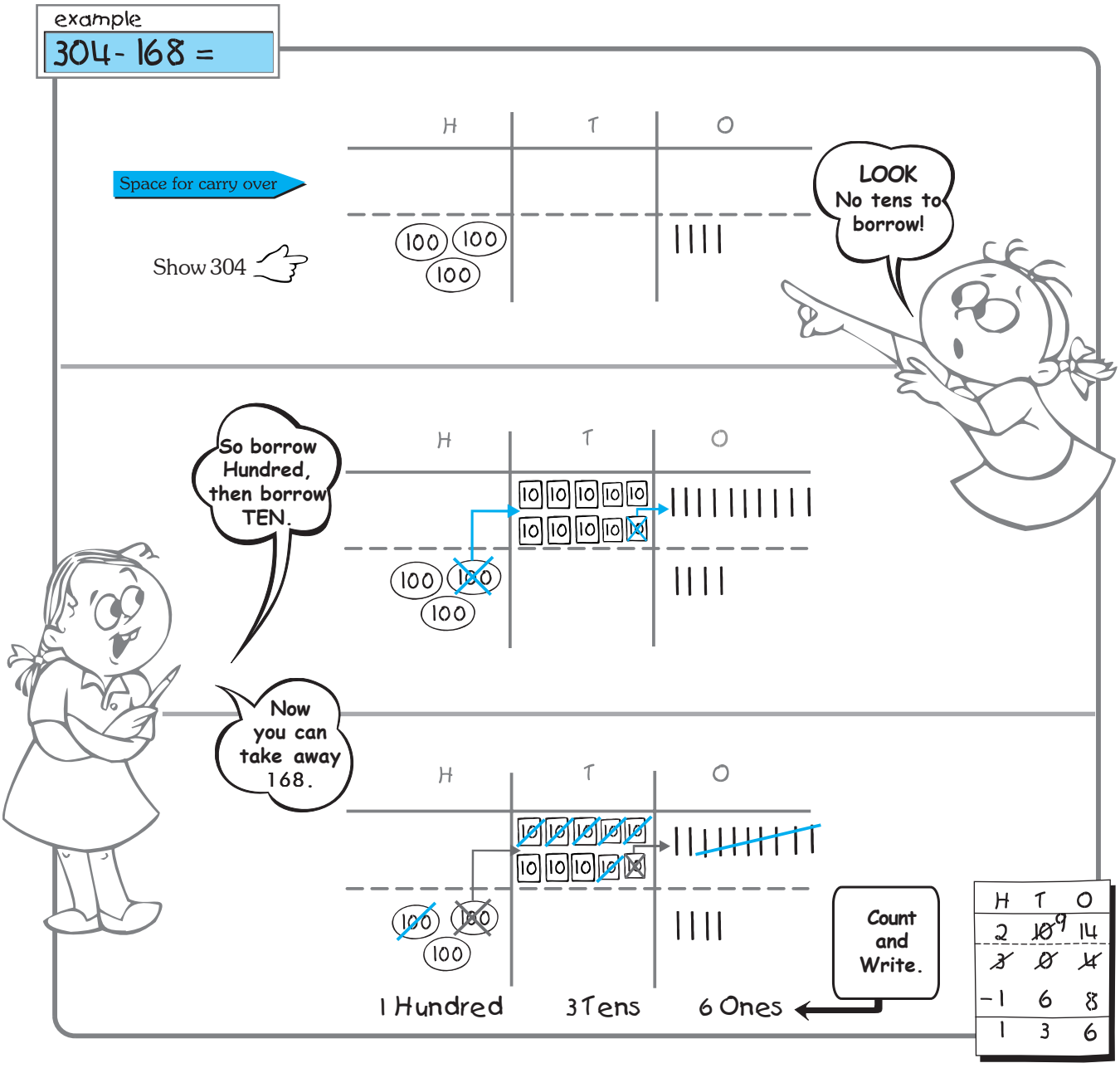
H	T	O	H	T	O

204 + 96 = ___

H	T	O	H	T	O



Subtracting with matchsticks 3



Draw matchsticks and subtract.

205 – 156 =___

H T O

H T O

Notebook Exercise

Draw matchsticks and add or subtract.

383 + 175	257 + 168	2 + 198	99 + 211
321 – 132	364 – 265	208 – 19	200 – 1

PRACTICE SUMS

Add without drawing matchsticks.

H T O	H T O	H T O	H T O
2 3 6	5 6 9	2 1 1	2 8 7
+ 5 8 5	+ 3 6 9	+ 9 9	+ 1 3

Subtract without drawing matchsticks.

H T O	H T O	H T O	H T O
6 2 5	5 8 5	4 7 6	2 0 6
– 2 6 7	– 3 7 9	– 3 8 7	– 1 7

Notebook Exercise

Add or subtract without drawing matchsticks.

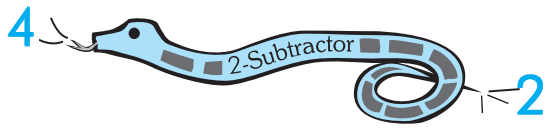
469 + 469	1 + 499	19 + 581	4 + 696
100 – 1	500 – 3	200 – 19	1000 – 1

Subtractors

The subtractors are a bit like the adders. They subtract very fast.

The 2-subtractor subtracts 2 to any number that you give it.

Like the subtractors, subtract as fast as you can.



Subtract 2

3 → 1	7 → 5	5 →	2 →	4 →	8 →
9 →	12 →	15 →	10 →	13 →	11 →
17 →	26 →	21 →	32 →	46 →	51 →
78 →	80 →	91 →	99 →	101 →	110 →

Subtract 3

5 → 2	4 → 1	6 →	7 →	3 →	10 →
8 →	13 →	9 →	11 →	12 →	15 →
19 →	21 →	34 →	30 →	42 →	51 →

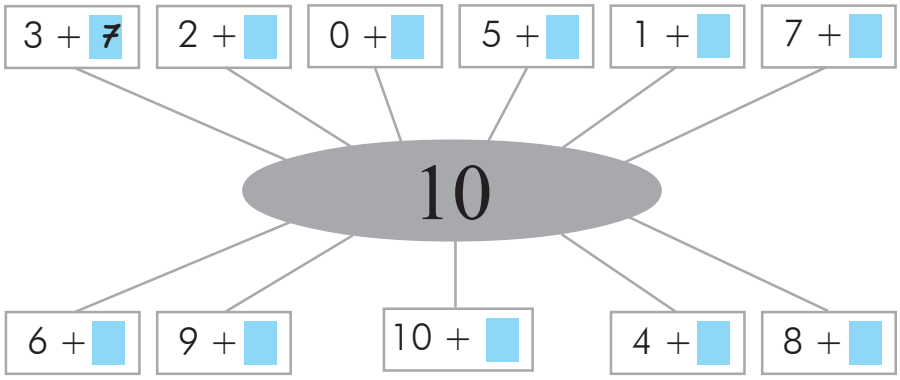
Subtract 4

6 → 2	7 → 3	5 →	8 →	4 →	9 →
10 →	12 →	11 →	14 →	19 →	21 →
23 →	26 →	32 →	36 →	40 →	48 →

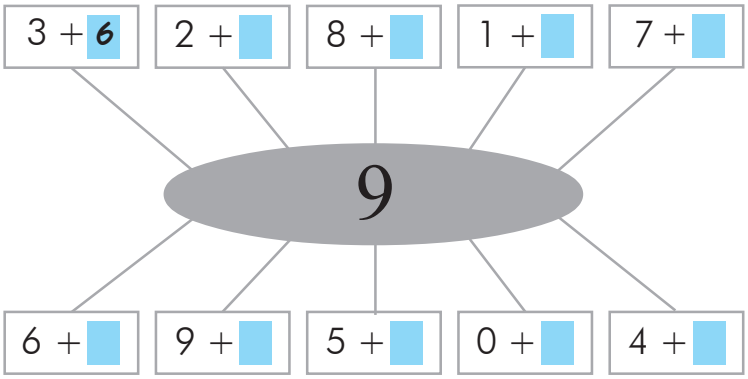
Subtract 5

6 → 1	8 → 3	7 →	9 →	5 →	10 →
12 →	11 →	15 →	20 →	24 →	31 →
35 →	36 →	33 →	45 →	38 →	47 →

Add a number so that the total is 10.



Add a number so that the total is 9.



Add and write the total.

2 + 2 =	10 + 10 =	17 + 17 =	21 + 21 =
3 + 3 =	11 + 11 =	19 + 19 =	23 + 23 =
4 + 4 =	13 + 13 =	20 + 20 =	25 + 25 =
6 + 6 =	12 + 12 =	22 + 22 =	27 + 27 =
8 + 8 =	14 + 14 =	24 + 24 =	29 + 29 =
5 + 5 =	16 + 16 =	26 + 26 =	32 + 32 =
7 + 7 =	15 + 15 =	28 + 28 =	31 + 31 =
9 + 9 =	18 + 18 =	30 + 30 =	34 + 34 =

Number Building

Number building

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

GROUND FLOOR

Exploring the Number Building

The number building has ten floors. It has many, many rooms.

Which are the rooms on the ground floor? _____

Which are the rooms on the second floor? _____

Which are the rooms on the top floor? _____

Which are the rooms on the fifth floor? _____

CROSSWORD PUZZLE

Across

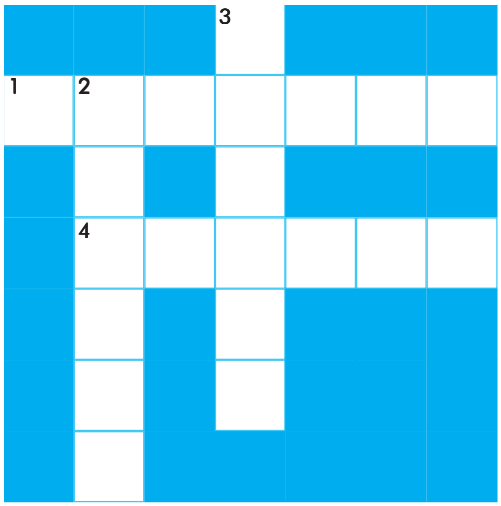
1) The cat is on this floor.

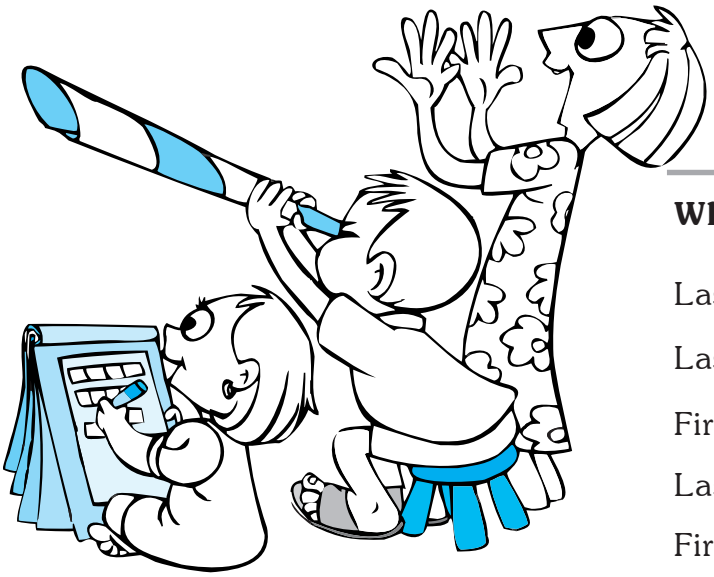
4) The boy is on this floor.

Down

2) 87 is on this floor.

3) The clothes are on this floor.





Which rooms are these?

Last room on the fourth floor _____

Last room on the third floor _____

First room on the seventh floor _____

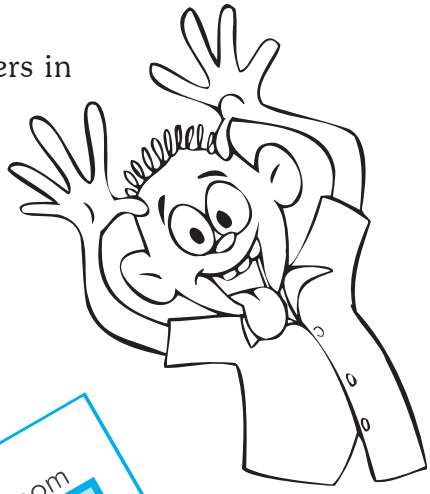
Last room in the number building _____

First room in the number building _____

Which room?

Eti Soppo has sent Diwali greetings to his friends in the number building. Instead of room numbers, he has written clues.

Help Postman chacha by writing the correct room numbers in the empty boxes.



Example

Greetings
Above 38
Room 48

Greetings
Above 77
Room

Greetings
Before 31
Room

Greetings
Below 94
Room

Greetings
After 0
Room

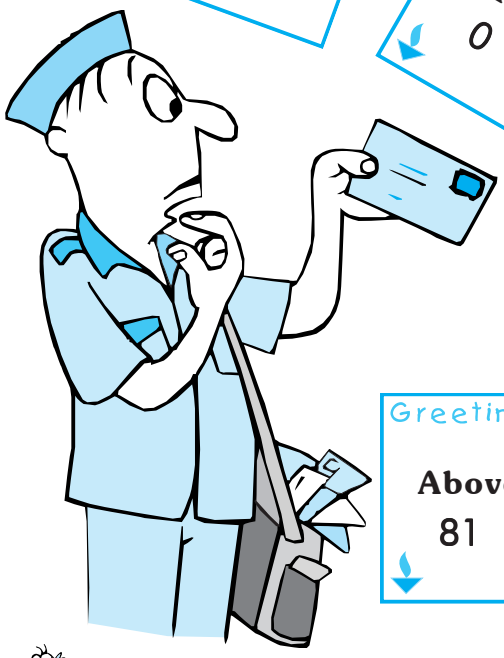
Greetings
Above 27
Room

Greetings
Below 49
Room

Greetings
Before 99
Room

Greetings
Above 81
Room

Greetings
After 20
Room



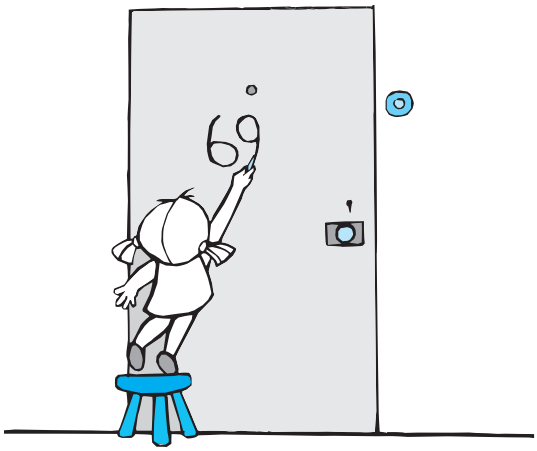
GAME FOR TWO

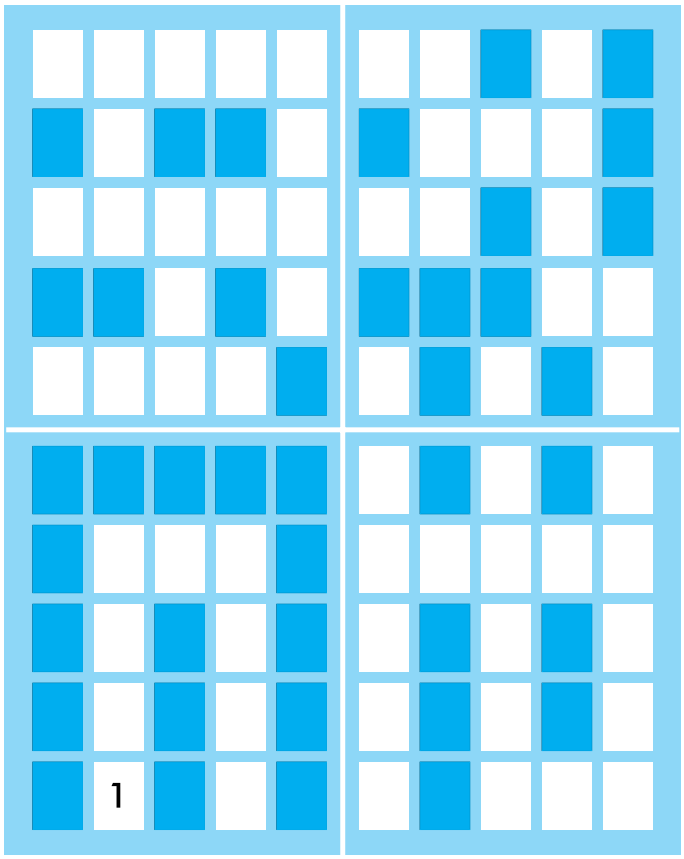
Give your friend clues like the ones above. She should guess the room number without looking at the number building.

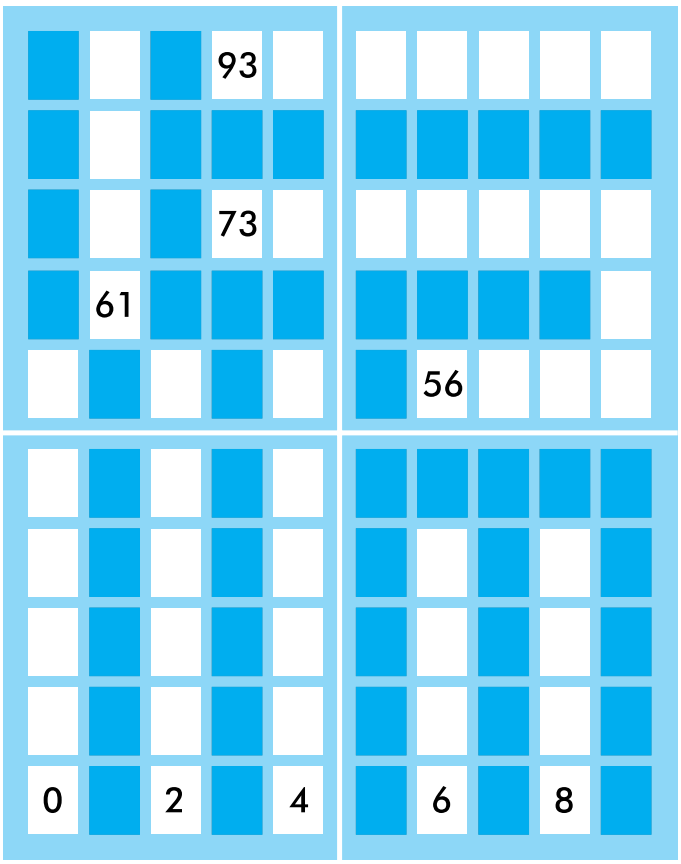
Help the postman

Postman chacha has come to give letters to people. Let's help him!

Write the room numbers of the rooms which are not shaded.



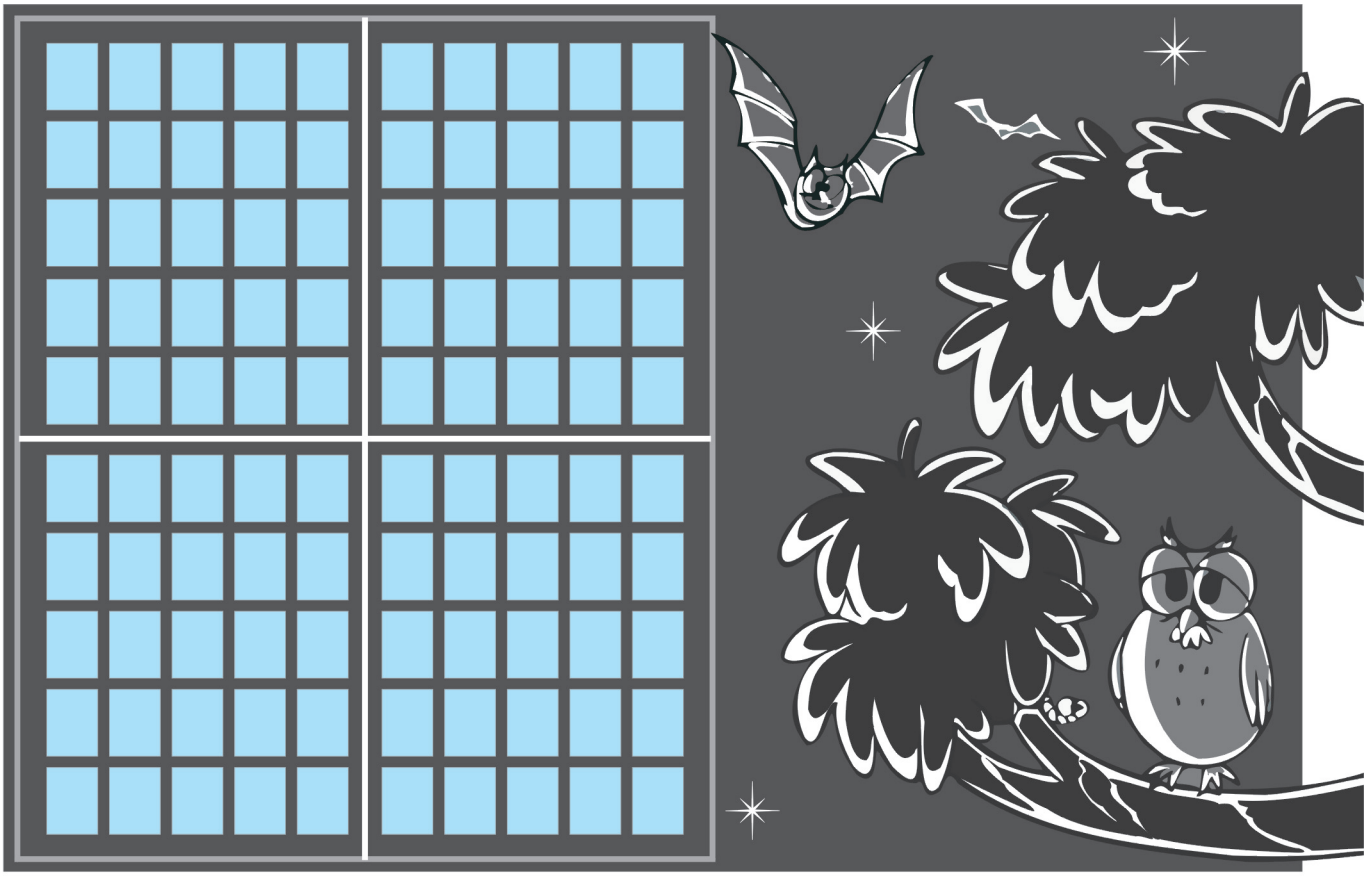


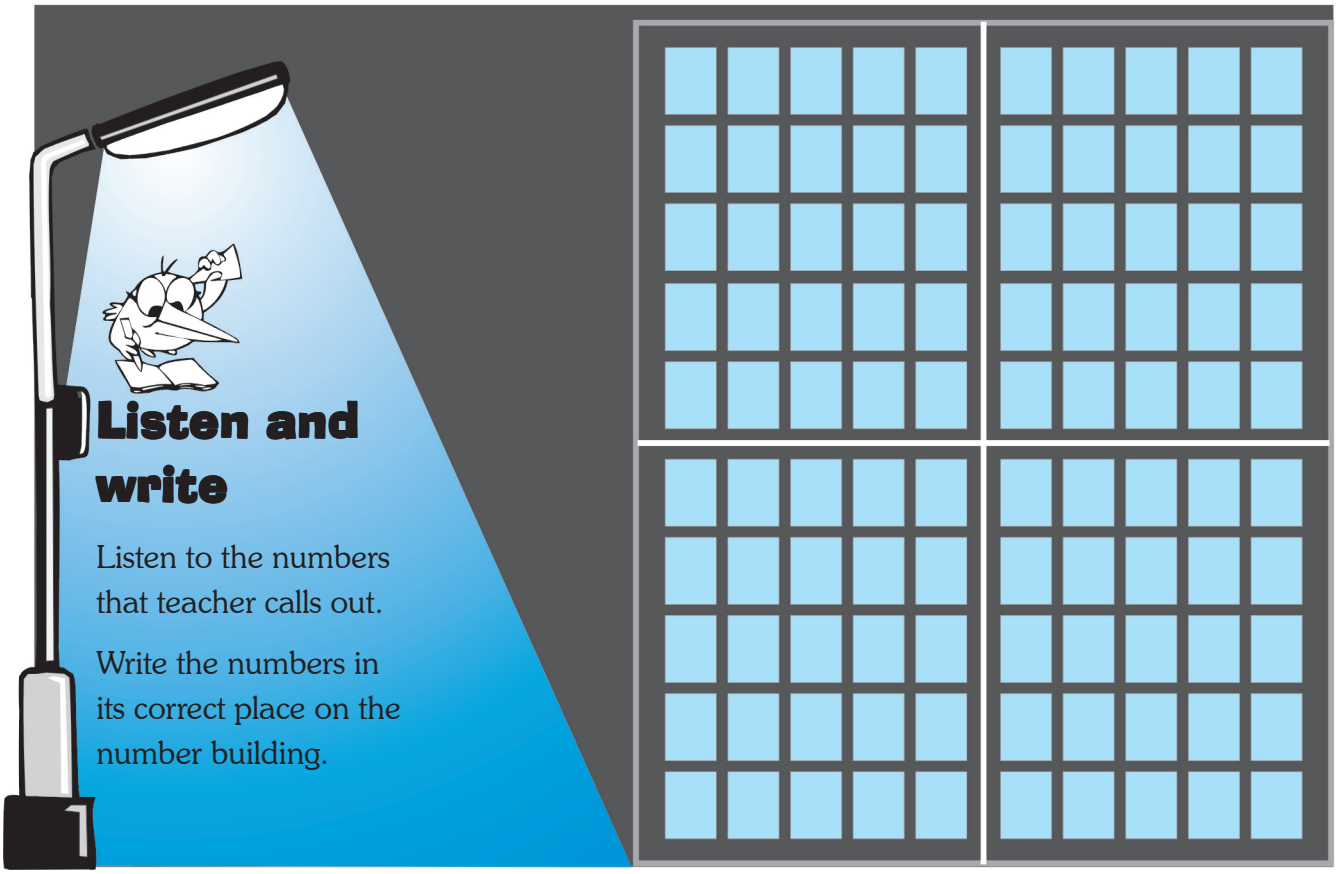


When it's dark

When it is dark all you can see are the lights that shine from the rooms that are open.

Write the numbers of the rooms that are open.





Listen and write

Listen to the numbers that teacher calls out.

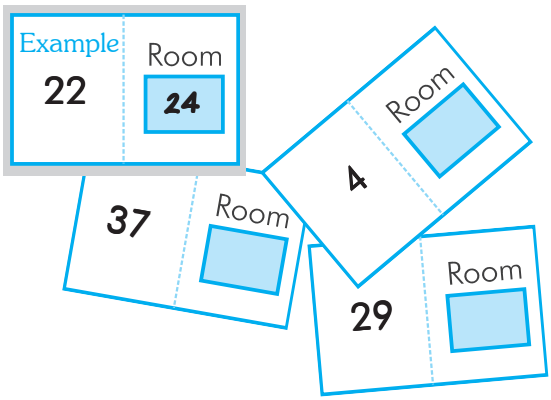
Write the numbers in its correct place on the number building.

Which room?

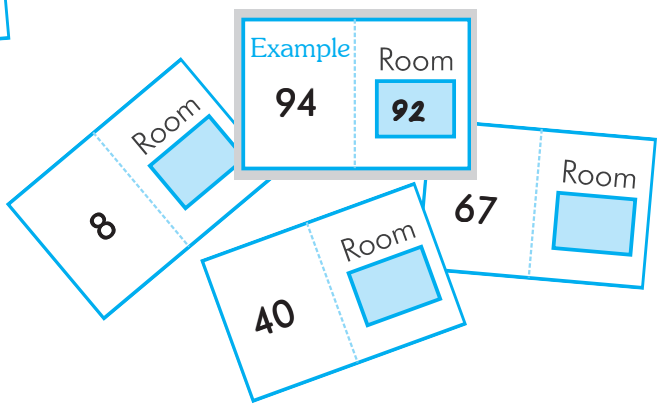
Eti soppo has done it again!

Can you write the correct room numbers?

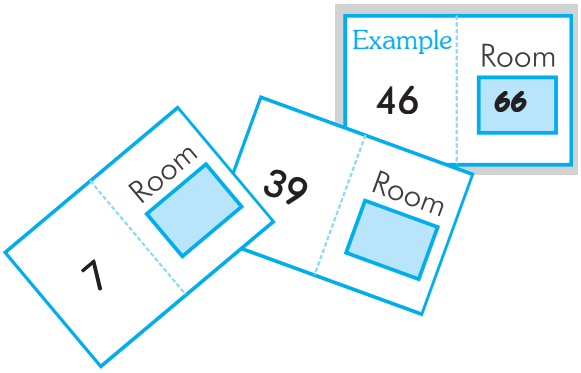
Two rooms after



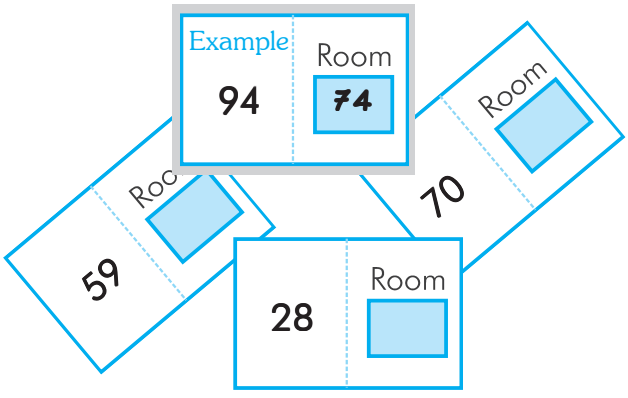
Two rooms before



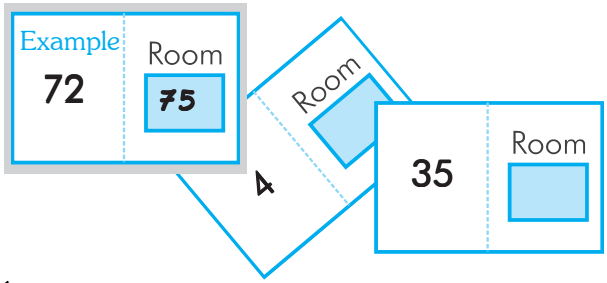
Two floors above



Two floors below



Three rooms after



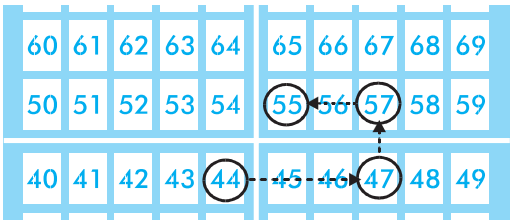
GAME FOR TWO

Give your friend clues like the ones above. Let her guess the room numbers as quickly as possible.

Where are you?

Geeta's kitten is lost in the number building. Can you help find her ?

Follow the clues and write the room numbers you come to.

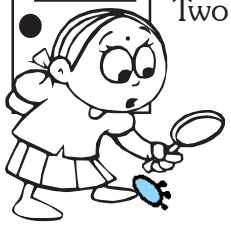


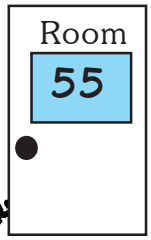
1 Start from room 44.

Go three rooms forward. 47

One floor up. 57

Two rooms back. 55

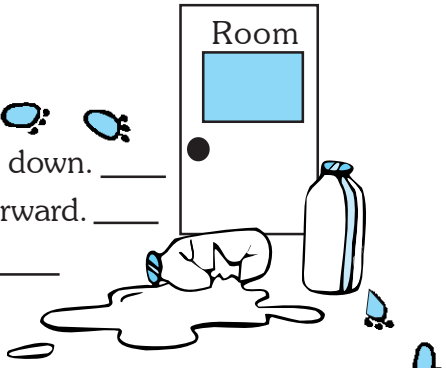




2 Now go one floor down. ____

Three rooms forward. ____

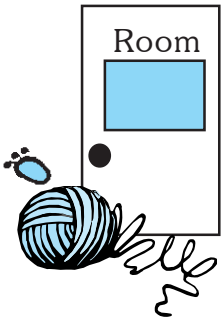
Two floors up. ____



3 Now go three rooms back. ____

Two floors down. ____

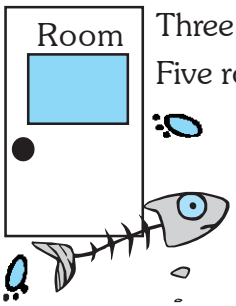
Four rooms forward. ____



4 Now go one room forward. ____

Three floors down. ____

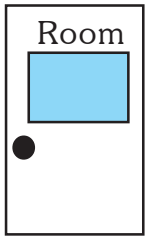
Five rooms back. ____

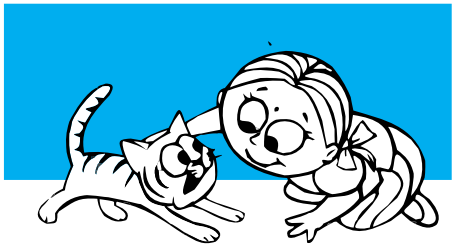


5 Now go two rooms forward. ____

Three floors up. ____

Three rooms back. ____





GAME FOR TWO

Make a 'where are you' puzzle for your friend to solve.

Adding ones

Do you remember how to carry over?

Do these sums.

Draw a ring around the problems where you need to carry over.

T	O
1	
2	5
+	6
3	1

T	O
1	3
+	5

T	O
1	3
+	6

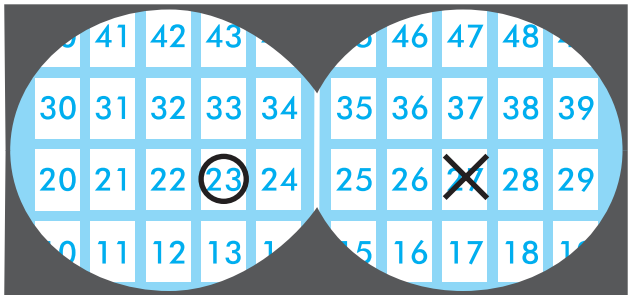
T	O
1	3
+	7

T	O
2	2
+	8

A burglar has entered the number building !

The answers to the problems tell you which rooms have been burgled.

Put a cross on each room that has been burgled. Write if you are on the same floor as 23 or on the next floor. Ring the problems where you go to the next floor.



23 + 4 = 27 (same floor)

23 + 5 = _____ _____

23 + 6 = _____ _____

23 + 7 = _____ _____

23 + 8 = _____ _____

Now do the same additions in vertical columns.

Ring the problems where you need to carry over.

T	O
2	3
+	4

T	O
2	3
+	5

T	O
2	3
+	6

T	O
2	3
+	7

T	O
2	3
+	8

The burglar has burgled more rooms !

Find out which ones.

Put a cross on each room. Write if you are on the same floor as 34 or on the next floor. Ring the problems where you go to the next floor.

40	41	42	43	44	45	46	47	48	49
30	31	32	33	(34)	35	36	✕	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19

34 + 3 = 37 (same floor)

34 + 4 = _____ _____

34 + 5 = _____ _____

34 + 6 = _____ _____

34 + 7 = _____ _____

Sometimes when you add ones, you go to the next floor.

Check if this happens whenever there is a carry over.

Now do the same addition in vertical columns.

Ring the problems where you need to carry over.

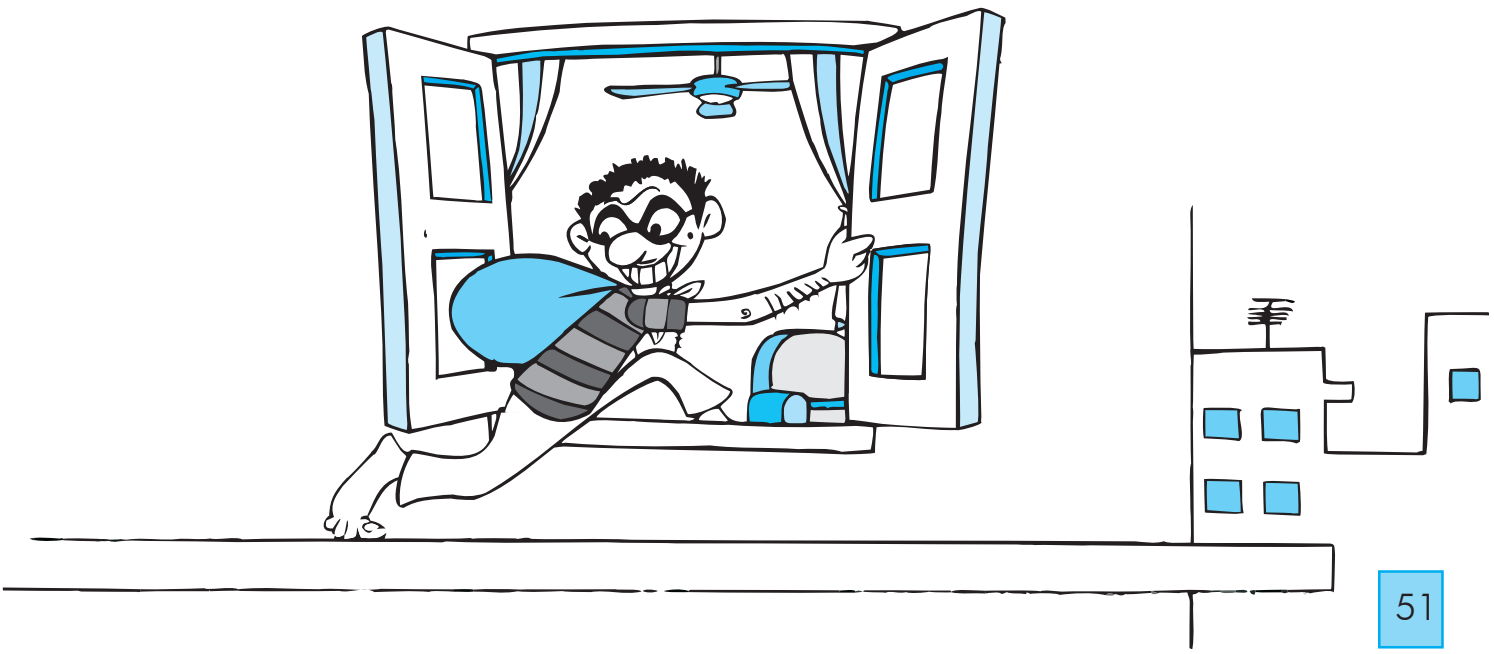
T	O
3	4
+	3

T	O
3	4
+	4

T	O
3	4
+	5

T	O
3	4
+	6

T	O
3	4
+	7



Subtracting ones

Do you remember how to borrow?

Draw a ring around the problems where you need to borrow.

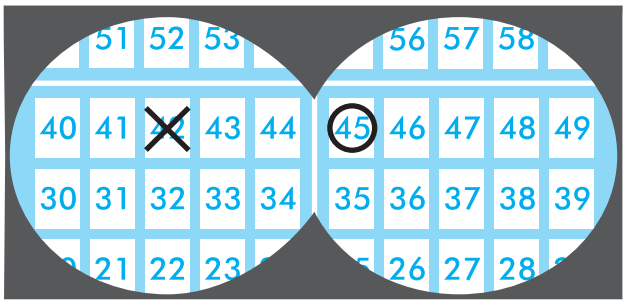
T	O
~~3~~ 2	~~2~~ 12
– 4	
2	8

T	O
3	2
– 5	

T	O
1	7
– 6	

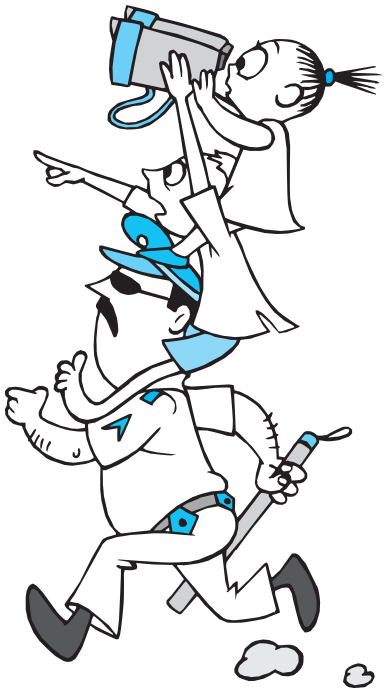
T	O
1	7
– 7	

T	O
1	7
– 8	



Put a cross on each room. Are you on the same floor as 45 or on the floor below? Ring the problems where you go to the floor below.

Help the children keep track of the burglar by solving these subtraction problems.



45 – 3 = 42 (same floor)

45 – 4 = _____ _____

45 – 5 = _____ _____

45 – 6 = _____ _____

45 – 7 = _____ _____

Do the same subtractions in vertical columns.

Ring the problems where you need to borrow.

T	O
4	5
– 3	

T	O
4	5
– 4	

T	O
4	5
– 5	

T	O
4	5
– 6	

T	O
4	5
– 7	

It's time to catch the burglar !

The answer to the last problem tells you in which room he was caught.

Cross the answers to these problems.

Are you on the same floor as 56 or on the floor below? Ring the problems where you go to the floor below.

56 – 5 =	51	(same floor)
56 – 6 =		
56 – 7 =		
56 – 8 =		
56 – 9 =		

Sometimes when you subtract ones, you go to the floor below.

Check if this happens whenever there is a borrow.

60	61	62	63	64	65	66	67	68	69
50	~~51~~	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39

Do the same subtractions in vertical columns.

Ring the problems where you need to borrow.

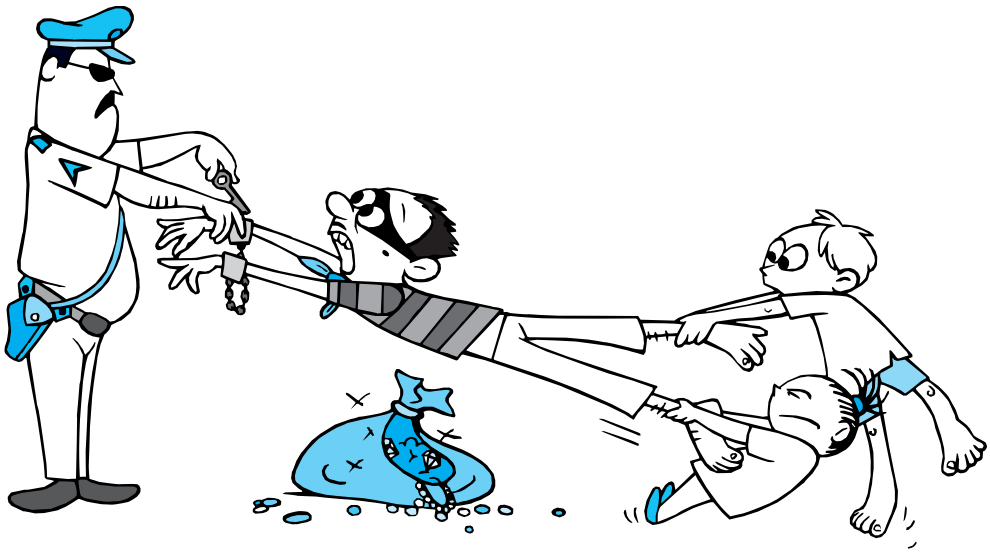
T	O
5	6
–	5

T	O
5	6
–	6

T	O
5	6
–	7

T	O
5	6
–	8

T	O
5	6
–	9



Clap-snap game

Teacher writes a number on the board. She then claps 3 times.

Add the claps to the number.

REMEMBER

A clap means a 10.

25 + Clap! Clap! Clap! = 55

44 + Clap! Clap! Clap! Clap! =

17 + Clap! Clap! Clap! Clap! Clap! =

Teacher writes a number on the board. Subtract the claps from the number.

78 - Clap! Clap! Clap! Clap! =

66 - Clap! Clap! Clap! Clap! Clap! =

GAME FOR TWO

1. Play the game of adding and subtracting claps with your friends.
2. Change the game. Give your friends claps **and** snaps to add.

Adding and subtracting ten

1) Circle room 14.

Now cross out the answer for 14 + 10.

2) Circle 36, cross out 36 + 10.

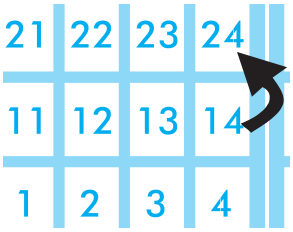
3) Circle 64, cross out 64 + 10.

4) Circle 77, cross out 77 + 10.

5) Circle 6, cross out 6 + 10.

6) Circle 20, cross out 20 + 10.

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9



What happens when you add ten?

Adding 10 is like jumping one floor up!

1) Circle room 54.

Now cross out the answer for 54 – 10.

2) Circle 27, cross out 27 – 10.

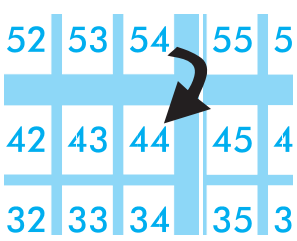
3) Circle 64, cross out 64 – 10.

4) Circle 83, cross out 83 – 10.

5) Circle 15, cross out 15 – 10.

6) Circle 40, cross out 40 – 10.

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9



What happens when you subtract ten?

Subtracting 10 is like jumping one floor down!

Adding twenty

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

Now let us see what happens when you add 20.

1) Circle room 32.

Cross out the answer for 32 + 20.

2) Circle 11, cross out 11 + 20.

3) Circle 46, cross out 46 + 20.

4) Circle 55, cross out 55 + 20.

5) Circle 3, cross out 3 + 20.

6) Circle 50, cross out 50 + 20

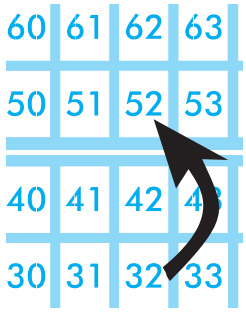
What happens when you add 20 ?

Adding 20 is like

_____

_____

_____



Find out what happens when you add 30 and 40.

Adding 30 is like _____

Adding 40 is like _____

Do these problems as quickly as you can. Imagine that you are jumping floors on the number building.

25 + 10 = ____	36 + 30 = ____	41 + 50 = ____
88 + 10 = ____	60 + 30 = ____	16 + 60 = ____
10 + 44 = ____	30 + 57 = ____	60 + 24 = ____
16 + 20 = ____	44 + 40 = ____	36 + 60 = ____
75 + 20 = ____	18 + 40 = ____	50 + 27 = ____
20 + 58 = ____	40 + 35 = ____	70 + 18 = ____

Subtracting twenty

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

1) Circle room 52.

Cross out the answer for 52 – 20.

2) Circle 31, cross out 31 – 20.

3) Circle 46, cross out 46 – 20.

4) Circle 77, cross out 77 – 20.

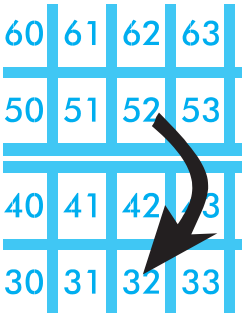
5) Circle 23, cross out 23 – 20.

What happens when you subtract 20 ?

Subtracting 20 is like _____

_____

_____



Find out what happens when you subtract 30 and 40.

Subtracting 30 is like _____

Subtracting 40 is like _____

Do these problems as quickly as you can. Imagine that you are jumping floors on the number building.

31 – 10 = _____	54 – 30 = _____	85 – 50 = _____
70 – 10 = _____	36 – 30 = _____	99 – 70 = _____
13 – 10 = _____	88 – 30 = _____	74 – 70 = _____
63 – 20 = _____	59 – 40 = _____	69 – 50 = _____
49 – 20 = _____	48 – 40 = _____	96 – 80 = _____
71 – 20 = _____	73 – 40 = _____	75 – 60 = _____

Adding tens and ones

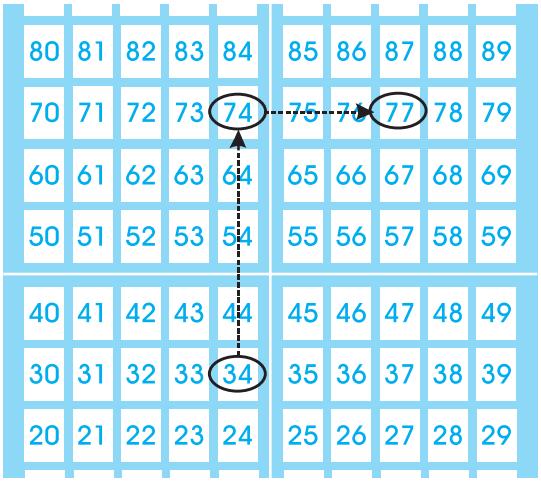
34 + 43

34 + (4 Tens + 3 Ones)

34 + (4 floors up + 3 rooms forward)

74 + 3

77

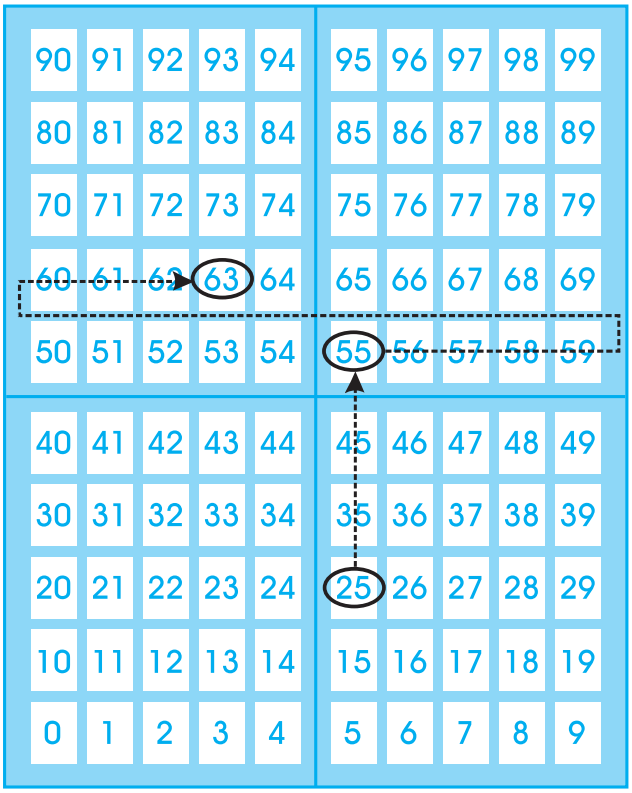


34 + 43 = 77

Trace the path for this problem on the number building.

Start from 34. Go 4 floors up, 3 rooms forward.

What happens if you go 3 rooms forward, **then** 4 floors up?



25 + 38

25 + 30 + 8

55 + 8

63

25 + 38 = 63

Trace the path: start from 25, go 3 floors up, 8 rooms forward.

What happens if you go 8 rooms forward, **then** 3 floors up?

Do these problems in your mind and trace the path on the number building.

54 + 21 = _____ 67 + 24 = _____

43 + 36 = _____ 28 + 69 = _____

Subtracting tens and ones

56 – 24

56 – (2 Tens and 4 Ones)

56 – (2 floors down + 4 rooms back)

36 – 4

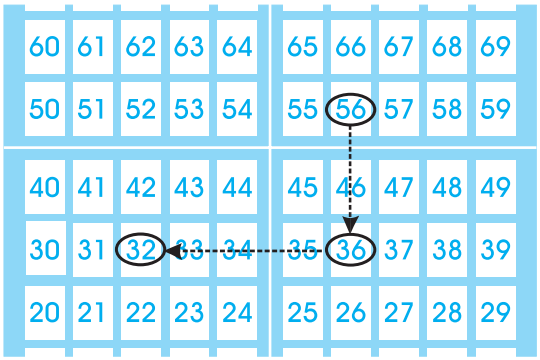
32

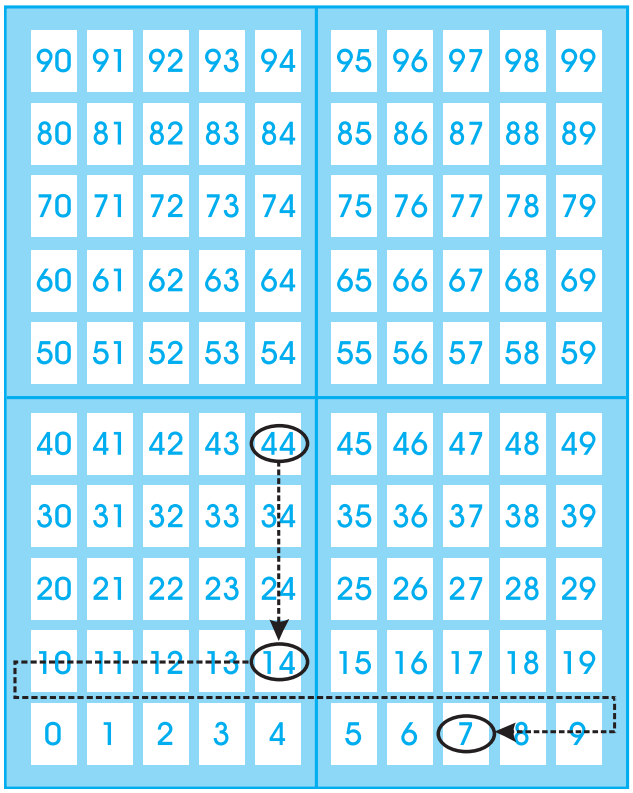
56 – 24 = 32

Trace the path for this problem on the number building.

Start from 56. Go 2 floors down, 4 rooms back.

What happens if you go 4 rooms back, **then** 2 floors down?





44 – 37

44 – 30 – 7

14 – 7

7

44 – 37 = 7

Trace the path: start from 44, go 3 floors down, 7 rooms back.

What happens if you go 7 rooms back, **then** 3 floors down?

Do these problems in your mind and trace the path on the number building.

54 – 23 = _____ 67 – 26 = _____

43 – 37 = _____ 65 – 28 = _____

Now where are you?

We can make a problem from a 'where are you' puzzle.

The Puzzle

Start from 34.

Go two floors up (+ 20)

Six rooms forward (+ 6)

Two rooms back (– 2)

Where are you? _____

The Problem

34 + 20 + 6 – 2 = _____

Now make a problem from this puzzle.

The Puzzle

Start from 41.

Go one floor up _____

Three rooms back _____

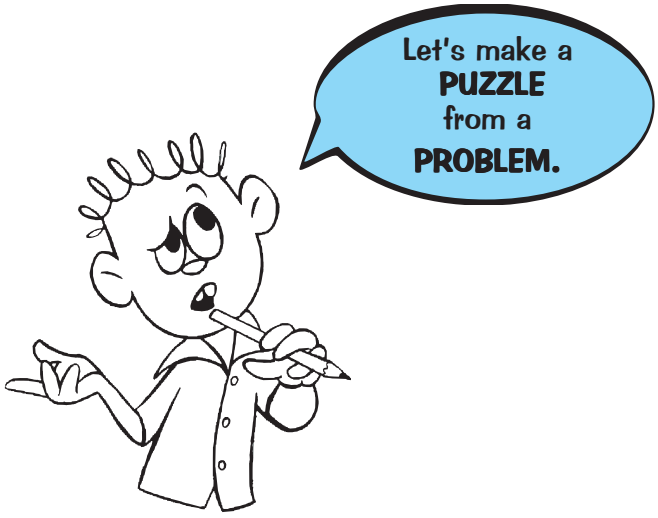
Two floors up _____

Where are you? _____

The Problem

41 _____ = _____

Eti Soppo has another idea.



The Problem

26 + 10 – 4 – 20 = _____

The Puzzle

Start from 26.

Go one floor up (+ 10)

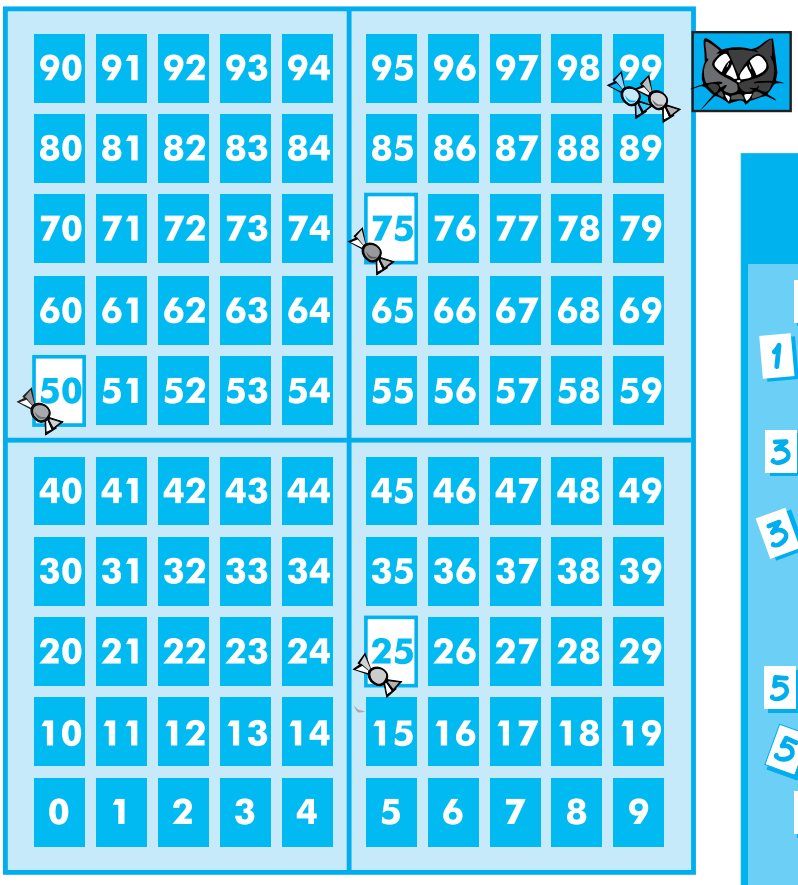
Four rooms back (– 4)

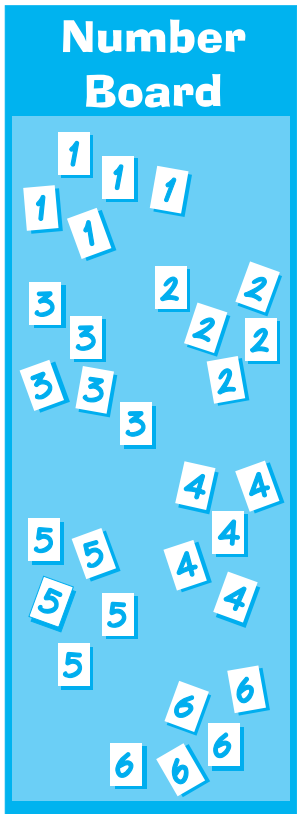
Two floors down (– 20)

Try making puzzles from these problems along with Eti.

5 + 30 – 2 + 10 + 7 67 – 20 + 4 + 30 – 6

Rat race





GAME FOR TWO

This game is for two players, but both move the **same** rat.

Start by keeping the rat on Room number 0. Choose a number card from the Number Board and move the rat forward by those many rooms. Your opponent now choses a number and moves the same rat forward. Take turns and continue the game. Once you choose a number from the number board, cross it out. You or your opponent cannot choose it again.

The Points

If you bring the rat exactly to

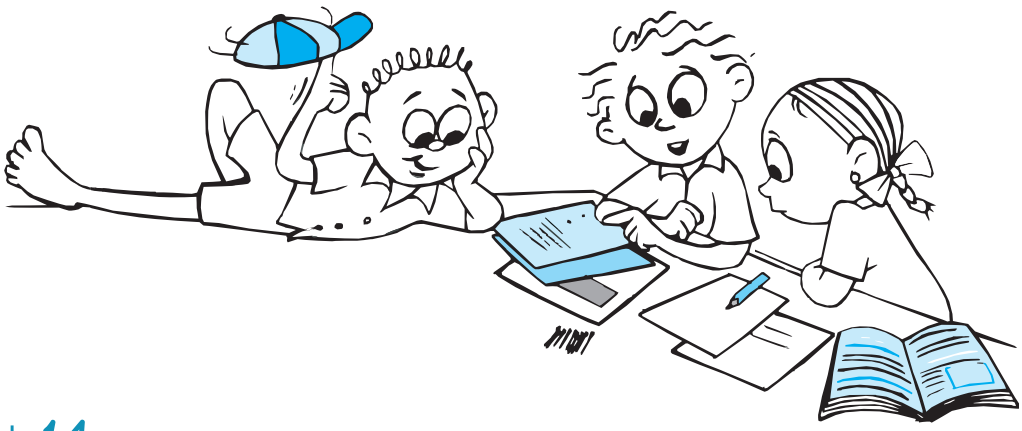
Room 25	1 point	Room 50	1 point
Room 75	1 point	Room 99	2 points

If the rat crosses these rooms you get zero points.

If the rat crosses room 99 it will be caught by the cat. So you lose two points.

Making connections

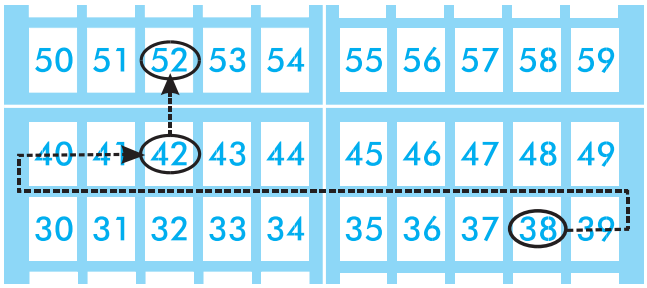
Rani, Javed and Eti Soppo were solving addition and subtraction problems.



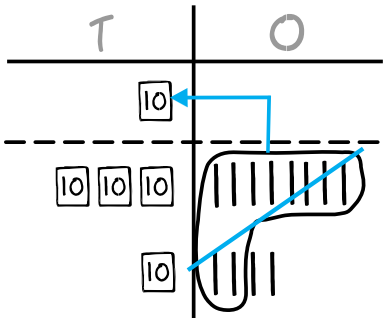
38 + 14 = _____

I can solve this with the number building.

I can do it with our **matchstick bundles** too!



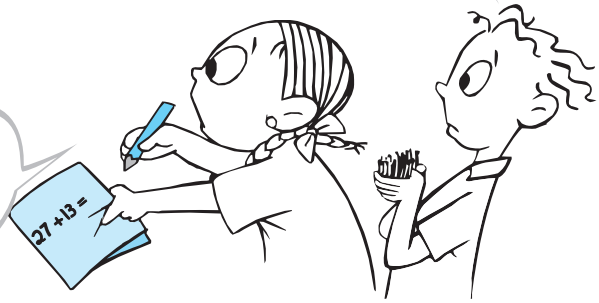
T	O
1	
3	8
+1	4
5	2



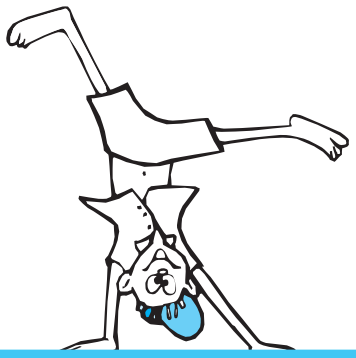
Eti, not to be left out, said " I can do it with my cap!"

With your cap? How?

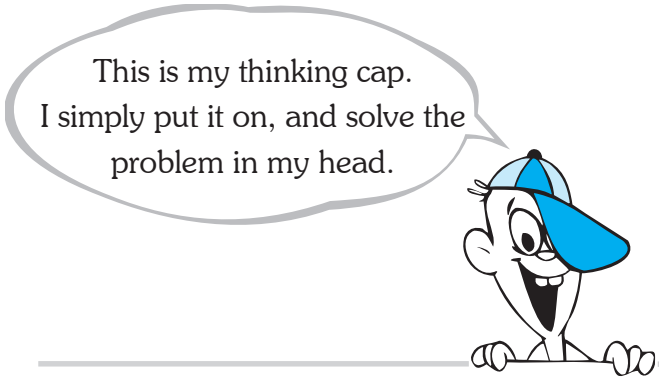
Solve this problem and show us.



Eti put his cap on his head and gave the answer.



27 + 13 = 40



How did Eti solve this problem? Do you think he imagined going up the number building?

Try to do these problems in your mind.

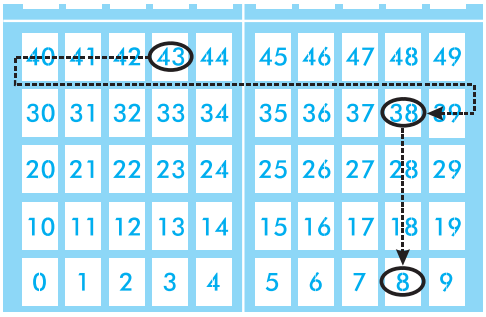
14 + 14 = _____	26 + 26 = _____	35 + 35 = _____
16 + 16 = _____	28 + 28 = _____	40 + 40 = _____
13 + 13 = _____	34 + 34 = _____	45 + 45 = _____
15 + 15 = _____	43 + 43 = _____	25 + 25 = _____
23 + 23 = _____	37 + 37 = _____	50 + 50 = _____

15 + 5 = _____	25 + 30 = _____	22 + 34 = _____
25 + 5 = _____	25 + 35 = _____	31 + 26 = _____
25 + 15 = _____	30 + 35 = _____	45 + 16 = _____
15 + 20 = _____	30 + 45 = _____	27 + 34 = _____
15 + 25 = _____	25 + 45 = _____	32 + 19 = _____

Look and figure out

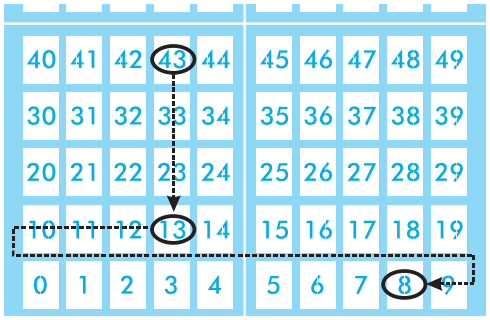
Look carefully and find the connections between these different ways of doing the same problem.

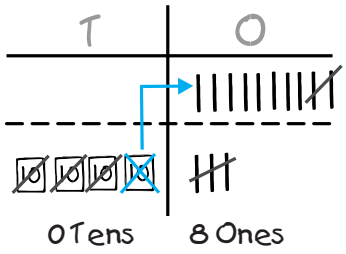
43 – 35 = 8



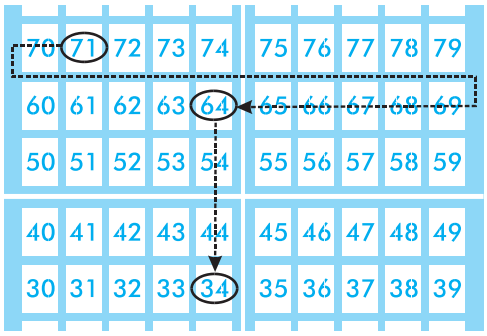
T	O
3	13
~~4~~	~~3~~
– 3	5
0	8

or



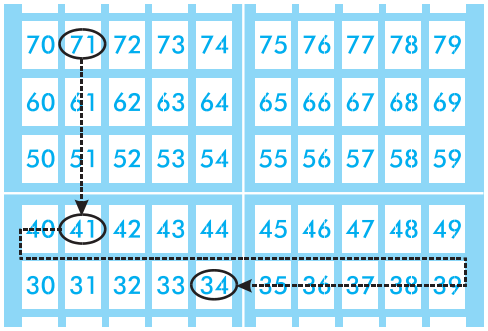


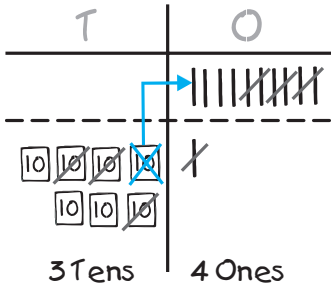
71 – 37 = 34



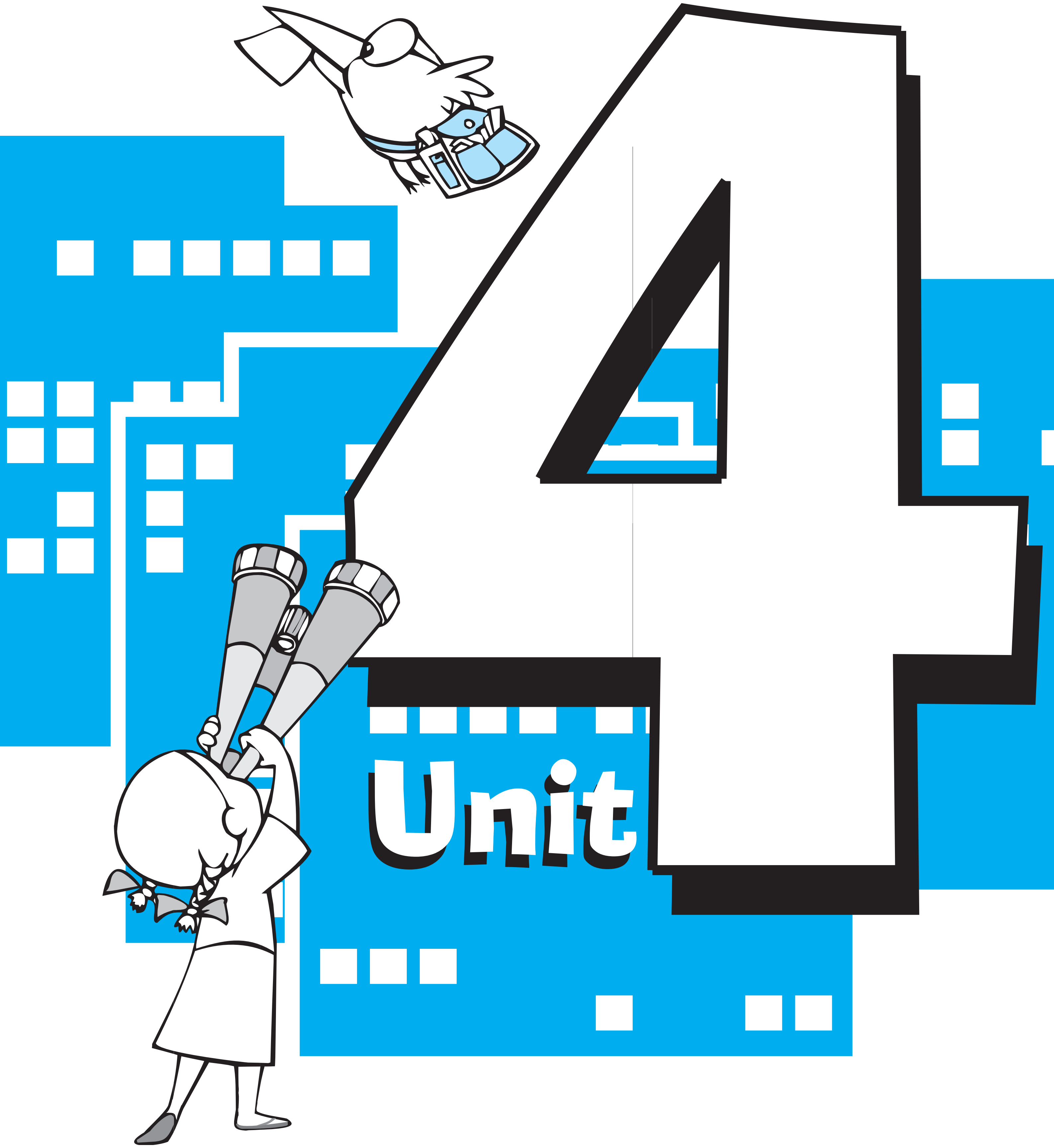
T	O
6	11
~~7~~	~~1~~
– 3	7
3	4

or





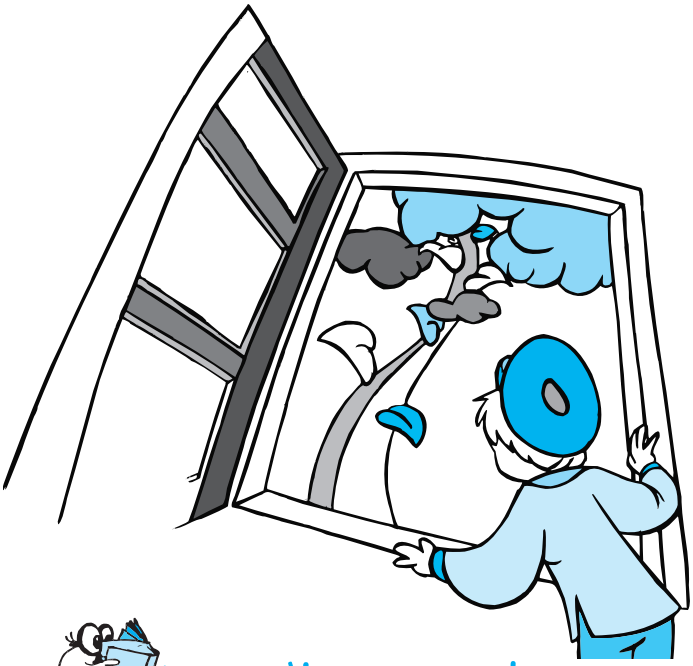
Bigger Numbers



Jack and the beanstalk

Have you heard this story before? It's about an English boy called Jack.

Jack lived with his mother. They were very poor. One day his mother asked him to sell their cow in the market so that they could buy some food. Jack sold the cow to a man in exchange for some magic beans. Jack's mother was very angry when she saw the beans. She flung the beans out of the window.

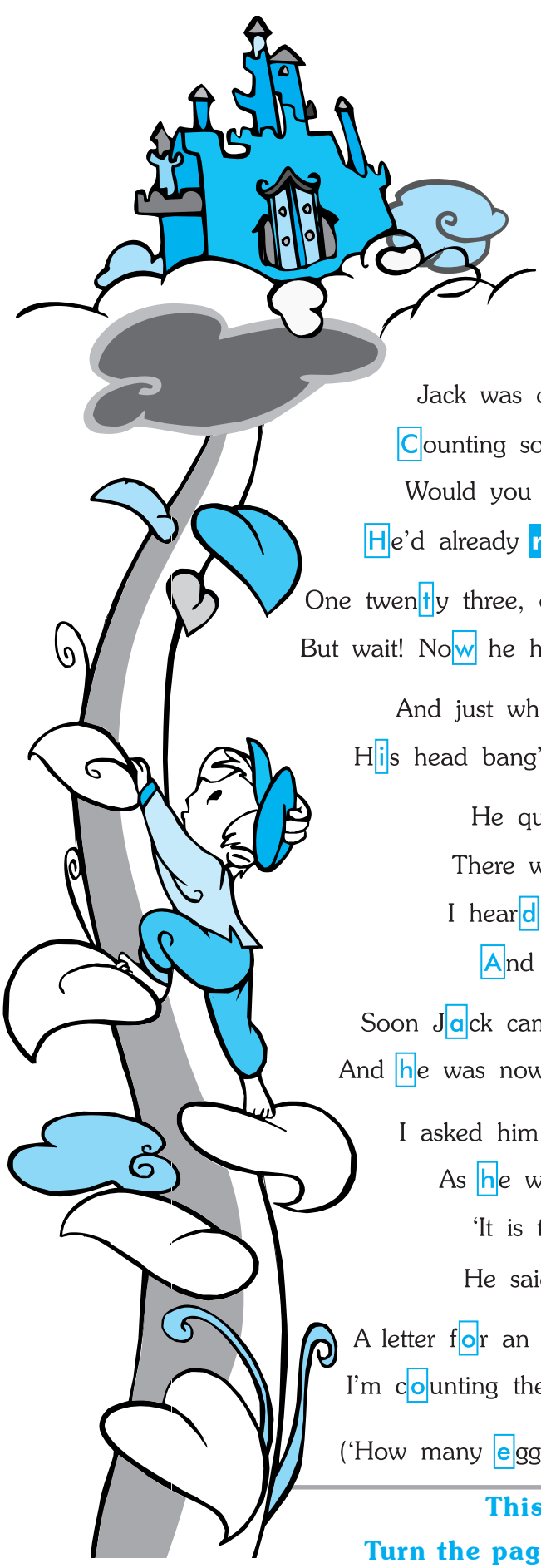


Next morning there was a giant beanstalk growing outside the window. It was so tall it went right up into the clouds. Jack climbed the beanstalk and found a giant's castle in the clouds. The giant had stolen a magic hen that laid golden eggs and a magic harp from Jack's family. Jack found these and carried them away. The giant chased Jack down the beanstalk but crashed down and died. Jack and his mother lived happily and were not poor any more.

Know these words

castle a palace with thick walls like a fort

harp a stringed musical instrument



Jack was climbing up the beanstalk
Counting so fast he could hardly talk.
Would you be surprised if I told you
He'd already reached hundred twenty two?

One twenty three, one twenty four..., on he counted.
But wait! Now he had reach'd precisely two hundred.

And just when I thought he said '228'
His head bang'd hard upon the castle gate.

He quickly disappeared.
There was nothing he feared!
I heard the gaint's faint snore
And a whisper'd '344'.

Soon Jack came running with a magic hen
And he was now saying 'four hundred and ten'

I asked him 'What are you counting?'
As he went down like lightning.
'It is those golden eggs',
He said, working his legs.

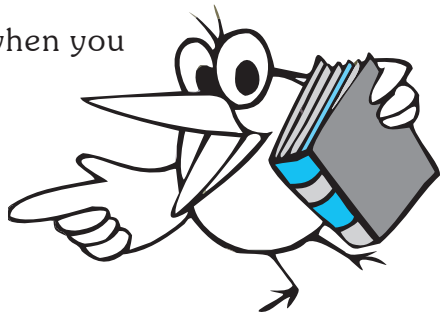
A letter for an egg, they must exactly match.
I'm counting them all just before they hatch!'

('How many eggs?', I asked. He told me '600'.)

This is a counting poem.

Turn the page to see how to count with it.

Count the letters in the first line of the poem.
(Don't count punctuation marks like: , ! ? ( ) ' ' .



Some letters are in a box. Why? What is the count when you come to a boxed letter?

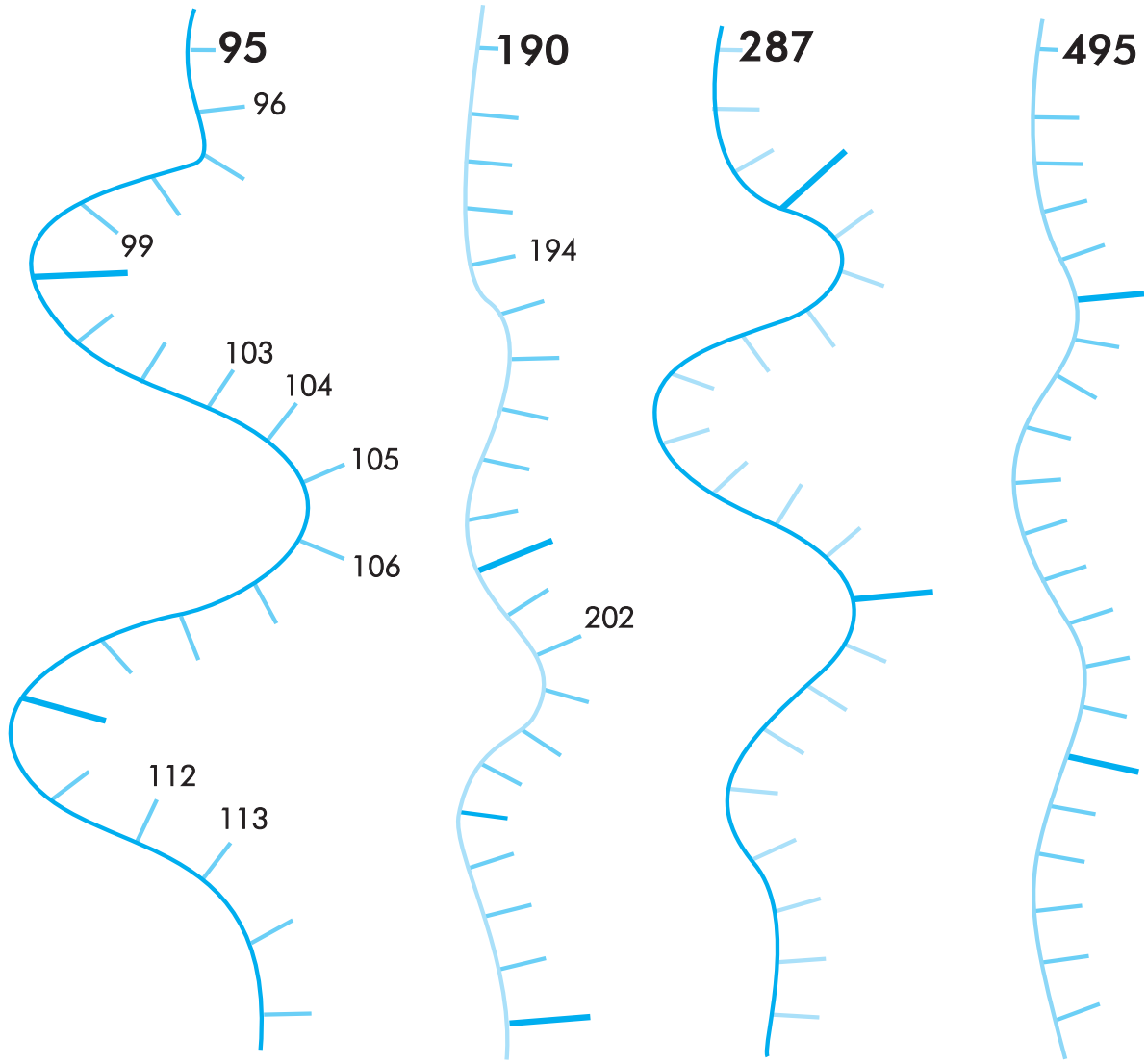
Try to use the boxed letters to count fast.

Some letters are shaded. Why?
What is the count when you come to a shaded letter?

How many letters are there in the poem?

Some of the words in the poem are numbers or number words.
Check the count when you come to these words.

Fill up the missing numbers on these number lines.



Number patterns

Continue the pattern.

70 80

102 104

93 95

75 80

235 245

100 200

50 100 150

10 110 210

25 125 225

246 256 266

Tap-clap-snap

REMEMBER

A snap means 1.

Snap!

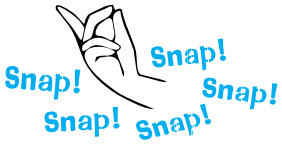
A clap means 10.

Clap!

A tap means 100.

Tap!

How much?



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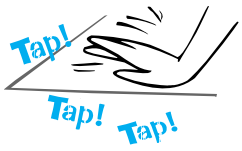

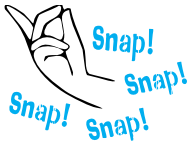

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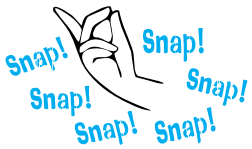

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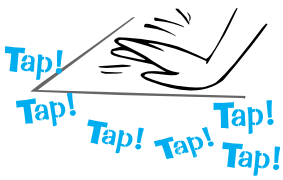

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Play the tap-clap-snap game in class.

Copy-writing

Use number words to practice copy-writing.

Continue these numbers:

Two hundred and thirty six

Two hundred and thirty seven

Eti needs to send this cheque by post. Help him write the amount in words.

THE RIVER BANK OF NARMADA

PAY _____ **OR BEARER**

RUPEES _____ Rs. 435/—

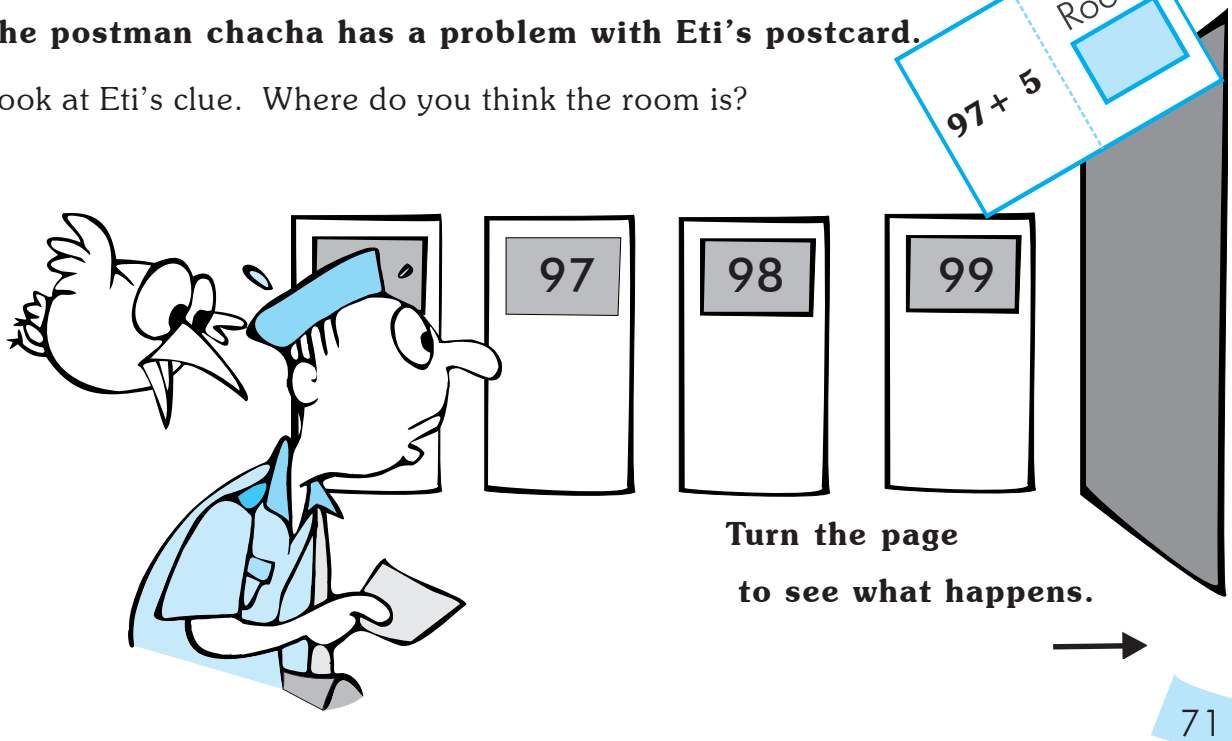
A/c No | LF | Intl

THE RIVER BANK OF NARMADA

II 888888II 333333333 I 10

The postman chacha has a problem with Eti's postcard.

Look at Eti's clue. Where do you think the room is?



Turn the page to see what happens.

The hundred building

The hundred building is another number building.

It is like the zero building but it starts from room number 100.

Look at the zero building and the hundred building and compare them.

The first room in the zero building is _____ and the last room is _____

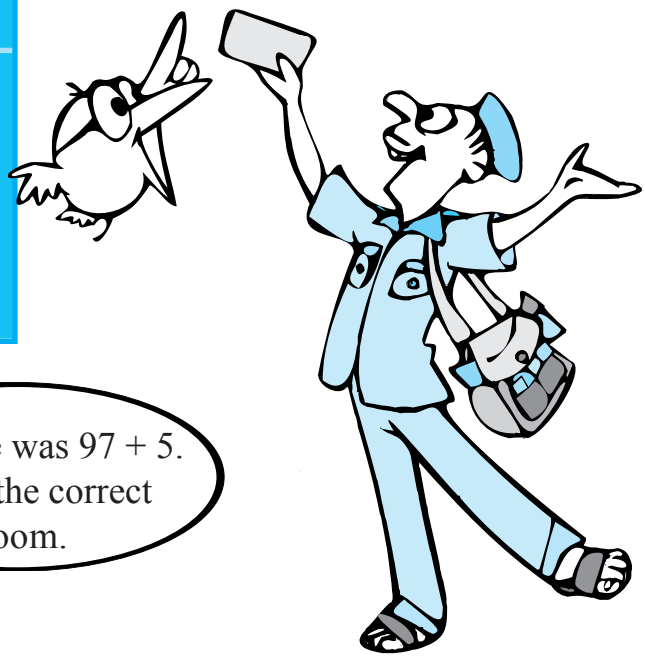
The first room in the hundred building is _____ and the last room is _____

100

190	191	192	193	194	195	196	197	198	199
180	181	182	183	184	185	186	187	188	189
170	171	172	173	174	175	176	177	178	179
160	161	162	163	164	165	166	167	168	169
150	151	152	153	154	155	156	157	158	159
140	141	142	143	144	145	146	147	148	149
130	131	132	133	134	135	136	137	138	139
120	121	122	123	124	125	126	127	128	129
110	111	112	113	114	115	116	117	118	119
100	101	102	103	104	105	106	107	108	109

ZERO

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9



Eti's clue was 97 + 5. Circle the correct room.

Adding ones and tens

Ring the problems for which the answers are in the 100 building.

94 + 4 = 98

94 + 6 = ____

94 + 5 = ____

94 + 7 = ____

Now do the same problems in vertical addition.

H	T	O
	9	4
+		4

H	T	O
	9	4
+		5

H	T	O
	9	4
+		6

H	T	O
	9	4
+		7

Sometimes adding tens takes you to the hundred building.

Ring the problems where the answers are in the 100 building.

74 + 10 = 84

74 + 30 = ____

74 + 20 = ____

74 + 40 = ____

Now do the same additions in vertical columns.

H	T	O
	7	4
+	1	0

H	T	O
	7	4
+	2	0

H	T	O
	7	4
+	3	0

H	T	O
	7	4
+	4	0

Ring the problems where the answer takes you to the 100 building.

94 + 8 = 91 + 8 = 53 + 40 = 76 + 40 =

89 + 11 = 55 + 40 = 40 + 64 = 34 + 70 =

Subtracting ones and tens

Ring the problems for which the answers are in the zero building.

106 – 4 = 102

106 – 6 = ____

106 – 5 = ____

106 – 7 = ____

Now do the same problems in vertical subtraction.

H	T	O
1	0	6
–		4

H	T	O
1	0	6
–		5

H	T	O
1	0	6
–		6

H	T	O
1	0	6
–		7

Sometimes subtracting tens takes you to the zero building.

Ring the problems where the answers are in the zero building.

124 – 10 = 114

124 – 30 = ____

124 – 20 = ____

124 – 40 = ____

Do the same problems in vertical subtraction.

H	T	O
1	2	4
–	1	0

H	T	O
1	2	4
–	2	0

H	T	O
1	2	4
–	3	0

H	T	O
1	2	4
–	4	0

Ring the problems where the answer takes you to the zero building.

104 – 4 = 104 – 5 = 106 – 7 = 106 – 6 =

137 – 30 = 137 – 40 = 156 – 70 = 118 – 19 =

Ring the problems where the answers are in the 100 building.

H T O	H T O	H T O	H T O
8 4	8 4	7 4	7 4
+ 6	+ 1 6	+ 2 5	+ 2 6

H T O	H T O	H T O	H T O
5 6	4 9	9 5	6 1
+ 3 7	+ 6 7	+ 7 3	+ 8 9

When there is a carryover to the **'T' column**, you go to the **next floor.**

When there is a carryover to the **'H' column**, you go to the **next building.**

Ring the problems where the answers are in the zero building.

H T O	H T O	H T O	H T O
1 0 9	1 2 8	1 2 5	1 2 5
– 1 0	– 3 0	– 1 7	– 2 7

H T O	H T O	H T O	H T O
1 6 5	1 6 5	1 6 5	1 6 5
– 1 0	– 2 7	– 6 7	– 9 6

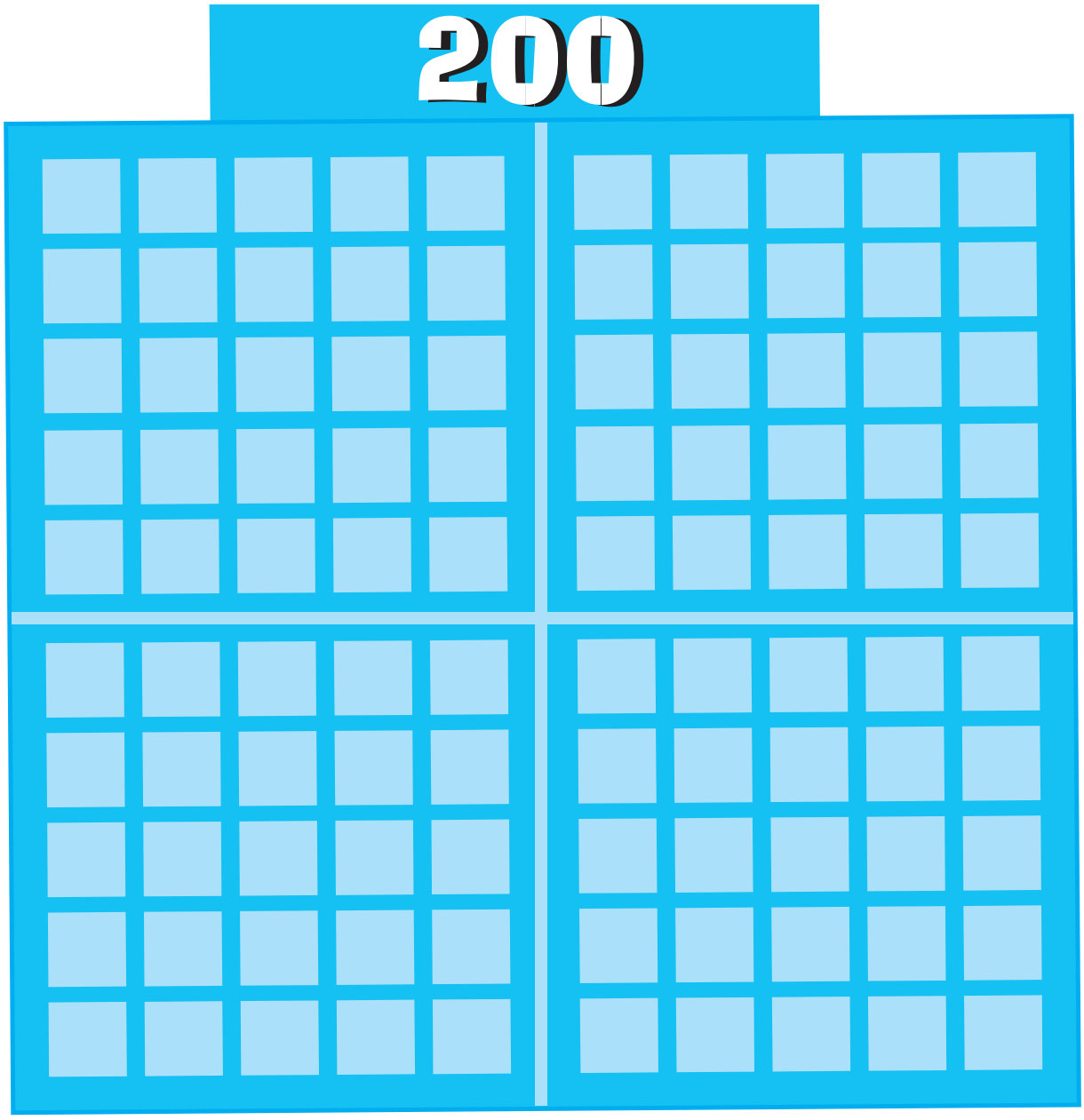
When there is a **borrow** from the **'T' column**, you go to the **floor below**.

When there is a **borrow** from the **'H' column**, you go to the **previous building**.

The 200 building

After the 100 building comes the 200 building

Write all the room numbers in the 200 building.



Shading puzzle

Shade room number 226 on the 200 number building. Now shade the answers to these problems.

226 + 1	226 – 10	226 – 8
226 + 2	226 + 10	226 + 12

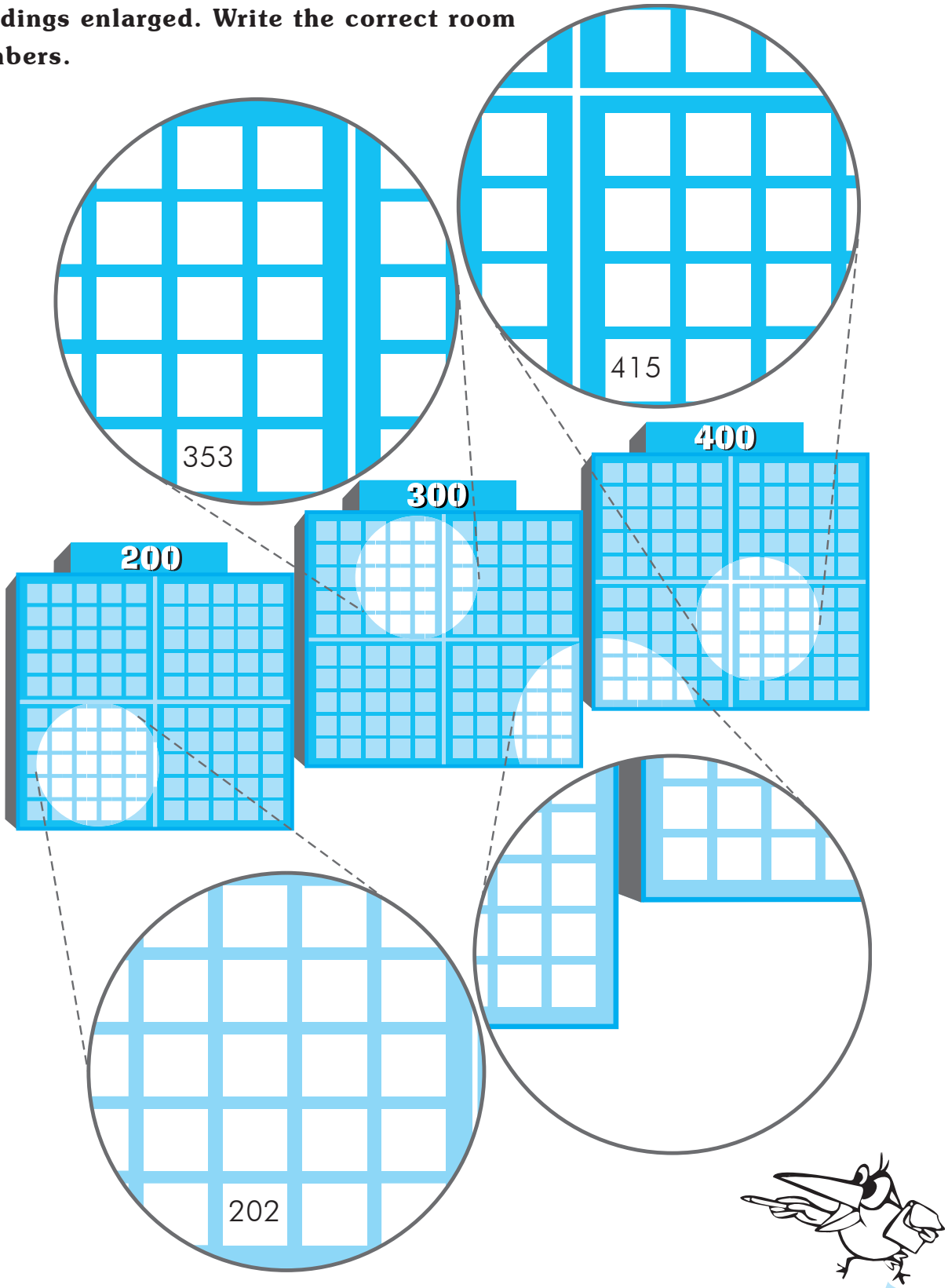
Which letter of the alphabet can you see?

Make similar puzzles for the letters 'L', 'E' and 'F'.

The 300 and 400 building

After the 200 building come the 300 and 400 buildings.

Inside the circles, you can see parts of the buildings enlarged. Write the correct room numbers.



The number colony

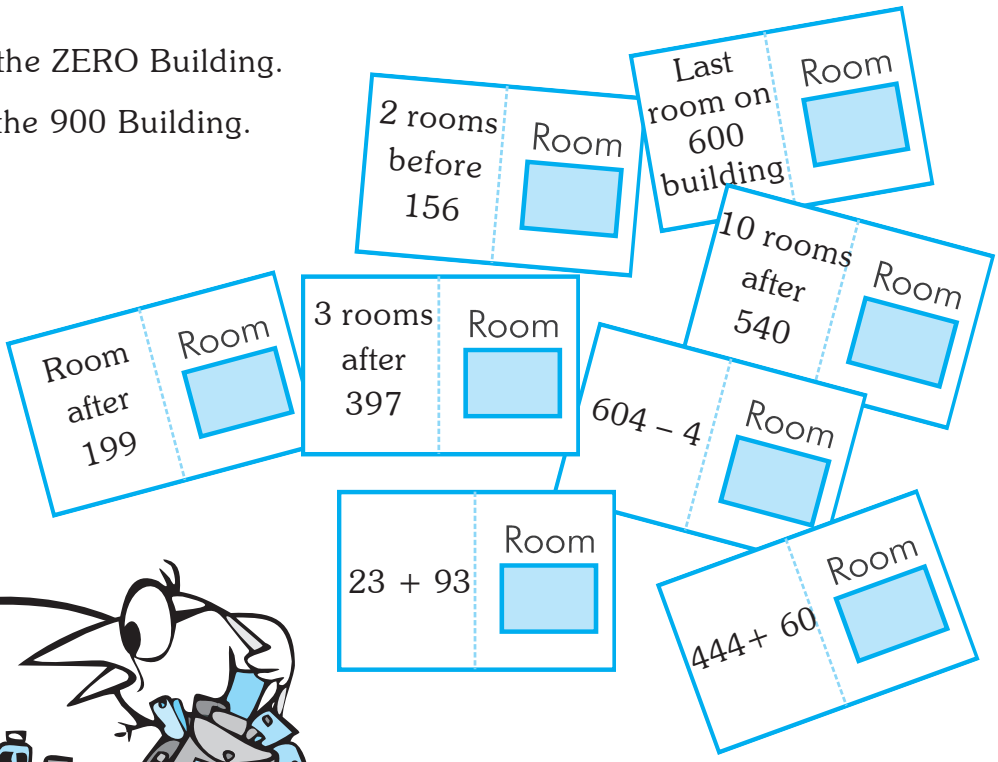
The number colony has ten number buildings and many, many, many rooms.

The first building is the ZERO Building.

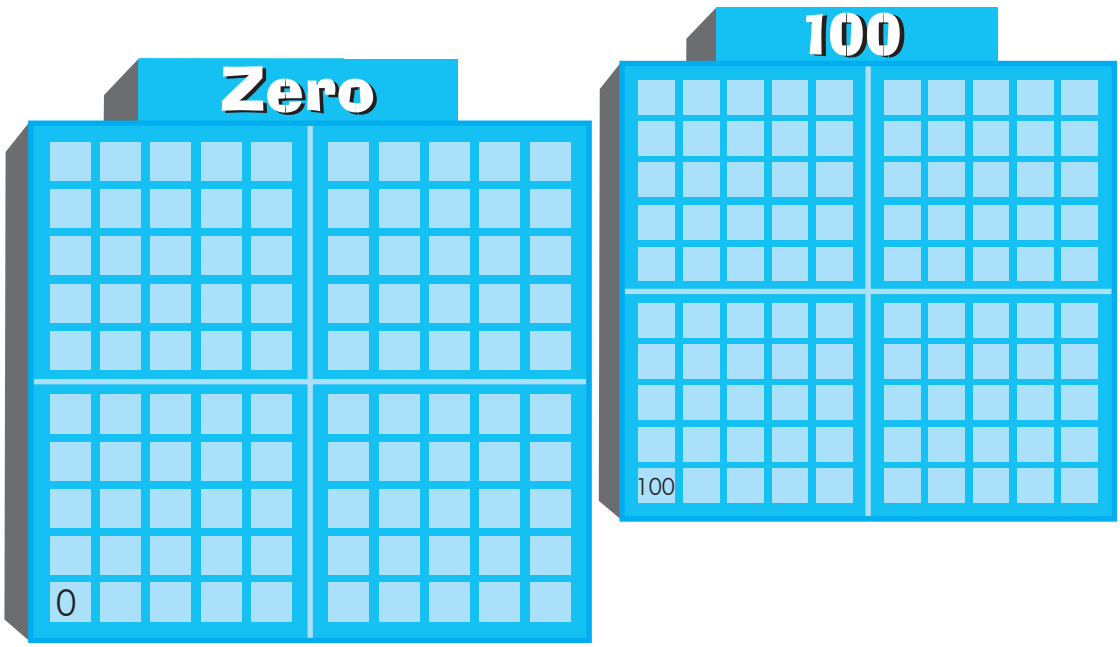
The last building is the 900 Building.

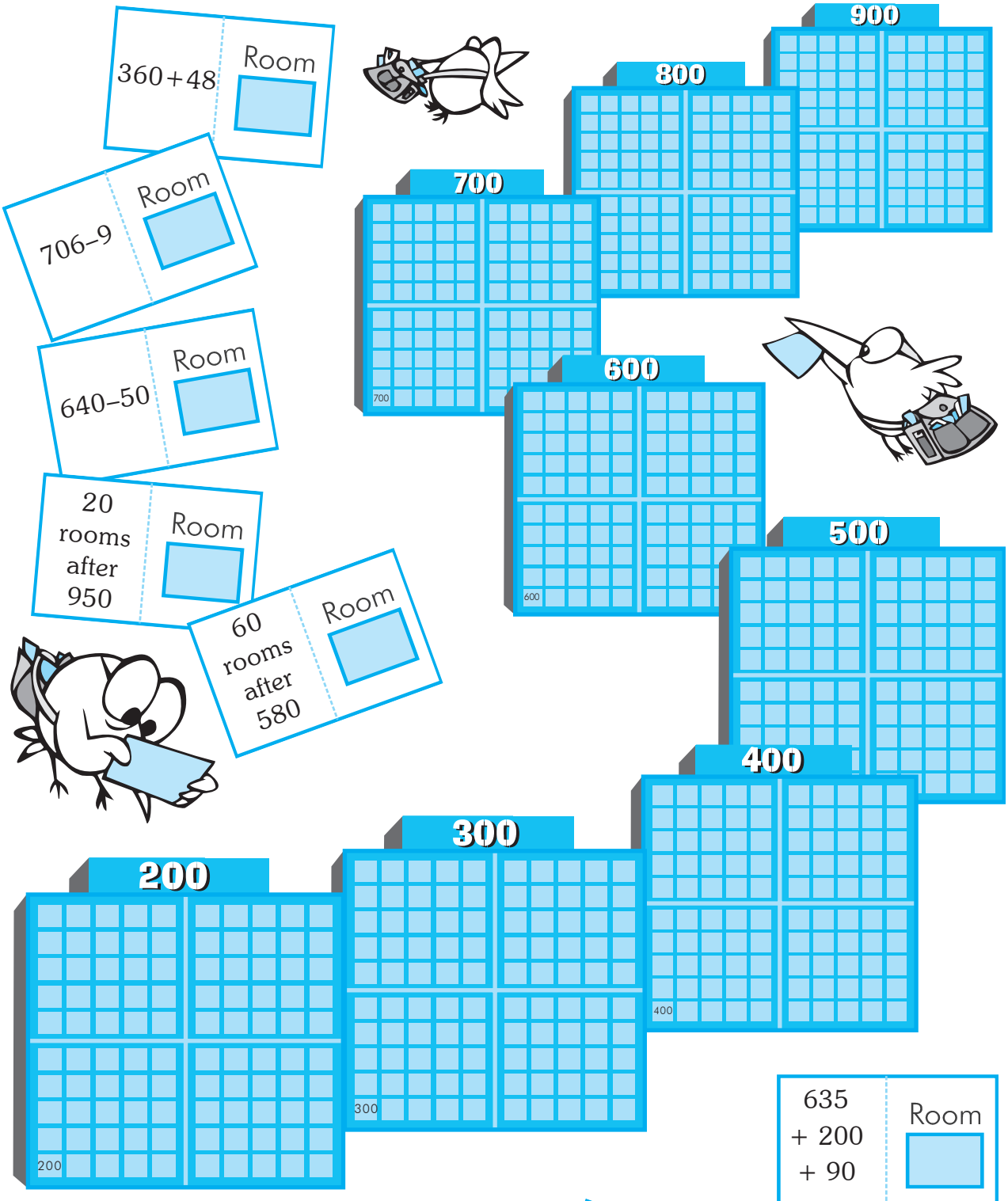
Postman Chacha is ill today.

Our Birdie has promised to deliver all the letters for him.



First write the correct room numbers on all the letters. Then find and shade the rooms in the number colony.



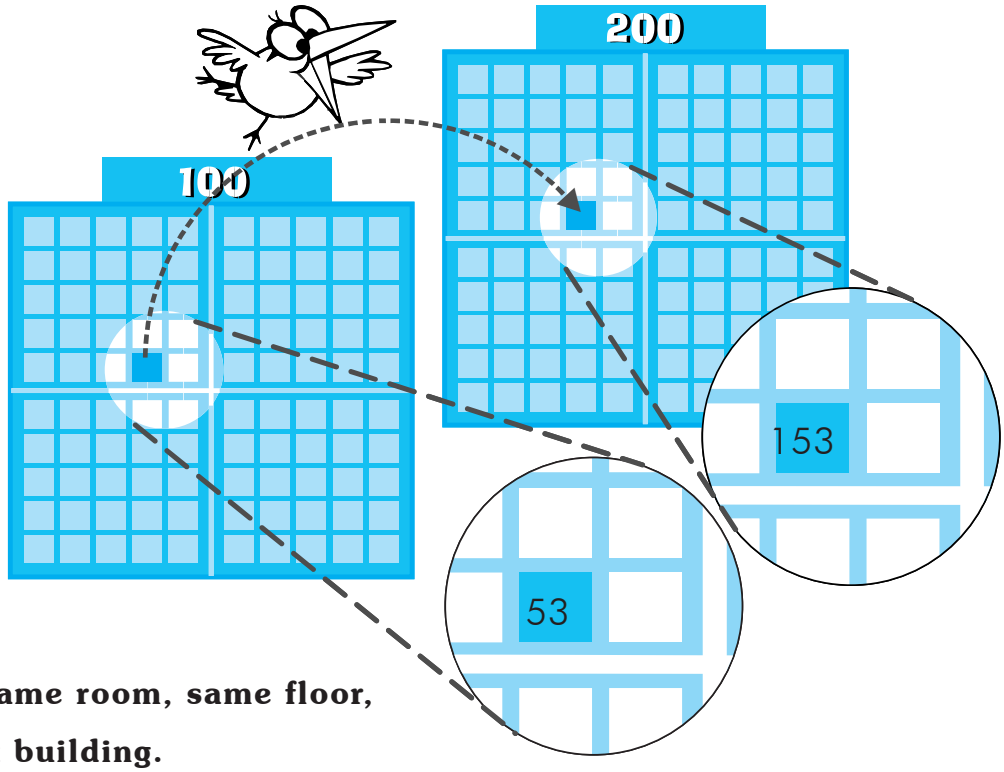


In the picture which rooms in the number colony are fully hidden? Which rooms are partly hidden?

Adding hundreds

What happens when we add hundred?

Example 53 + 100 = 153.



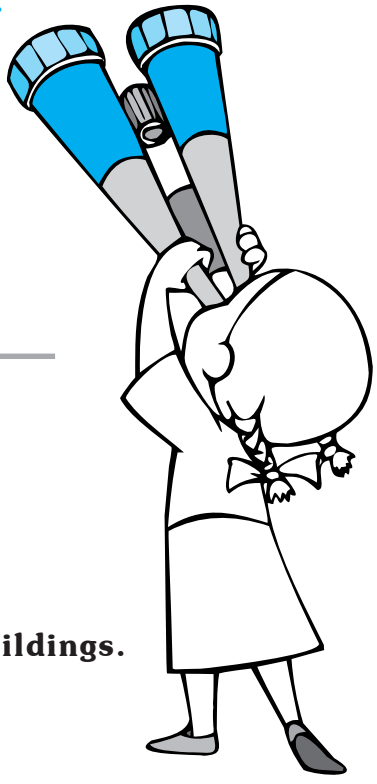
We go to the same room, same floor, but in the next building.

Adding hundred is like jumping one building forward.

Do these problems as quickly as you can.

129 + 100 = 169 + 100 = 200 + 100 =

301 + 100 = 100 + 567 = 100 + 789 =

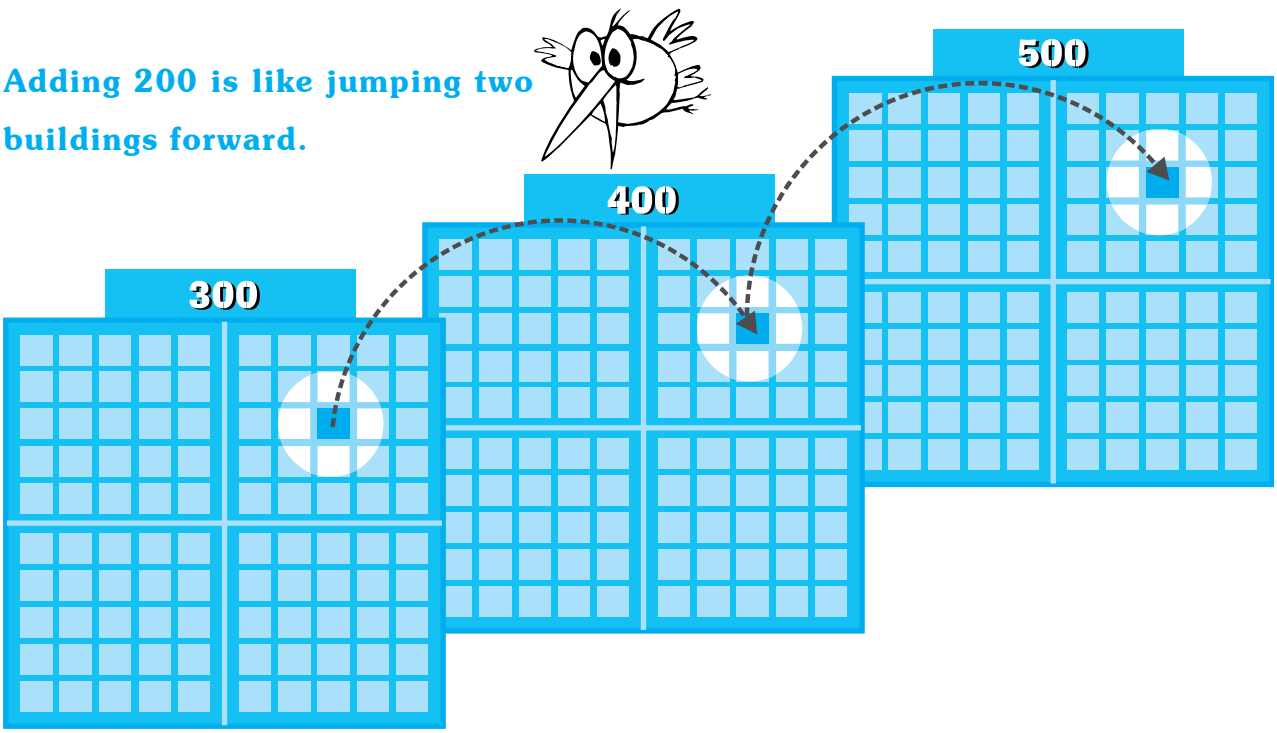


What happens when we add 200?

Example 377 + 200 = 577.

We go to the same room, same floor, but after two buildings.

Adding 200 is like jumping two buildings forward.



Do these problems as quickly as you can:

362 + 200 =	398 + 200 =	400 + 200 =	7 + 200 =
81 + 200 =	200 + 501 =	735 + 200 =	200 + 617 =

Now find the pattern for adding 300 and adding 400.

Adding 300 is like _____

Adding 400 is like _____

_____

Do these problems as quickly as you can.

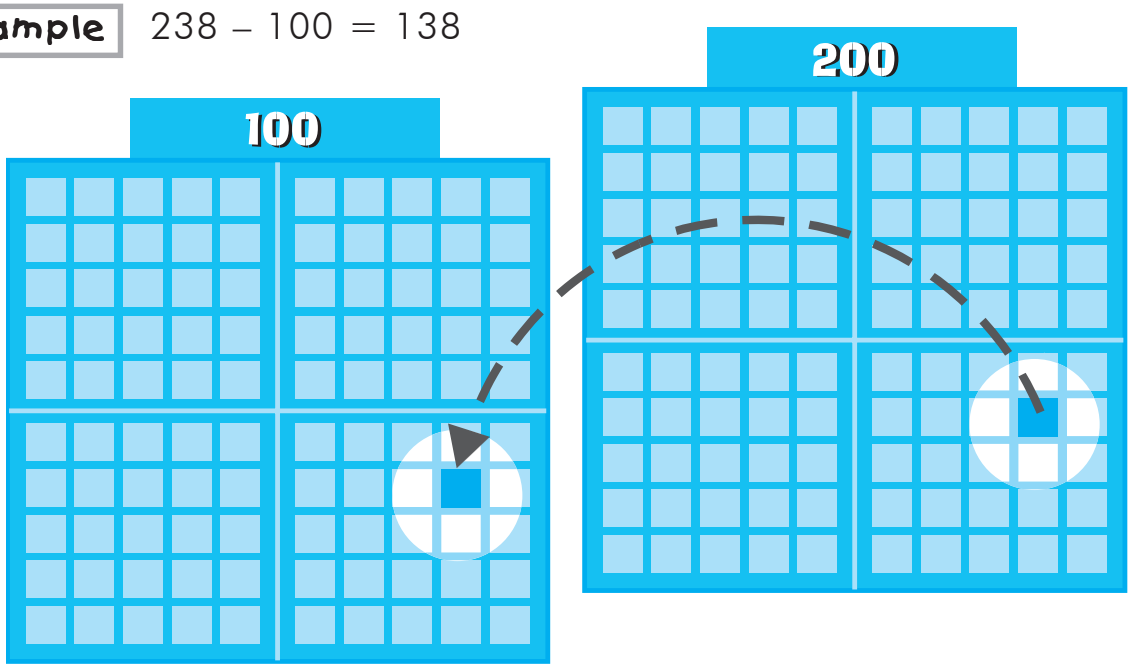
In your mind, imagine that you are jumping over buildings.

324 + 200 =	417 + 300 =	527 + 400 =
285 + 400 =	171 + 500 =	293 + 600 =
400 + 243 =	500 + 335 =	700 + 277 =
500 + 396 =	800 + 189 =	600 + 349 =

Subtracting hundreds

What happens when we subtract hundred?

Example 238 – 100 = 138



We go to the same room, same floor, but in the previous building.

Subtracting hundred is like jumping one building backward.

Do these problems as quickly as you can.

256 – 100 = 200 – 100 = 301 – 100 =

347 – 100 = 567 – 100 = 789 – 100 =

Now find the pattern for subtracting 200 and subtracting 300.

Subtracting 200 is like _____

Subtracting 300 is like _____

Do these problems as quickly as you can.

In your mind, imagine that you are jumping over buildings.

342 – 200 = 527 – 300 = 667 – 400 =

685 – 500 = 591 – 400 = 777 – 500 =

865 – 500 = 932 – 600 = 886 – 700 =

Practice sums

H	T	O
	1	8
+	7	9	5

H	T	O
3	0	6
+	9	5

H	T	O
		3
+	7	9	7

H	T	O
4	0	5
+	4	5

H	T	O
3	7	3
–	8	9

H	T	O
4	5	0
–	3	8	5

H	T	O
3	0	6
–	1	9

H	T	O
9	0	8
–	4	1	9

H	T	O
5	0	0
–	4	7	6

H	T	O
3	4	6
–	9	5

H	T	O
5	5	1
–	4	5	8

H	T	O
7	1	1
–	1	8

H	T	O
		8
+	7	9	3

H	T	O
3	5	5
+	5	4	5

H	T	O
2	3	9
+	6	7	5

H	T	O
3	0	1
+	2	9	6

Notebook Exercise

Add:

341 and 67 | 218 and 637 | 47 and 407 | 8 and 809

Subtract:

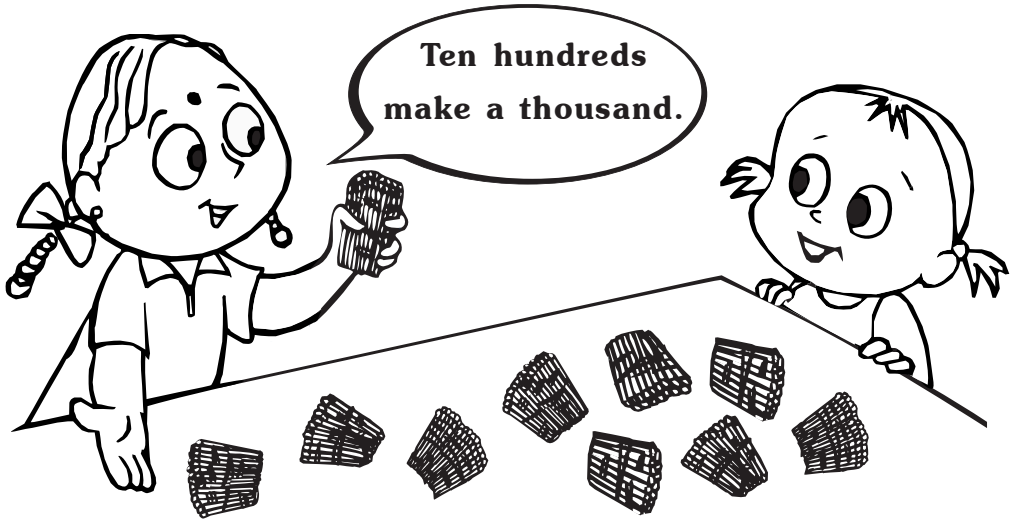
36 from 360 | 413 from 601 | 379 from 800 | 498 from 502

Classroom Game

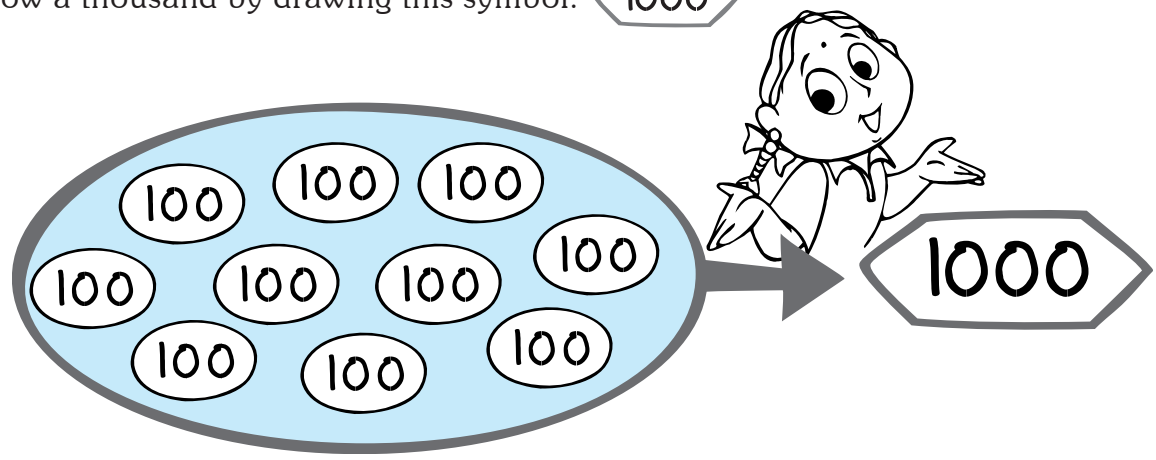
Write a number on the board. Show another number using taps, claps and snaps. Ask your friend to add the second number to the number on the board.

Thousand and beyond

Which number comes after 9? _____	9 + 1 =
Which number comes after 99? _____	99 + 1 =
Which number comes after 999?_____	999 + 1 =



We show a thousand by drawing this symbol: 1000



Cross out the phrases which do not mean a thousand.

1.	999 + 1	900 + 100	99 +100
2.	Ten hundreds	One thousand	Hundred ones
3.	Number after 999	Number before 1000	Number before 1001
4.	300 + 300 + 300	500 + 500	2000 – 1000
5.	Thousand ones	One more than 999	600 + 600

2318

Th	H	T	O
1000 1000	100 100 100	10									

3146

Th	H	T	O

2121

Th	H	T	O

4010

Th	H	T	O

4001

Th	H	T	O

4100

Th	H	T	O

Palindrome Numbers

Read these numbers forward and backward: 121, 4224

1 → 2 → 1
1 ← 2 ← 1

4 → 2 → 2 → 4
4 ← 2 ← 2 ← 4

They are the same both ways.
These are **palindrome numbers**.

Check and make sure that these are not palindrome numbers: 142, 48.

But see what happens when you reverse and add each number!

Example

Let us try 142.
Reverse 142 and add.

	H	T	O
	1	4	2
+	2	4	1
	3	8	3

3 → 8 → 3
3 ← 8 ← 3

383 is a **palindrome number.**

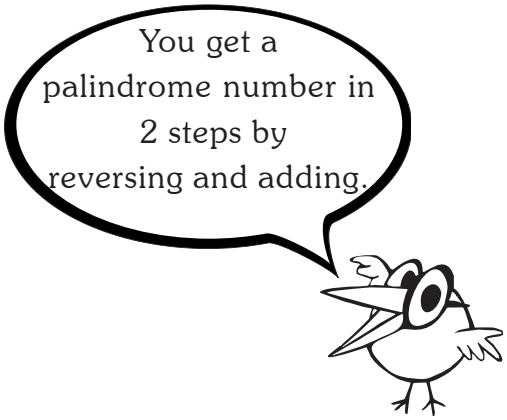
Now let us try 48.
Reverse 48 and add.

	H	T	O
		4	8
+		8	4
	1	3	2

132 is not a palindrome number.

So reverse 132 and add.

	H	T	O
	1	3	2
+	2	3	1
	3	6	3



363 is a **palindrome number!**

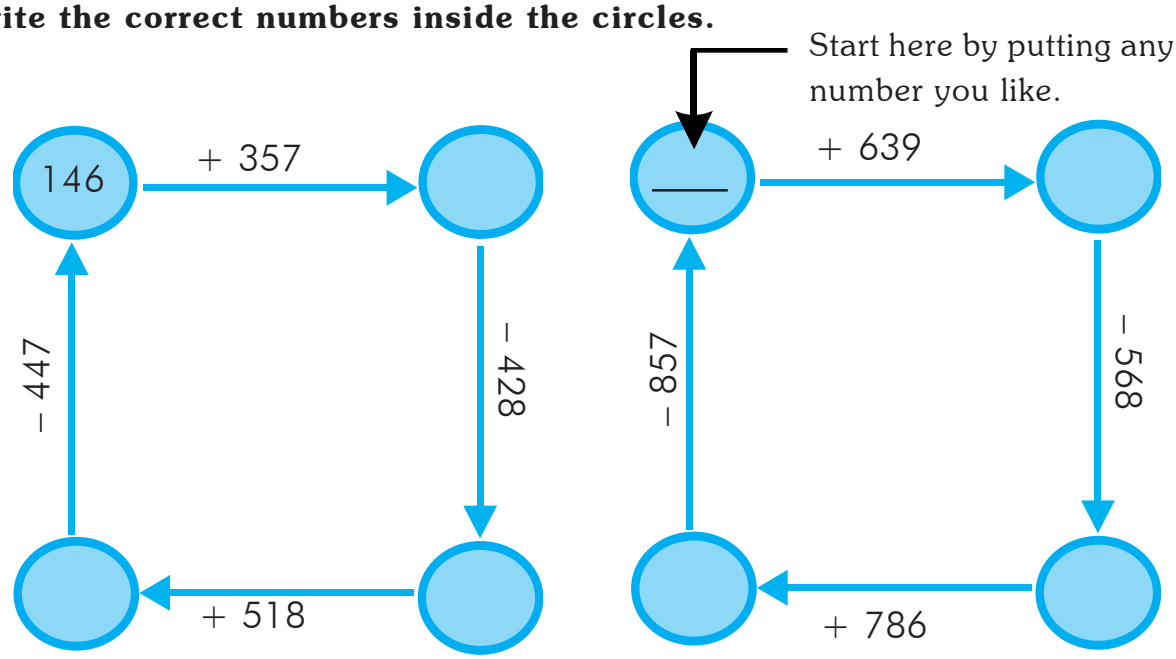
Notebook Exercise

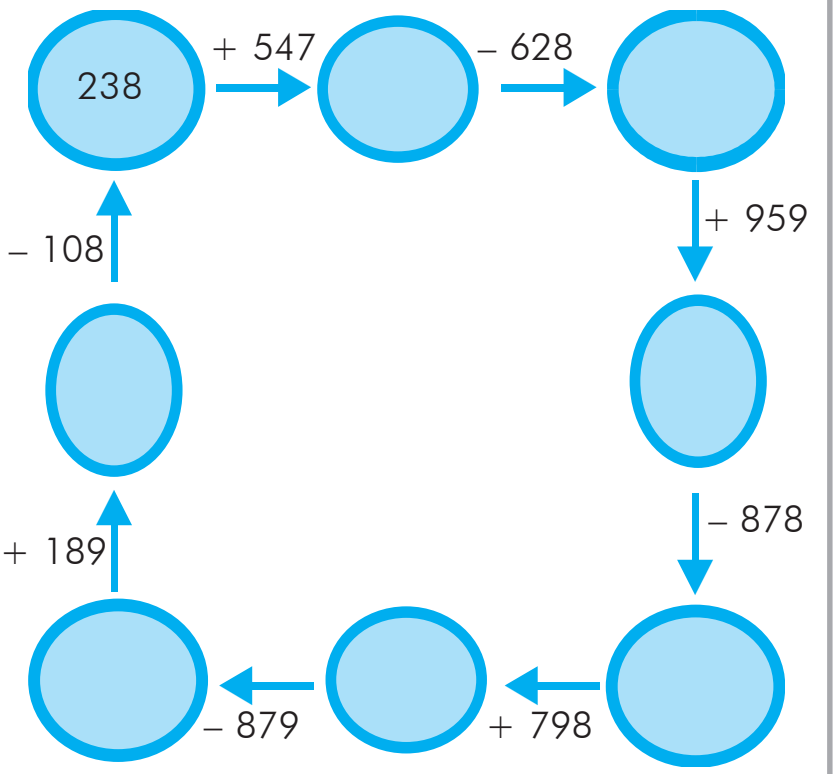
Try reversing and adding for these numbers and see how many steps you need to do to get a palindrome number: 11 18 27 39 65 78

Which is the number for which you needed to do the most steps?
How many steps did you need?

Number chakra

Write the correct numbers inside the circles.





Find the missing digits.

H	T	O
_	_	_
4	5	_
+ _	_	4
8	9	6

Th	H	T	O
_	_	_	_
3	4	5	_
+ _	5	_	7
7	_	6	5

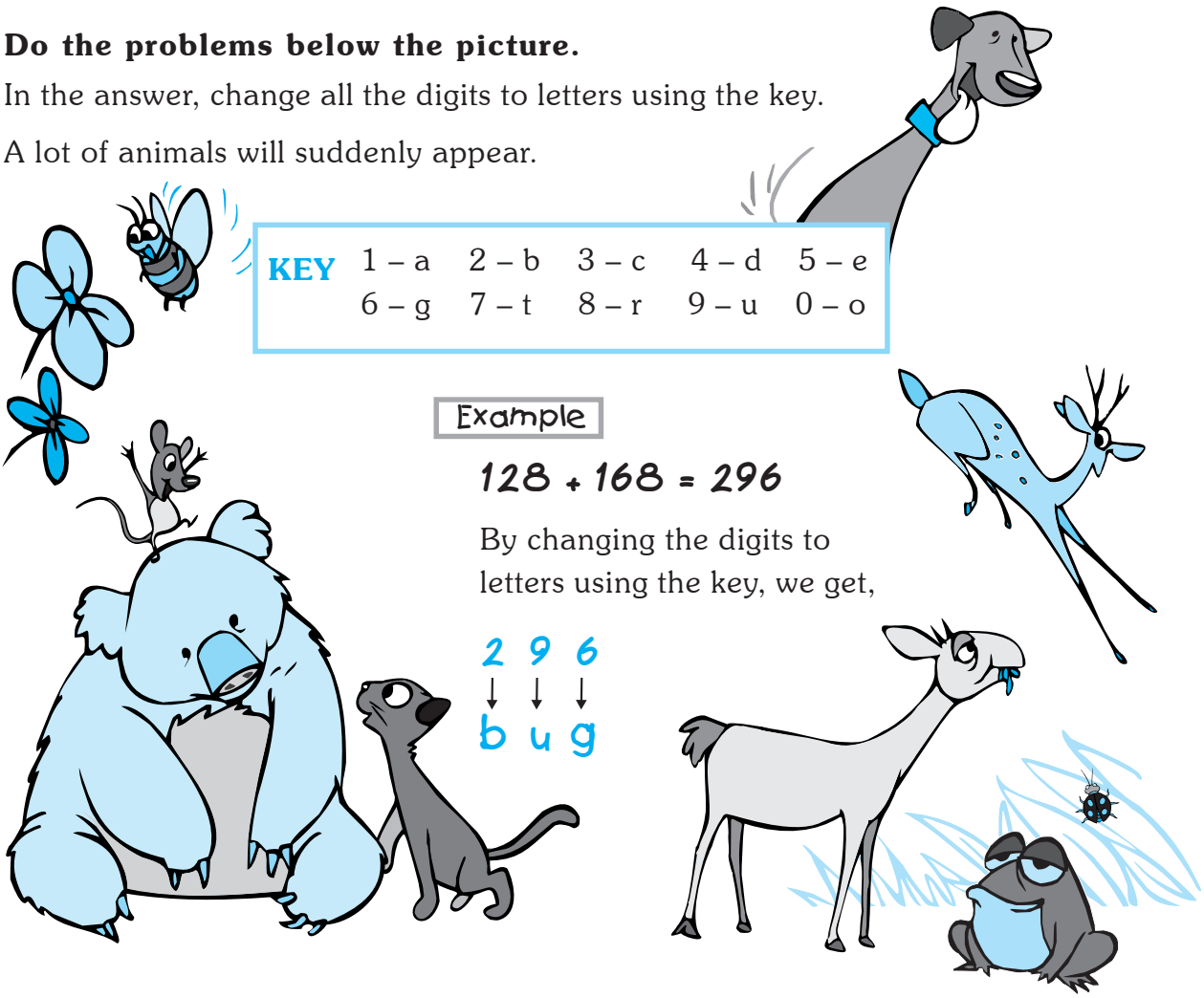
Th	H	T	O
_	_	_	_
8	4	5	_
+ _	5	_	7
1	0	_	0 0

Sum fun

Do the problems below the picture.

In the answer, change all the digits to letters using the key.

A lot of animals will suddenly appear.



KEY					
	1 – a	2 – b	3 – c	4 – d	5 – e
	6 – g	7 – t	8 – r	9 – u	0 – o

Example

128 + 168 = 296

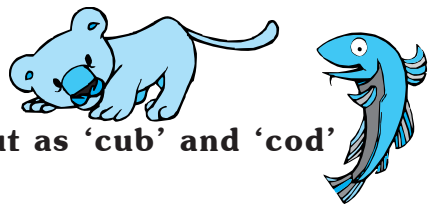
By changing the digits to letters using the key, we get,

2 9 6
↓ ↓ ↓
b u g

H T O	H T O	H T O	H T O
1 2 3	2 0 9	1 6 4	9 3 4
+ 1 3 2	+ 1 0 8	+ 2 4 2	– 1 1 7

Th H T O	Th H T O	Th H T O	Th H T O
5 2 7 9	8 6 3 7	5 8 3 9	4 6 0 0
+ 7 3 8	– 1 6 2 3	– 1 2 8 1	– 2 0 8 2

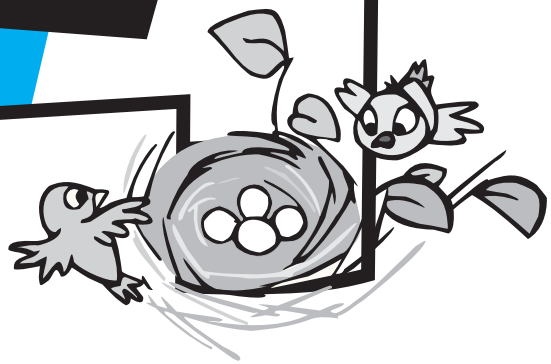
Sum more fun



Make two problems so that the answers come out as 'cub' and 'cod'

Numbers in the world

Unit 5



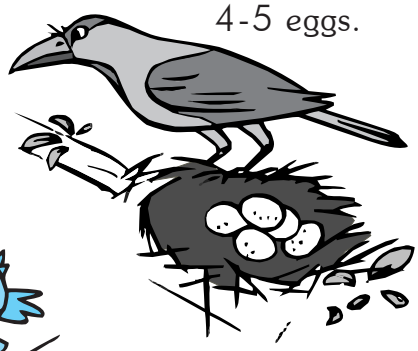
EGG CLUTCHES

Many animals lay eggs. The eggs hatch after a while and the baby animals come out.
A batch of eggs that are laid and hatched together is called a '**clutch**'. Some animals lay a small clutch with only a few eggs. Others have large clutches with many eggs.

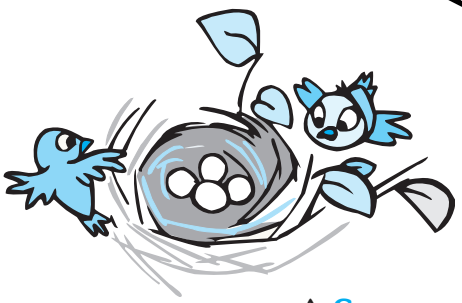
Birds

Birds make a nest to lay eggs. In the breeding season, they lay about one egg a day till they have a full batch or clutch.

A **Crow** clutch has 4-5 eggs.



The **Common White-Backed Vulture** clutch contains only one egg!

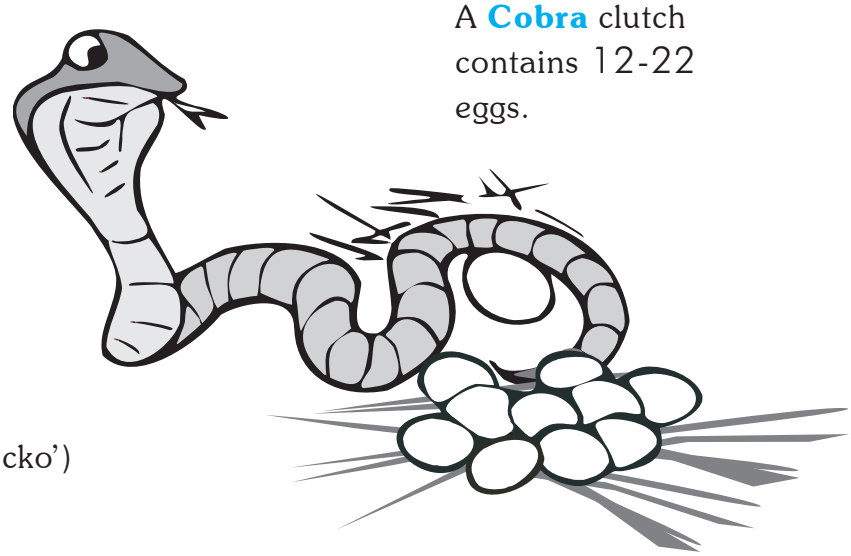


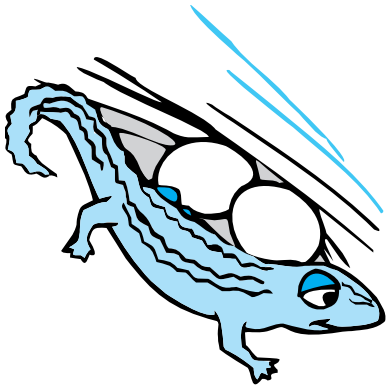
A **Sparrow** clutch has 3-5 eggs.

Reptiles

These animals are reptiles.They lay eggs too.

A **Cobra** clutch contains 12-22 eggs.



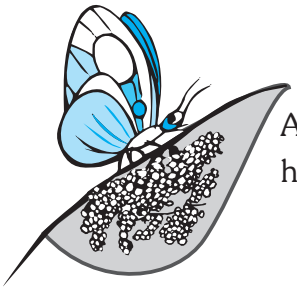


The house **Lizard** (also called 'Gecko') has two eggs in a clutch.

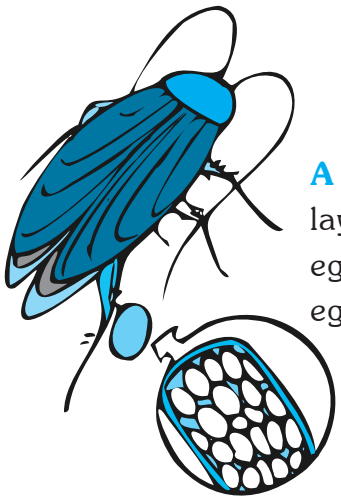
The **Common Marsh Crocodile** lays 3-40 eggs in a pitcher shaped hole in the sand.

Insects

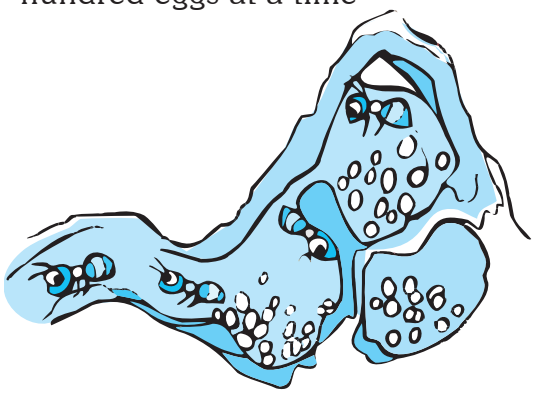
Many insects lay eggs too.
Here are some of them.



A **Butterfly** lays a few hundred eggs at a time

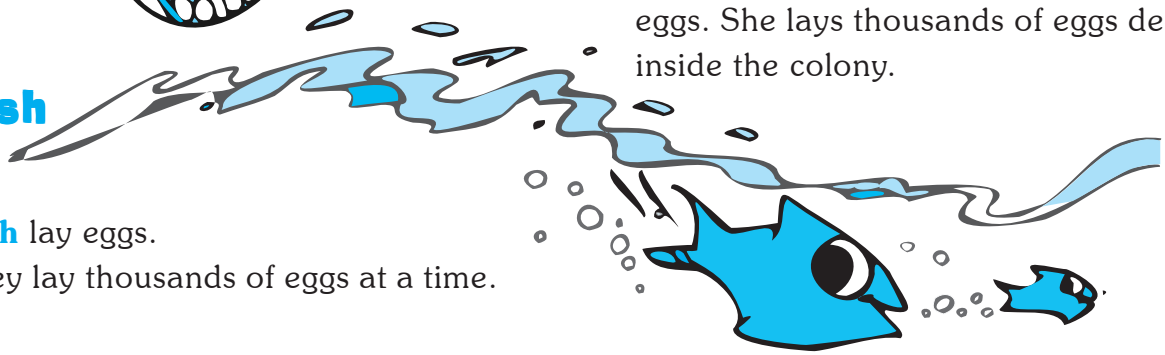


A Cockroach lays 12-28 eggs inside an egg case.



A colony of **Ants** has only one queen. The job of the queen ant is to lay eggs. She lays thousands of eggs deep inside the colony.

Fish



Fish lay eggs.
They lay thousands of eggs at a time.

Parvin found a clutch of 20 eggs. Which of the animals on this page might have laid the eggs?

Lucy found two eggs in a cupboard. Which animal do you think laid the eggs?

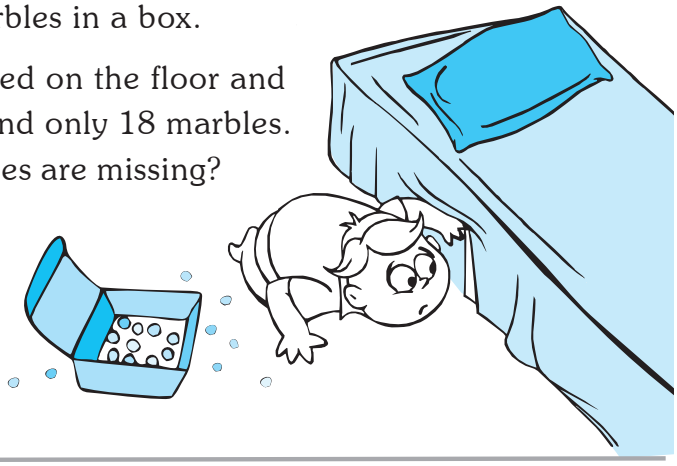
About how many lizard clutches will have the same number of eggs as a cobra clutch?

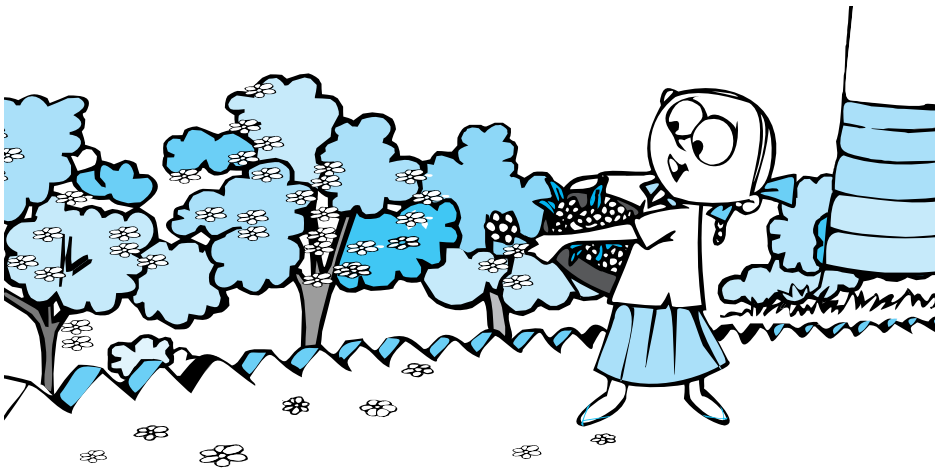
A crocodile laid 12 eggs. Baby crocodiles hatched out of only half of the eggs. Half of the baby crocodiles died. How many grew to be big crocodiles?

Number stories

Tuttu had 25 marbles in a box.

The marbles spilled on the floor and he managed to find only 18 marbles. How many marbles are missing?

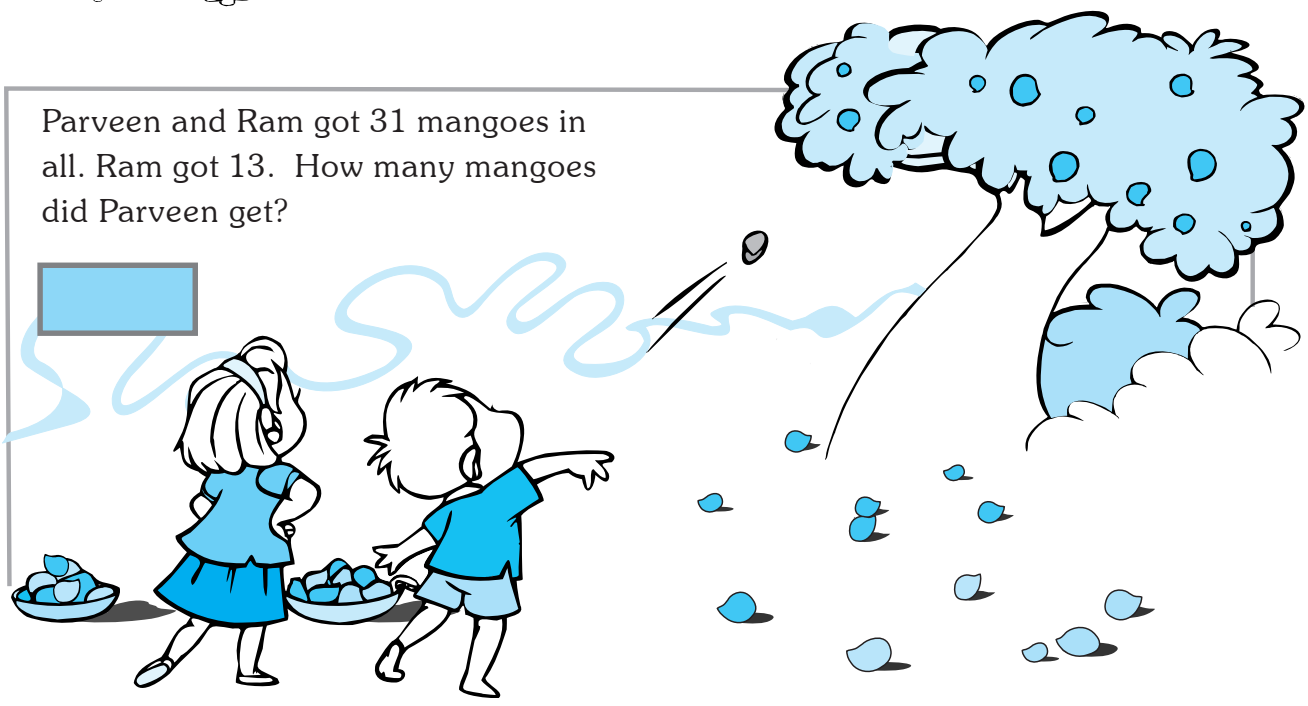




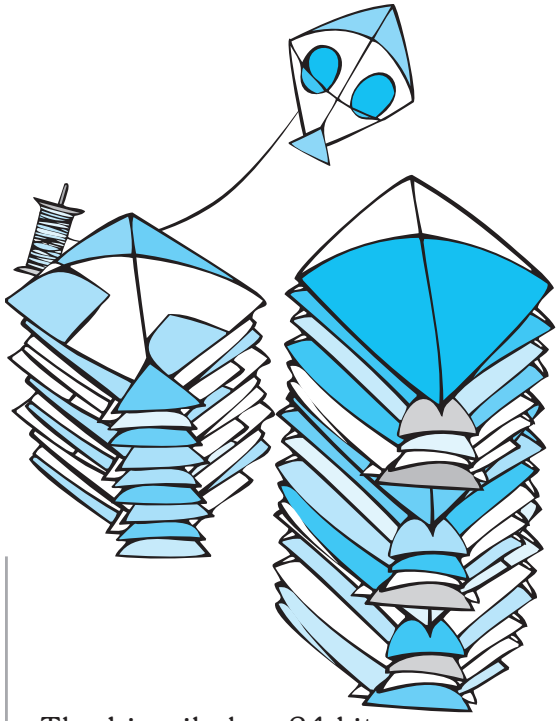
22 jasmine flowers on the bush and 8 flowers on the ground.

How many flowers altogether?

Parveen and Ram got 31 mangoes in all. Ram got 13. How many mangoes did Parveen get?

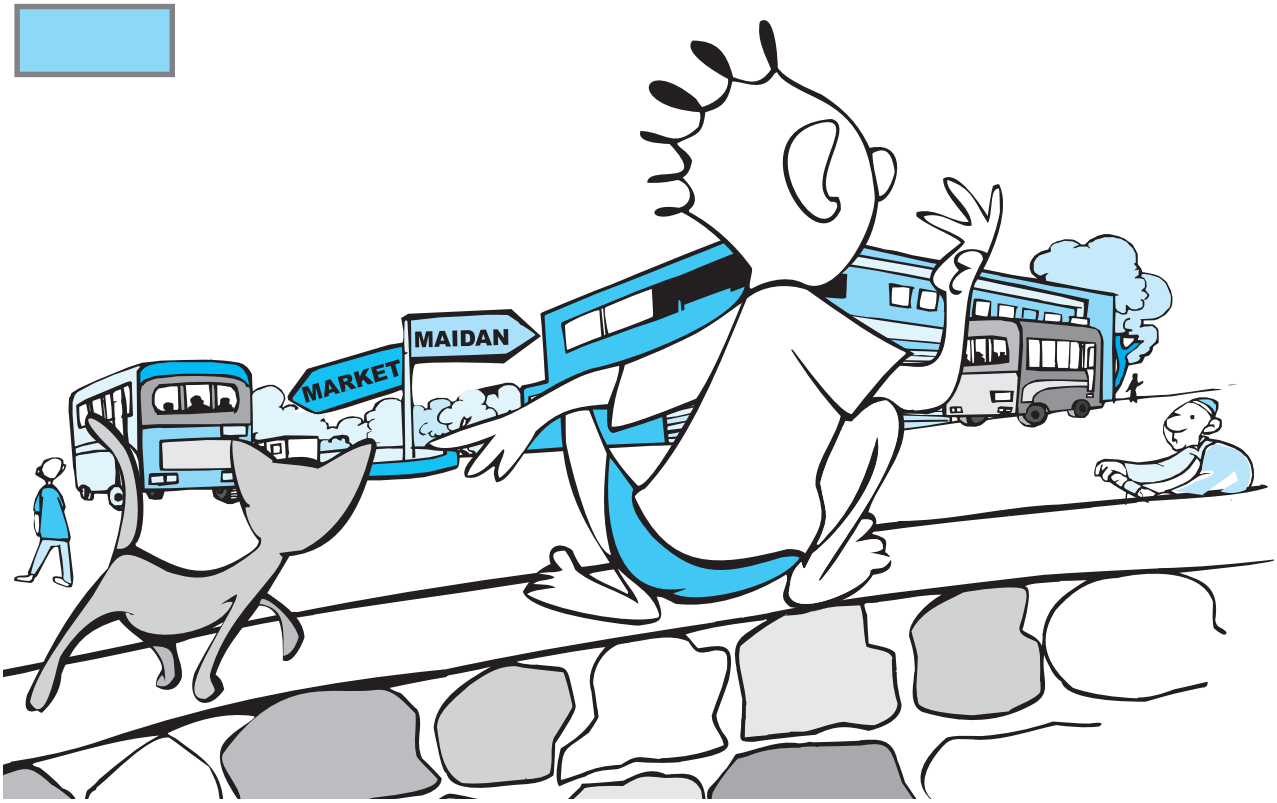


26 sardines in all.
9 on the slab.
How many sardines in the basket?



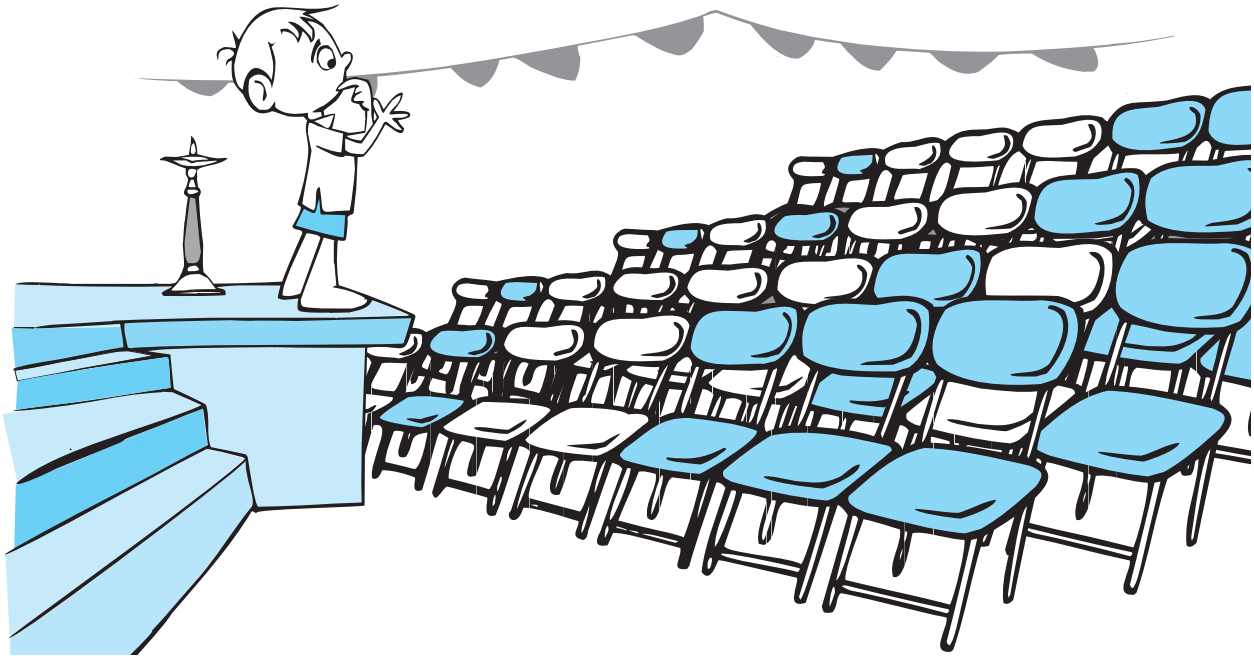
The big pile has 24 kites.
The small pile has 12 kites.
How many kites in all?

15 buses going towards the market. 17 buses going towards the maidan.
How many buses did Eti count?



The gents 'Q' had 19 people, the ladies 'Q' had 14 people.

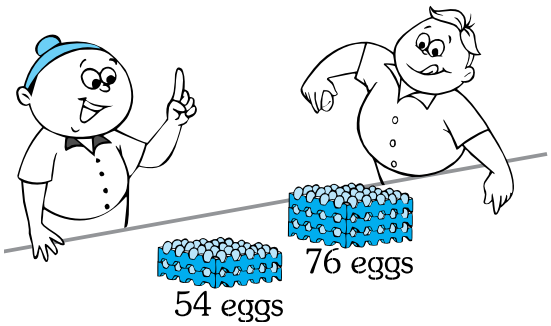
How many people were waiting to buy tickets?



Ram counted the chairs arranged for the function. There were 45 chairs in all: some coloured, some white. Then he counted only the white chairs. There were 19 white chairs. How many coloured chairs were there?

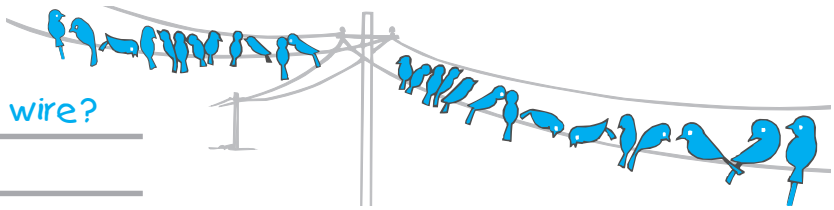
Picture stories

Look at these pictures. Answer the questions for the first picture. Make your own questions for the remaining pictures and answer them.



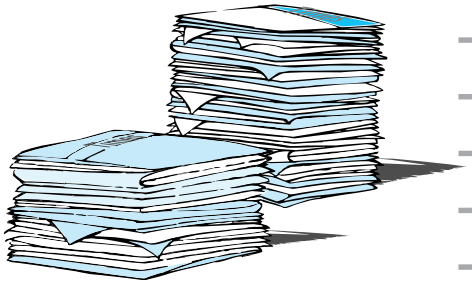
1. Who has more eggs?

2. How many eggs in all?

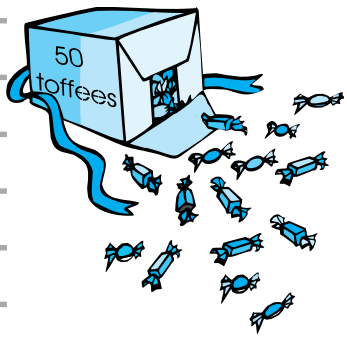


1. How many birds on the first wire?

35 Newspapers

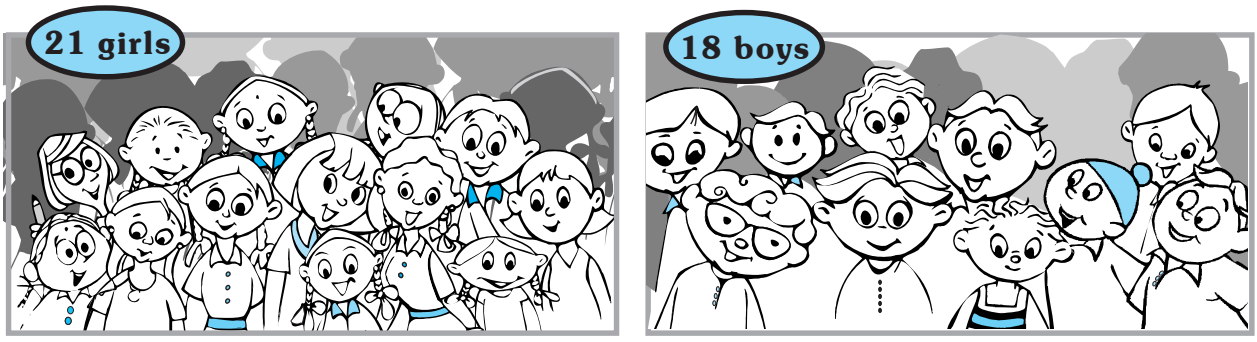


18 Newspapers



Word problems 1

Look at the picture. How many children are there in all?



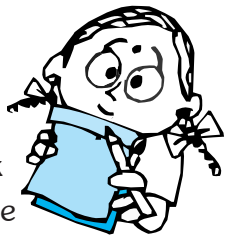
After looking at the picture Geeta wrote statements in Hindi in her notebook.

21 ladkiyan, 18 ladke,
total bachhe kitne?

She then drew a diagram

21 + 18 = ?

number of girls | number of boys | The question mark means that you have to find the total.



And found the answer

21 + 18 = 39

And wrote

There are 39 children in all.

Read this problem.

A flower pot has flowers of two colours. There are 26 white and 14 coloured flowers.

How many flowers are there in all?

Write statements in your mother tongue. (Use the English alphabet.)

Here is a diagram to show the problem.

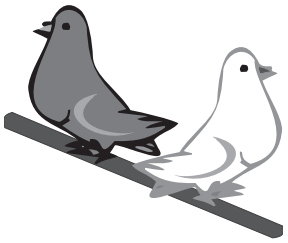
What does the number inside the first circle mean?

What does the number inside the second circle mean?

What does the question mark mean?

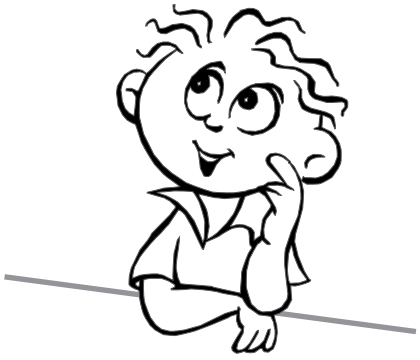
Find and write the answer to the problem.

Rohit has two kinds of pigeons: 17 white pigeons and 21 grey pigeons. How many pigeons does he have in all?



Write statements in your mother tongue.

Now show the problem using a diagram.



Find and write the answer to the problem.

Look at this diagram.

1. Make a word problem for the diagram using these words: textbooks, notebooks. Write the answer to your problem.

2. Make another word problem for the diagram using the words: half-pants, full-pants. Write the answer to your problem.

3. Make your own word problem for the diagram and write the answer.

Make your own word problem for this diagram and write the answer.

Notebook Exercise

Write statements in your mother tongue, draw diagrams and solve these problems.

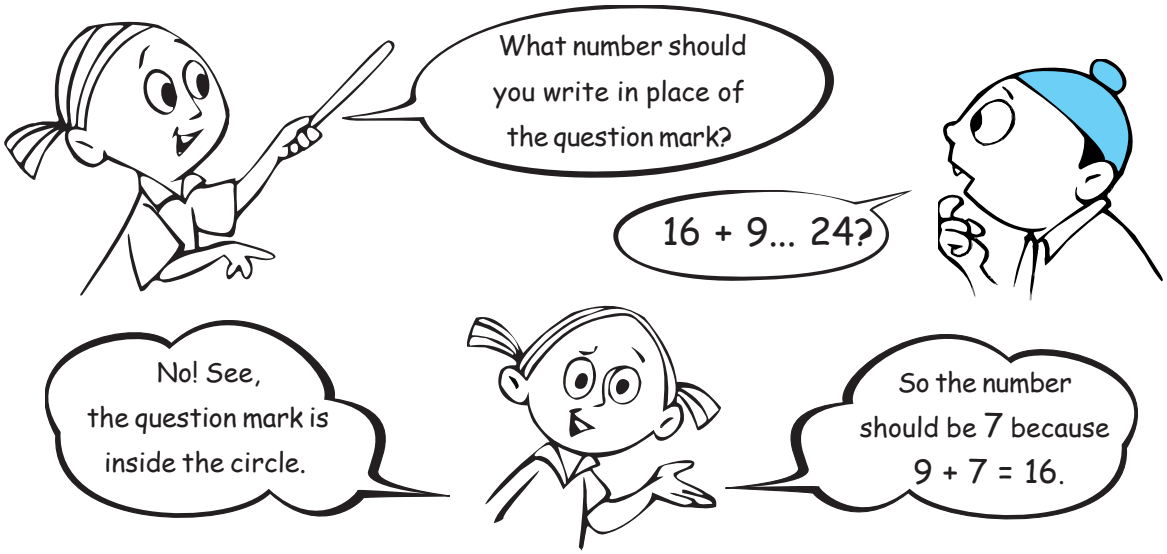
1) At the bus stop Geeta counted 9 red buses and 11 green buses. How many buses in all did she count?

2) In a small lane there were two kinds of houses. 17 houses had tiled roofs and 16 houses had RCC roofs. How many houses were in the lane?

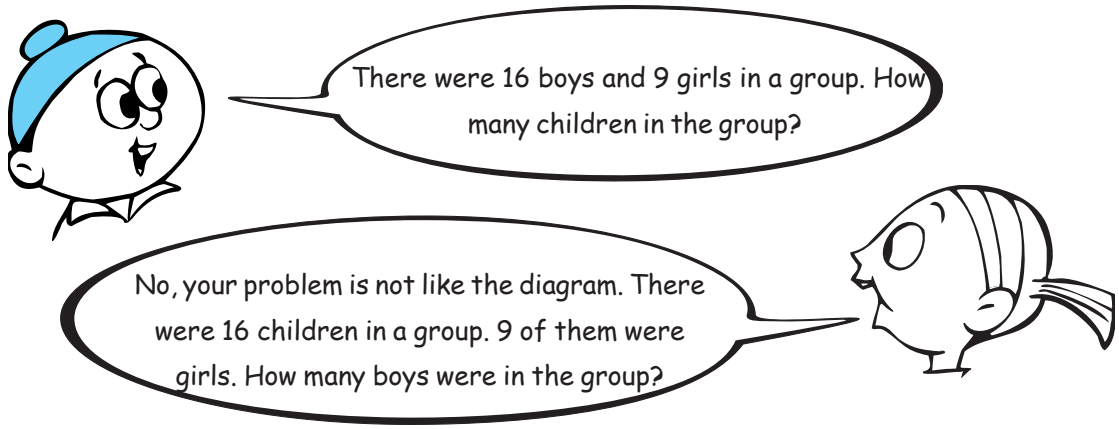
3) The balloon seller has balloons in three colours: 9 yellow balloons and 12 red balloons and 13 blue balloons. How many balloons in all does he have?

Word problems 2

Look at this diagram carefully.



Lucy and Chunindar make a word problem for the diagram.



Why do you think Lucy's problem is correct?

Write statements in your mother tongue for Lucy's problem.
(Use the English alphabet.)

What is the answer to Lucy's problem?

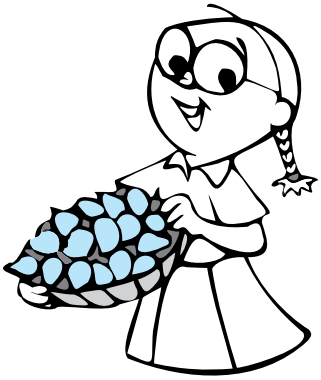
Read Lucy's and Chunindar's problems again carefully. Understand the difference between them.

Read this problem.

Rani had 15 mangoes and some guavas. She had 25 fruits (mangoes and guavas) in all. How many guavas did she have?

Write statements for the problem.

Here is a diagram to show the problem.



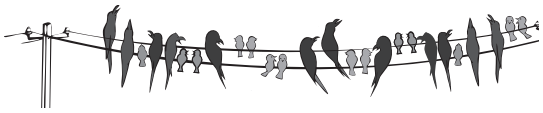
15 + ? = 25

What does the number inside the first circle mean?

What does the question mark inside the second circle mean?

What does the number after the '=' sign mean?

Find and write the answer to the problem.



There were 39 birds sitting on the wire. 23 of them were crows. The rest were sparrows. How many sparrows were sitting on the wire?

Write statements for the problem.

Now show the problem using a diagram.

Find and write the answer to the problem.

One day standing at the bus stop Lucy counted all the buses. There were 23 buses.
9 were double decker buses and the remaining were single decker buses.

How many single decker buses were in the bus stop?

Write statements:

Now show the problem using a diagram.

Find and write the answer to the problem.

Look at this diagram.

1. Make a word problem for the diagram using these words: red pencils, blue pencils. Write the answer to your problem.

2. Make another word problem for the same diagram using the words: cricket balls, tennis balls. Write the answer to your problem.

3. Make a word problem for the diagram using your own words and write the answer.

Solve these problems. Write statements, draw diagrams and find the answer for each problem.

1. Chetan was selling newspapers. He had 23 English newspapers and 38 Marathi newspapers. How many papers did he have in all?
2. 50 children attended the scout camp. 18 were boys. How many girls attended the camp?
3. Lucy went to a bookshop. She bought a story book for Rs 65 and a puzzle book for Rs 85. How much did Lucy spend at the shop?
4. On Sunday, the circus had two shows and sold a total of 500 tickets. 193 tickets were sold for the afternoon show. How many tickets were sold for the evening show?
5. Parvin bought a kg of oil and a kg of soap for Rs 100. The cost of 1 kg of soap is Rs 37. How much does 1 kg of oil cost?
6. Dildar was riding a motorbike. The weight of the motorbike was 117 kg. Dildar's weight was 67 kg. What is the combined weight of the motorbike and Dildar?

Make your own problems for the diagrams using the words given and find the answers.

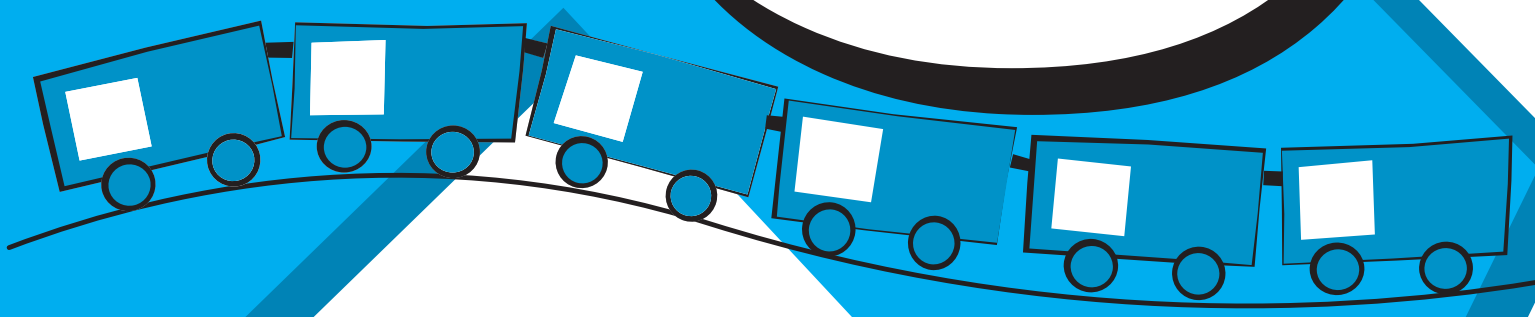
1. Duck eggs, hen eggs

2. Plastic kites, paper kites

3. Use your own words.

Multiplication

Unit 6



Making Groups

Listen to Tikoo uncle
Clapping claps for you.

Move around in a circle
When the claps stop, so do you.

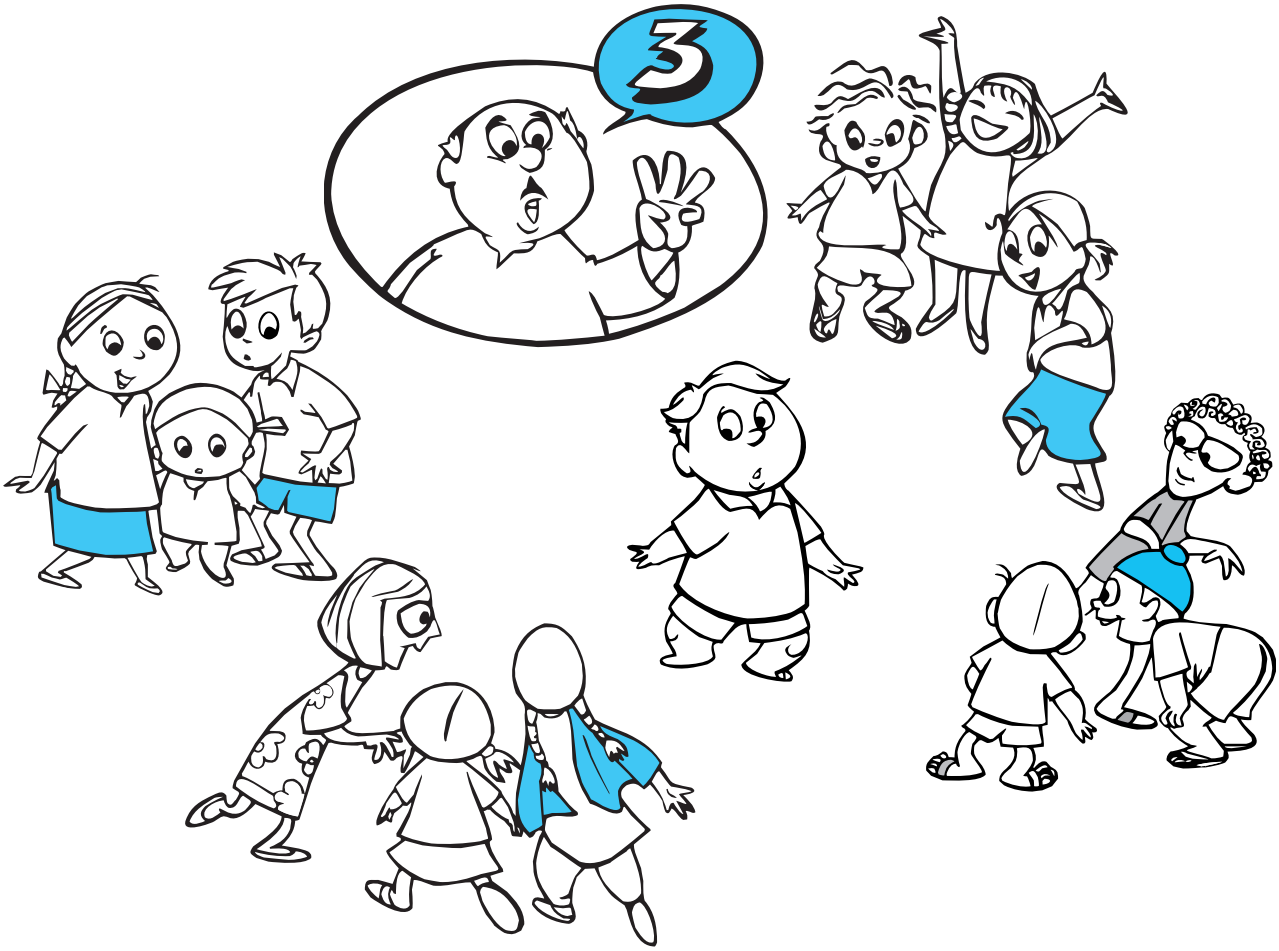
Now form groups of the number I shout
Hurry or you will be left out.

Play another round of the game,
but the number may not be the same.

Play the game in the poem.

Choose a leader. Move in a circle while the leader claps her hands. The leader stops clapping and calls out a number.

Make groups of the number she calls out.



How many children in the picture formed groups?

4 groups of 3.

3 + 3 + 3 + 3

4 times 3

4 × 3 = 12

'4 × 3' means **'4** times **3'**

Multiplication means add the same number so many times.

In this game, you must form equal groups. That is, each group must have the same number of children.

Check if the groups in the picture are all equal groups.

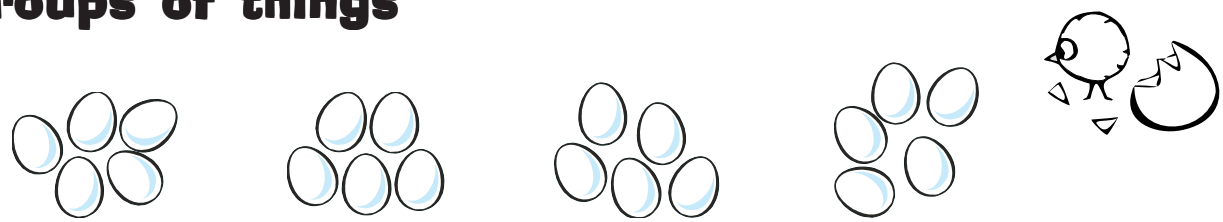
How many children **remained** outside the groups?_____

After you make equal groups, whatever remains over is the **remainder**.

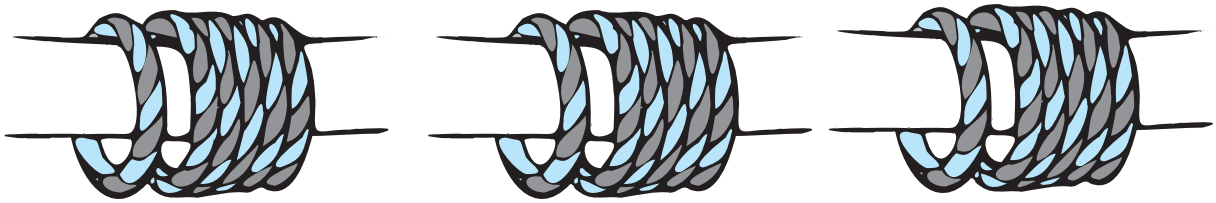
Know these words

groups, equal groups, remainder

Groups of things



4 groups of 5 eggs each.	5 + 5 + 5 + 5 = 20	4 × 5 = 20	20 eggs in all.



Fill up the table.

Draw the picture and fill up the table.

5 groups of 2 flowers each.			

Draw a picture to show the difference between these two phrases.

3 groups of 5 apples each

5 groups of 3 apples each

Notebook Exercise

Make other pairs of phrases like these. Draw pictures to show the difference.

Multiplication tables with dots

Table of 2

Three twos are six

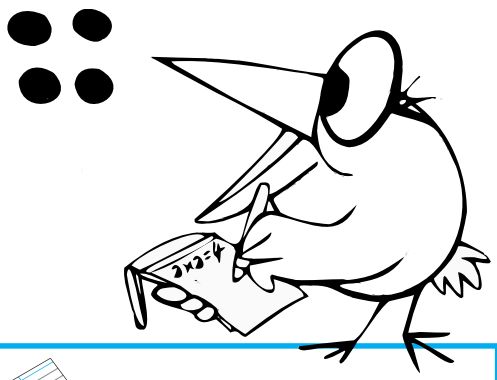
1	• •	2	1 x 2 = 2
2	• •	4	2 x 2 = 4
3	• •	6	3 x 2 = 6
4		___	4 x 2 = ___
5		___	5 x 2 = ___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___

Table of 3

1	• • •	3	1 x 3 = 3
2		6	2 x 3 = 6
3		___	___
4		___	___
5		___	___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___

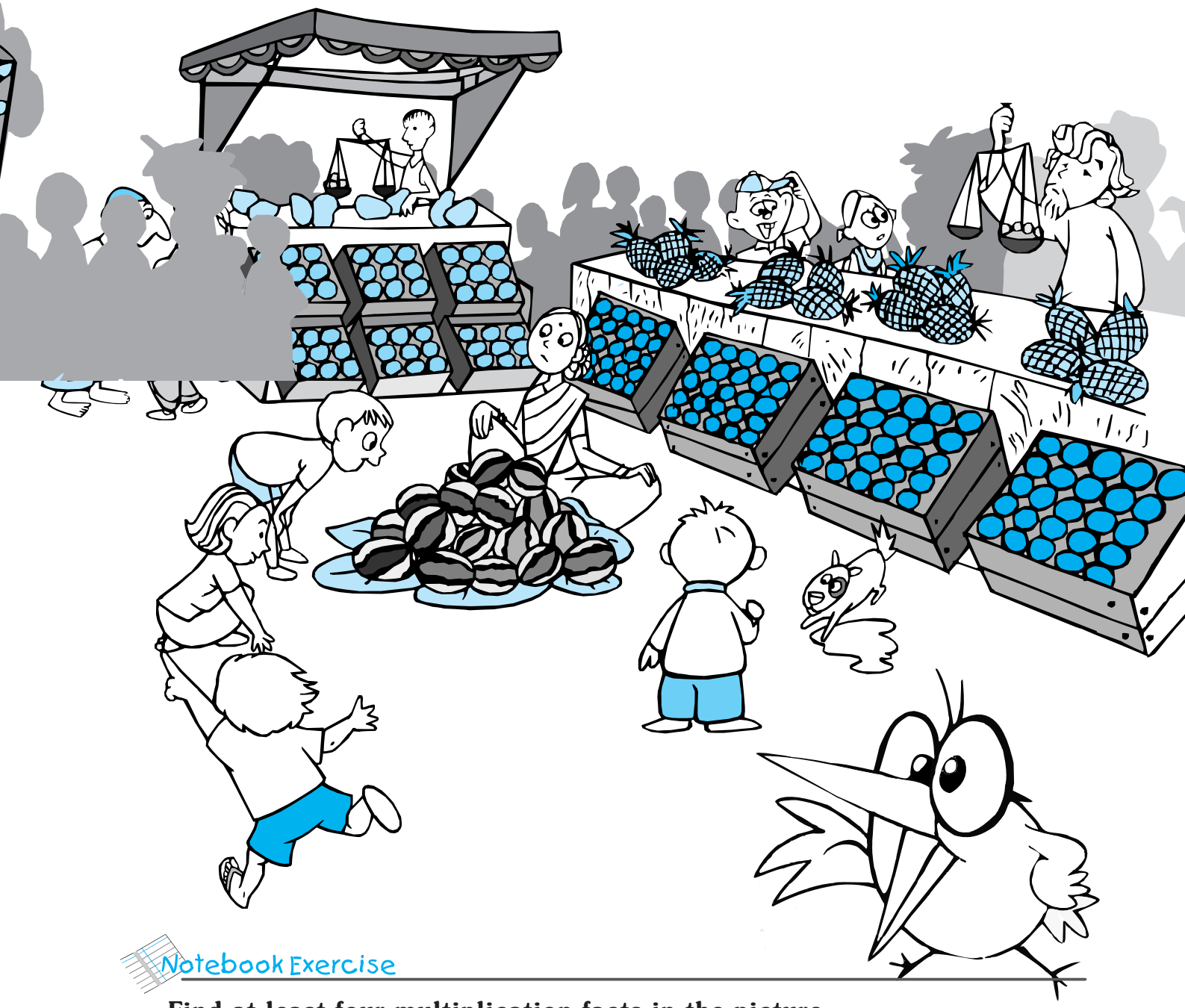
Table of 4

1	• • • •	4	1 x 4 = 4
2		8	2 x 4 = 8
3		___	___
4		___	___
5		___	___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___



Notebook Exercise

Make the tables of 5, 6, 7, 8, 9 and 10 with dots.



Notebook Exercise

Find at least four multiplication facts in the picture.

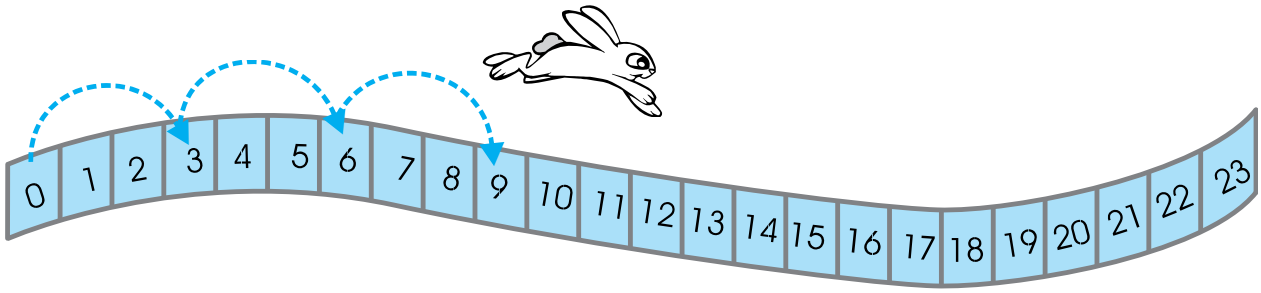
Make a table in your notebook like this.

Name of object	Multiplication fact	Write in words	Total
Pineapples on the left	$3 \times 4 = 12$	3 lots of 4 pineapples each	12 pineapples in all

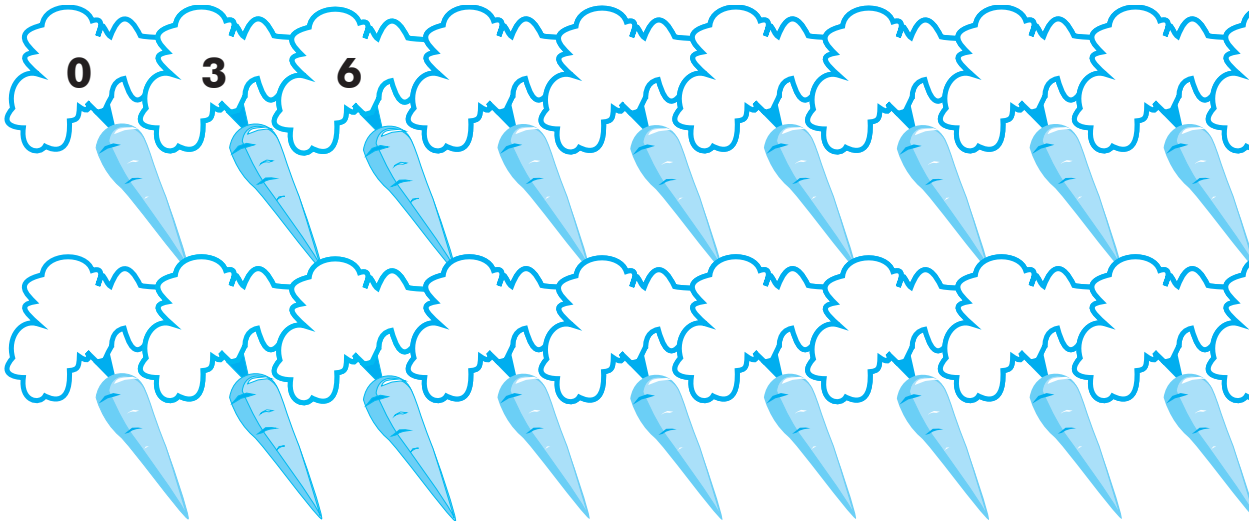
Can you find more multiplication facts?

Animal jumps

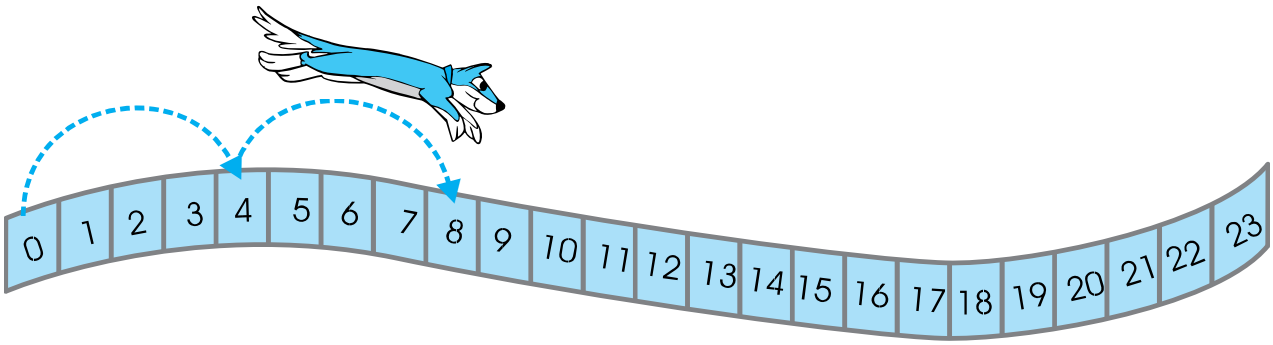
The rabbit jumps 3 steps at a time.



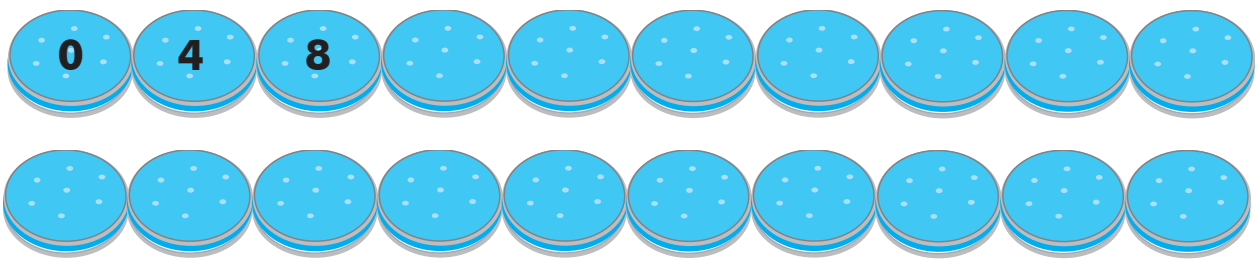
Which numbers will the rabbit touch?



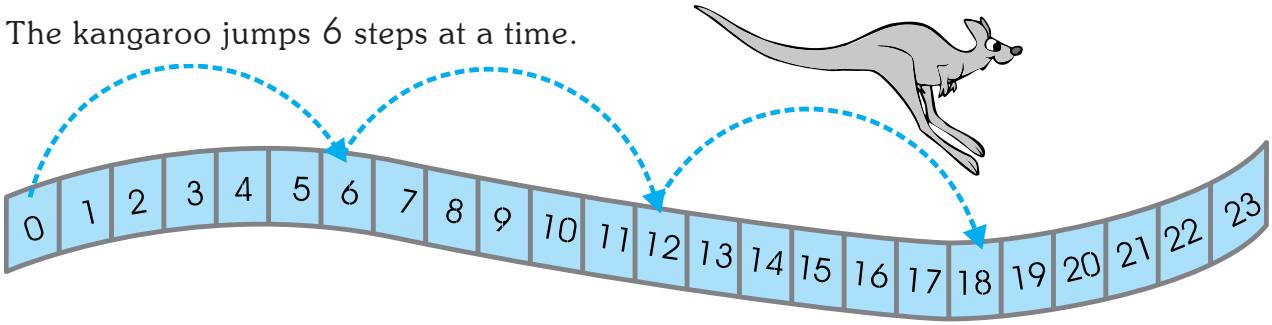
The dog jumps 4 steps at a time.



Which numbers will the dog touch?



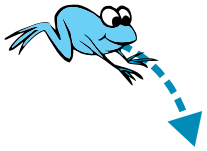
The kangaroo jumps 6 steps at a time.



Which numbers will the Kangaroo touch?

0 **6** **12**

The frog jumps 5 steps at a time.



Which numbers will the frog touch?

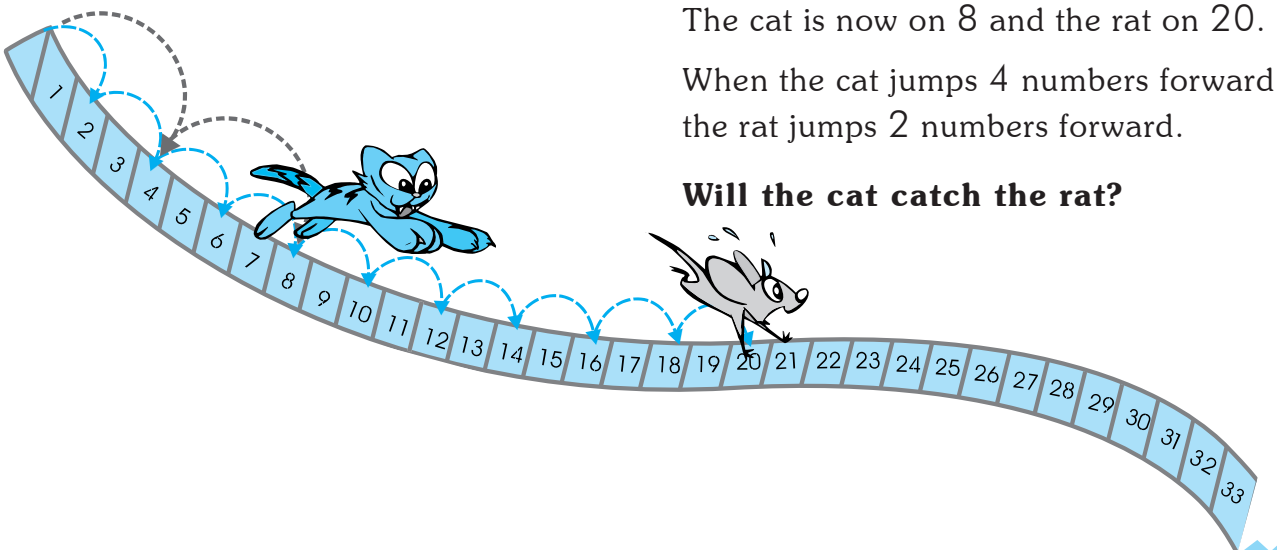
0 **5** **10**

If the cat and the rat land on the same number, the cat will catch the rat.

The cat is now on 8 and the rat on 20.

When the cat jumps 4 numbers forward, the rat jumps 2 numbers forward.

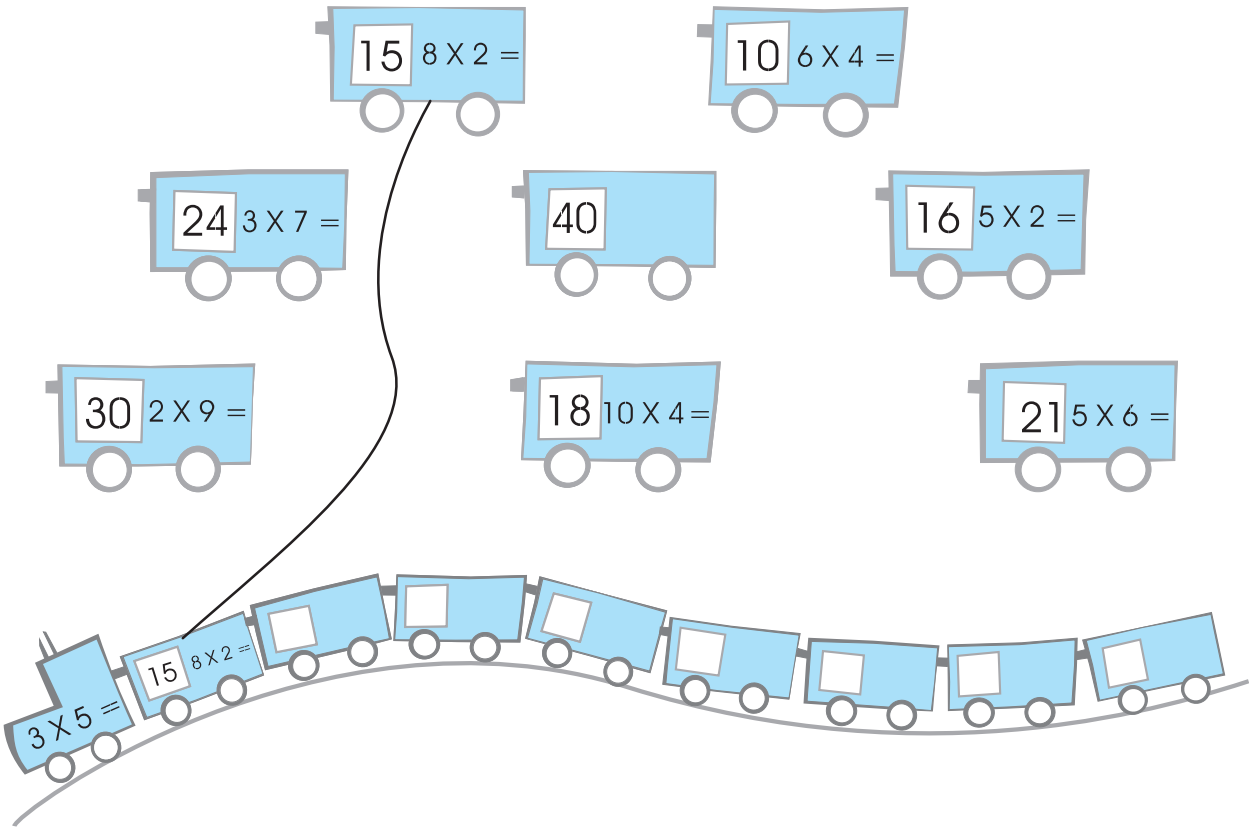
Will the cat catch the rat?



Linking the chain

Arrange the bogies of the train so that the answer to each multiplication fact appears on the bogie next in the line.

Draw lines to show where each bogie must be placed.



On a sheet of paper, copy the figure shown below. Cut and make ten cards. You can play different games with these cards. Some of these games are described on the next page.

64 7 X 3 =	21 5 X 4 =	20 6 X 3 =	18 2 X 7 =	14 4 X 3 =
12 9 X 5 =	45 6 X 6 =	36 9 X 3 =	27 7 X 5 =	35 8 X 8 =

Classroom Game

Shuffle the cards and distribute them among ten children.

Have one of the children read out the question on his card. The child who has the correct answer on her card stands up. She then reads the question on her card. Continue and complete the chain.

GAME FOR TWO

Shuffle and put the cards facing down. Keep one card facing up to start the chain. Take turns to pick up a card. If it matches put it in the chain and score a point. Otherwise put the card facing down again. Continue till the chain is complete.

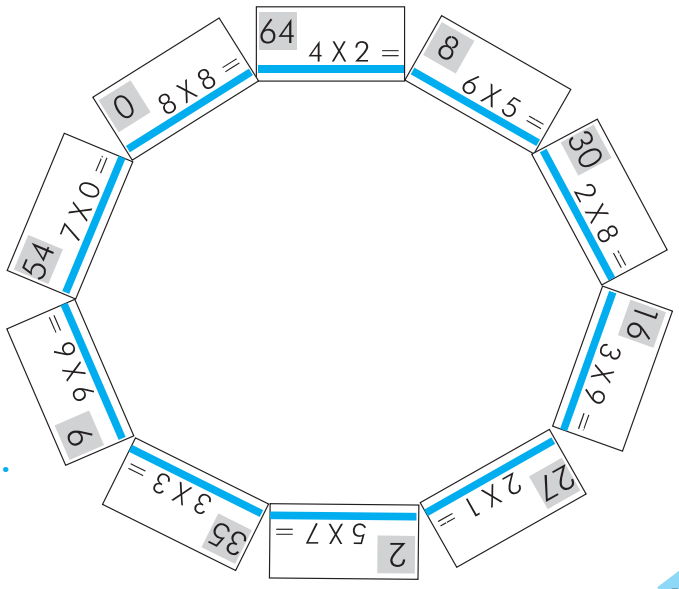
Complete the chain.

14	4 × 3 =	12	9 × 5 =	

Make your own set of chain cards.

Think, Think !

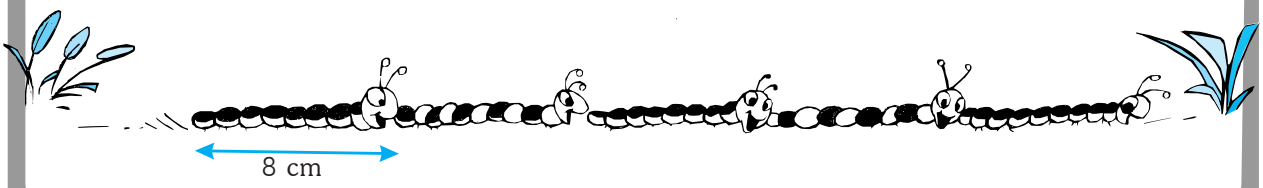
Why did Eti arrange the cards in a chain like this?



Learn the multiplication tables.
Practice recalling the tables.

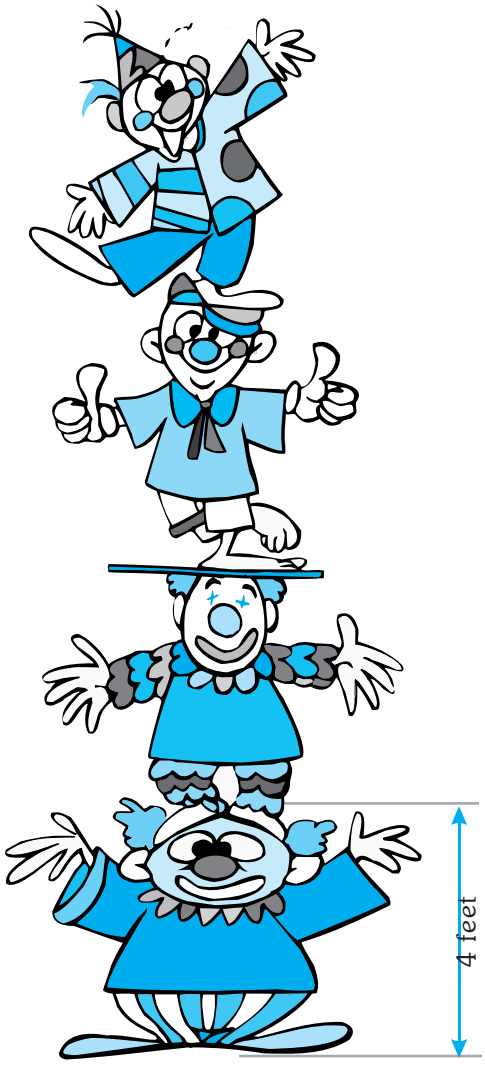
Tall stories

Each worm is 8 centimeters long. How long is the worm line?

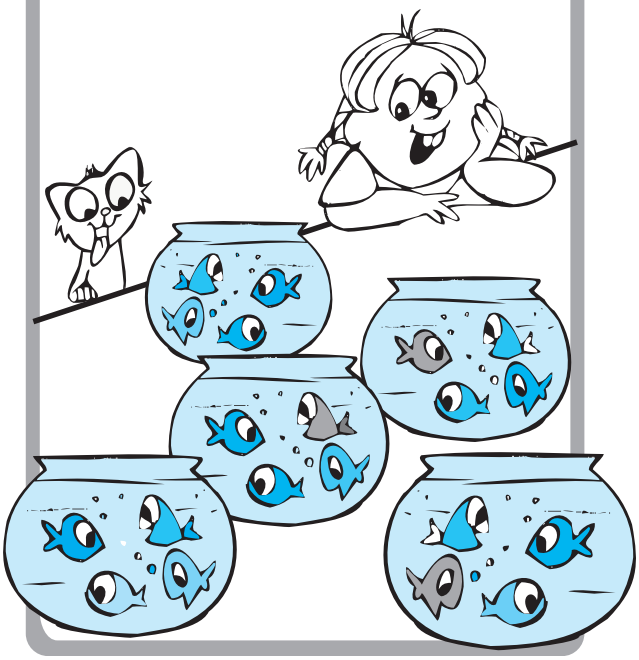


Each clown is 4 feet tall.

How tall is the pillar of clowns?



Parveen filled 5 bottles with water. In each bottle she put 4 fish. How many fish did she put in all?

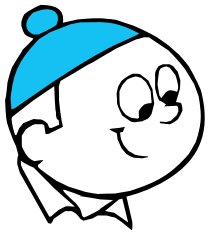


Complete the picture for each story.

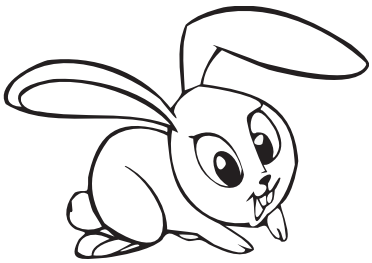
Write the multiplication fact and find the answer.

Chunindar put 5 cups on the table. In each cup he put 3 marbles.

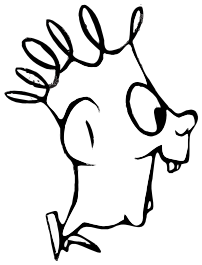
How many marbles did he put in all?



The rabbit ate 4 carrots on Sunday, 4 carrots on Monday,
4 carrots every day for the whole week.
How many carrots did he eat that week?



Eti counted 9 cars lined up on the road.
Each car had two people sitting inside.
How many people altogether?



Notebook Exercise

Complete the multiplication facts.

Make your own stories for each fact.

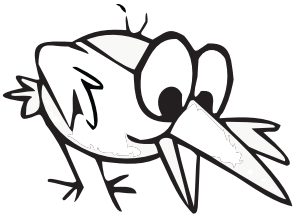
$7 \times 7 =$ $8 \times 5 =$ $9 \times 8 =$

The 10×10 dot grid

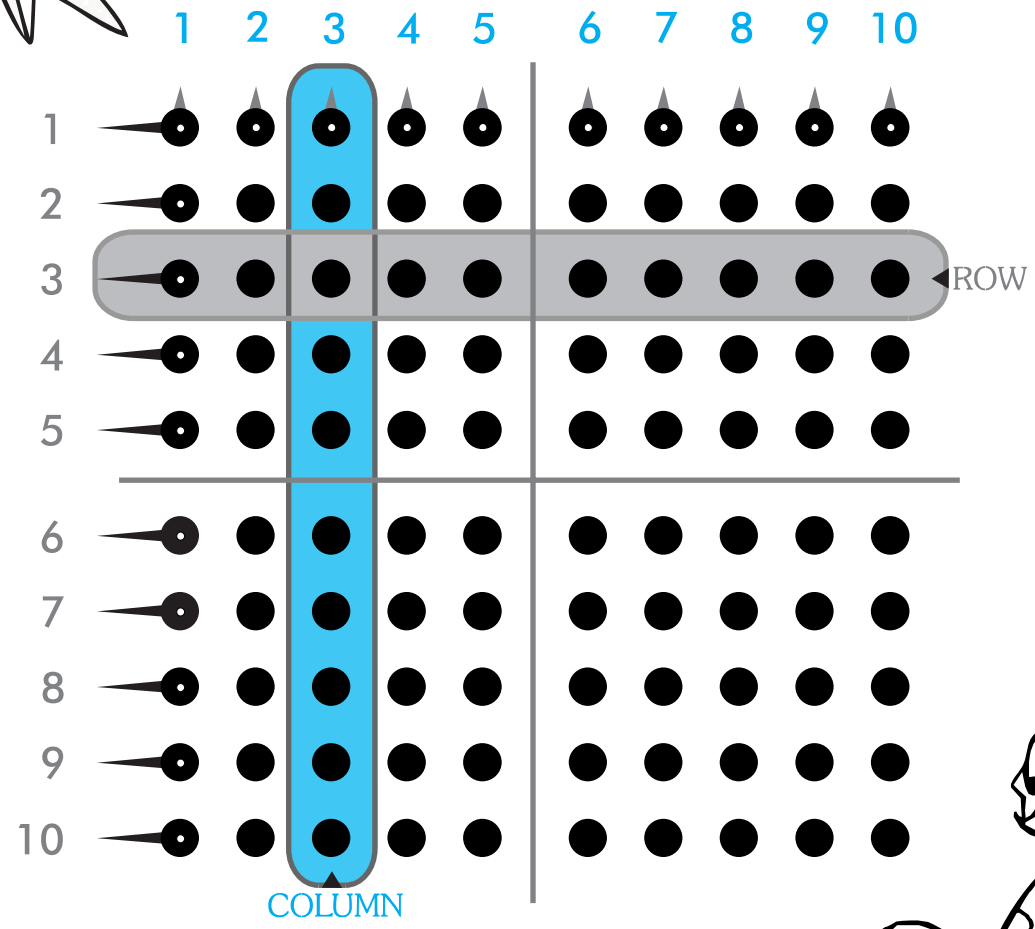
The 10 ×10 dot grid has many dots arranged in a square pattern.

Guess how many dots there are._____

The dots are arranged in rows and columns. Rows are horizontal and columns are vertical.



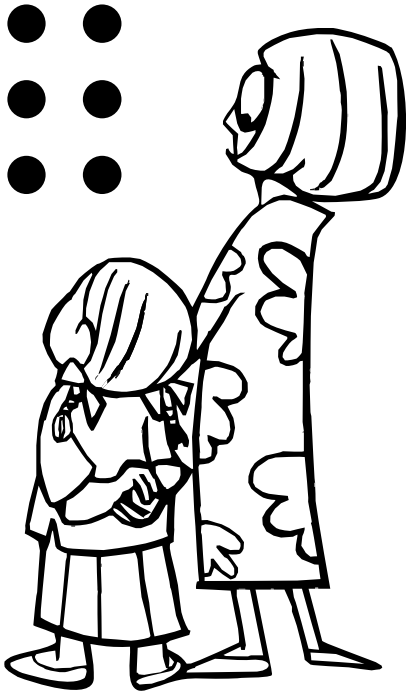
Each row and each column has a leader. The row leaders have long noses. The column leaders have short noses.



How many rows are there in the dot grid?

How many columns are there in the dot grid?

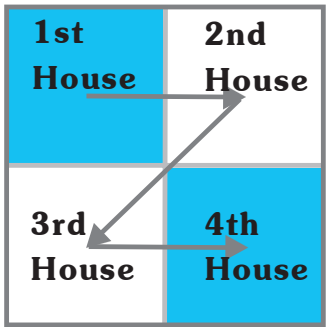
Circle the dot which is both a row leader and a column leader.



Make a 10 × 10 dot grid in your notebook.

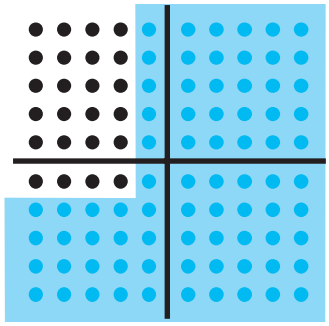
The 10 × 10 dot grid has four houses.
The houses are numbered in a 'Z' pattern.

Guess how many dots there are in each house.



How many rows and how many columns are shown?

Count the rows by counting the row leaders.
Count the columns by counting the column leaders.



_____ rows and _____ columns contain _____ dots.

Multiplication fact: 6 × 4 = 24

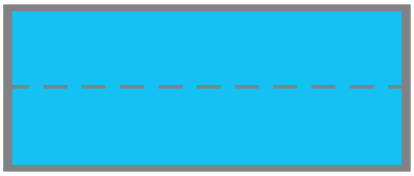
Classroom Activity

You can show different multiplication facts by using an L-mask to cover the dot grid.

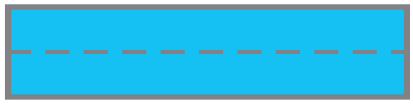
How to make an L-mask:

1 Tear out a page from on old magazine or notebook.

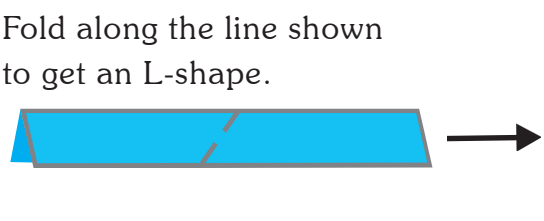
Fold the paper in half along its length.



2 Fold it once more.

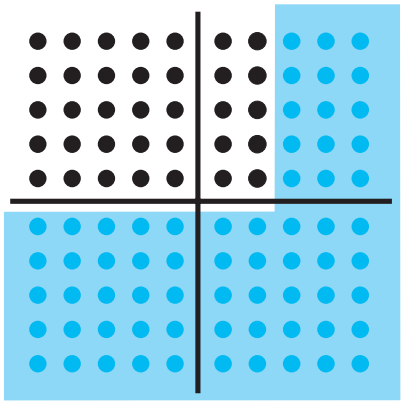


3 Fold along the line shown to get an L-shape.

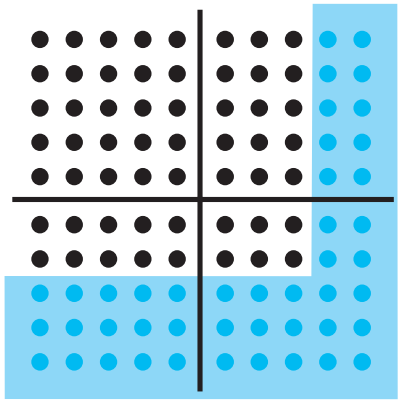


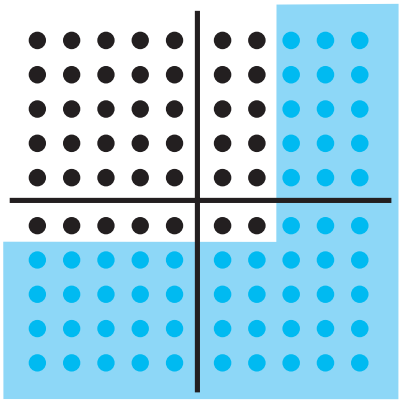
Make sure your 'L' is straight and not bent.

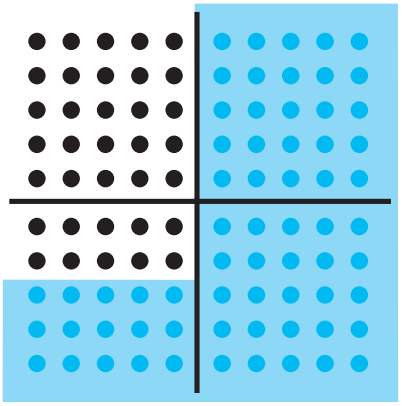
Write the multiplication facts shown on the dot grid.

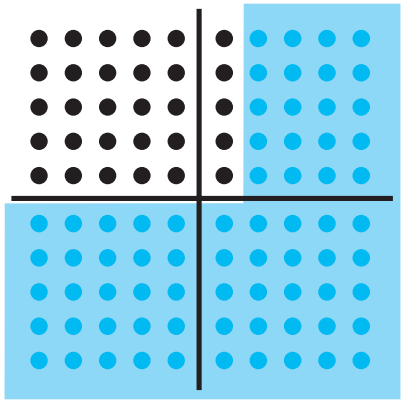


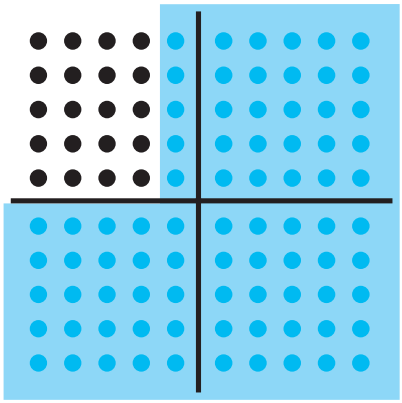
5×7

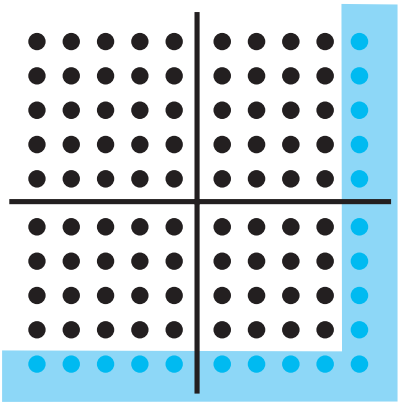


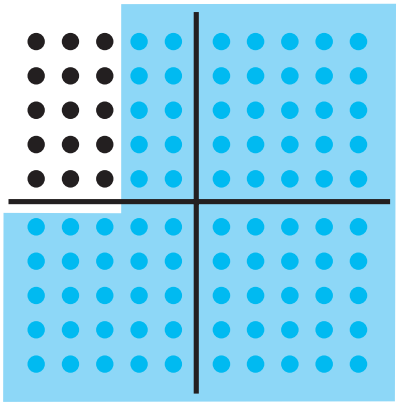


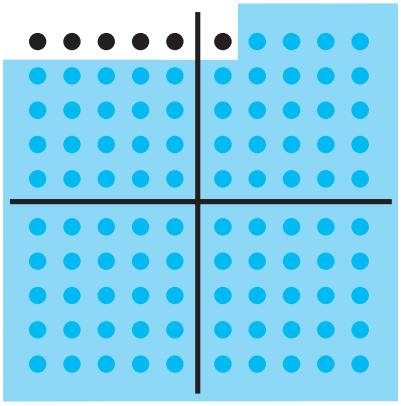




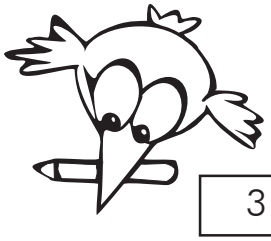




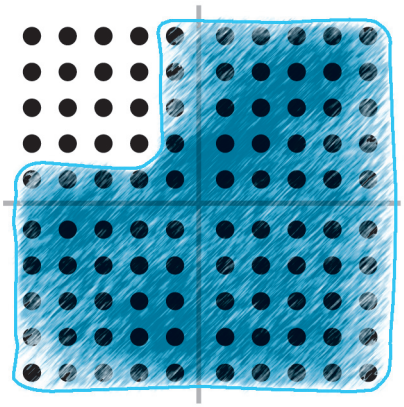




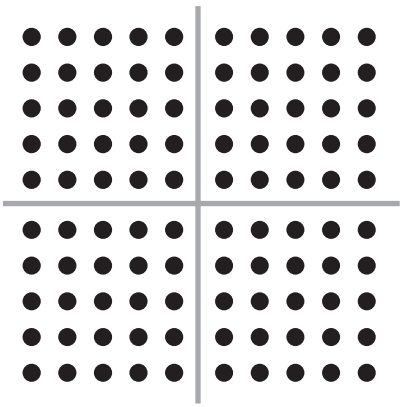
Show the multiplication fact on the dot grid.



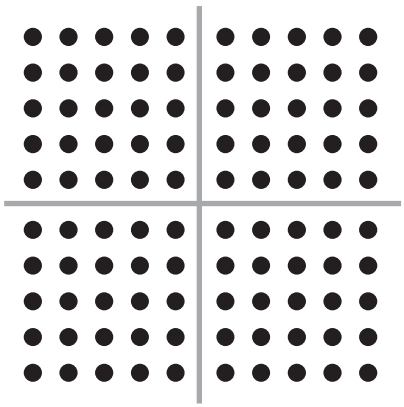
4 × 4



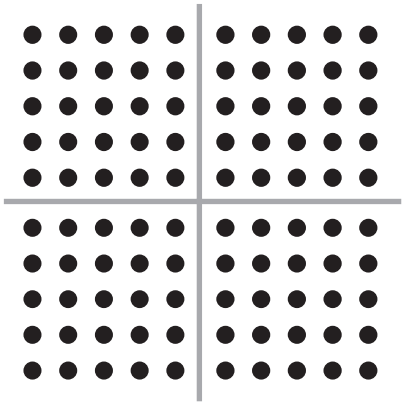
5 × 7



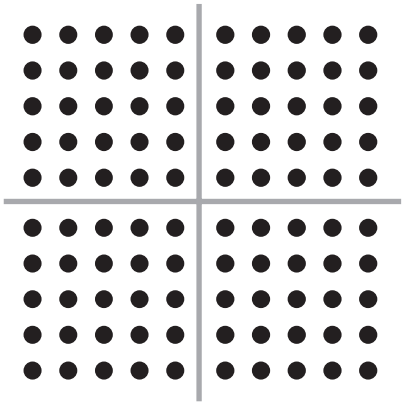
3 × 6



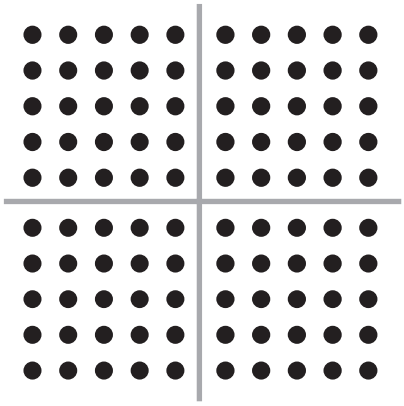
6 × 6



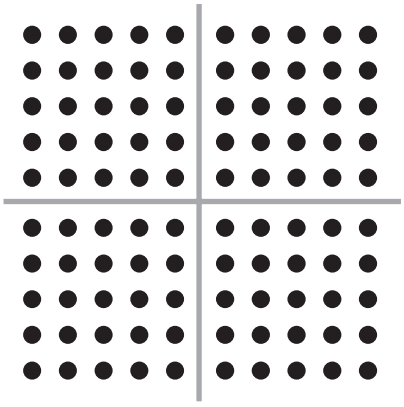
6 × 8



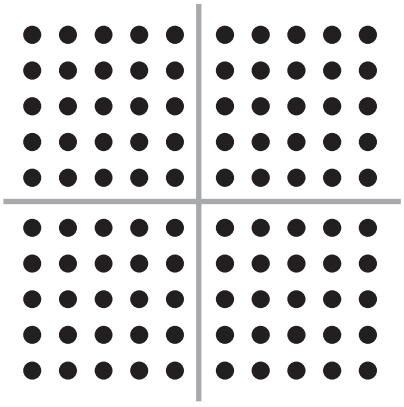
8 × 9



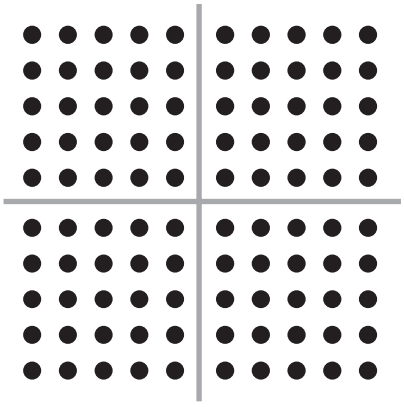
7 × 7



9 × 2

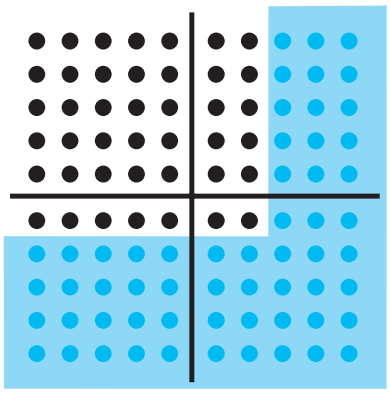


3 × 8

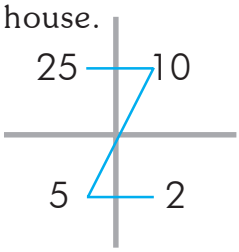


Write the multiplication fact shown and multiply on the dot grid.

6×7



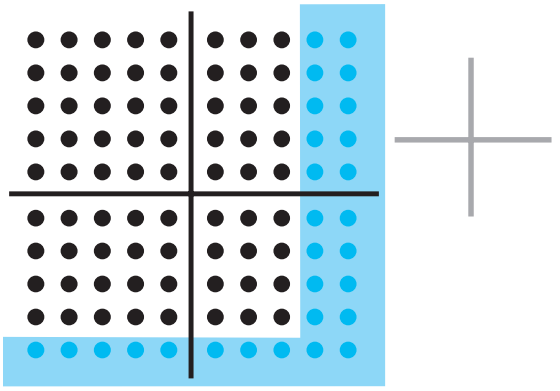
Write the number of dots in each house.

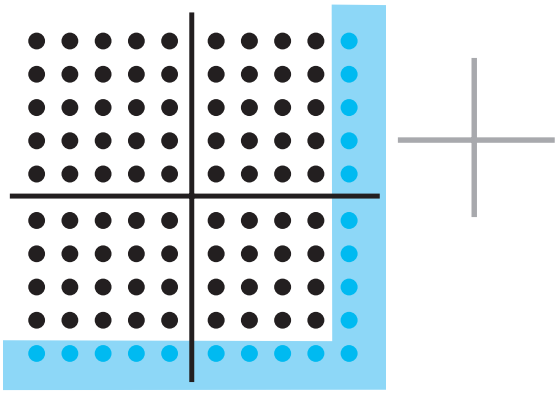


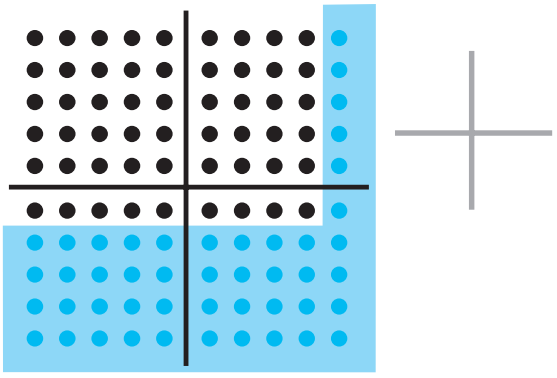
Add all the numbers.

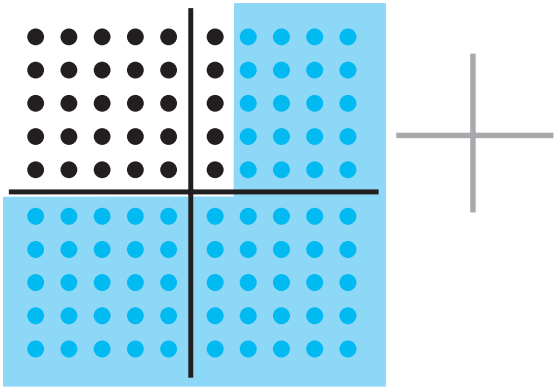
$25 + 10 + 5 + 2 = 42$

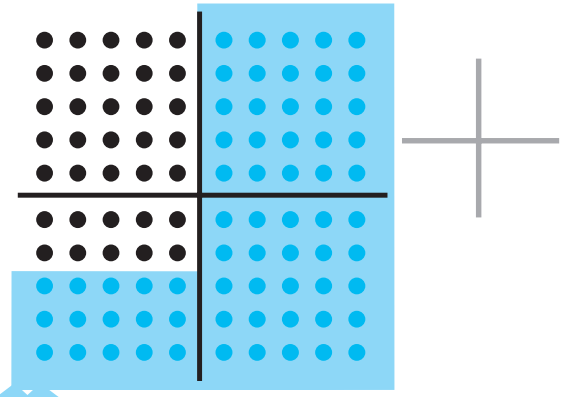
$6 \times 7 = 42$

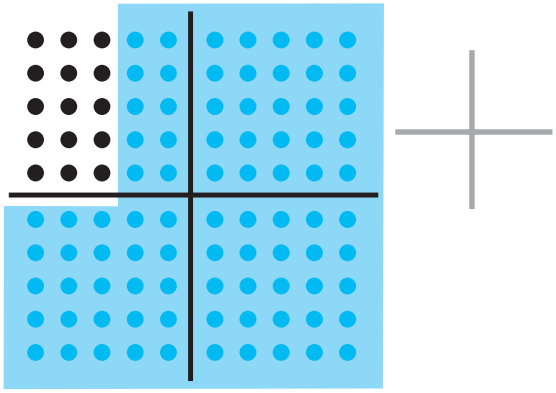




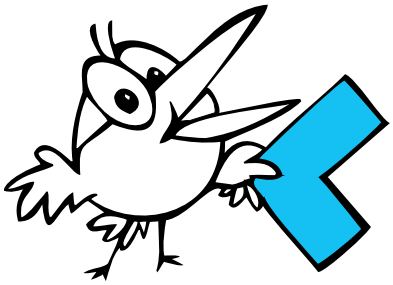






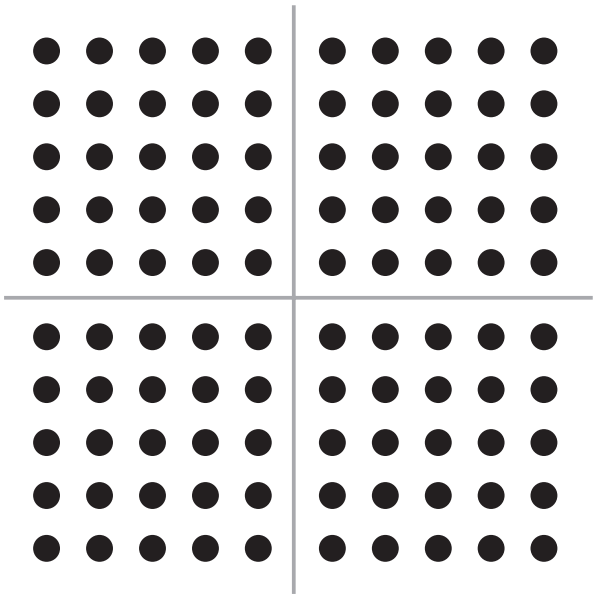


Multiply on the dot grid.



Use the L-mask to cover the dot grid for each problem.

Or you can draw lines with a pencil and then rub them out.



6 × 6

6 × 7

6 × 8

5 × 9

8 × 9

3 × 7

8 × 4

5 × 7

8 × 2

7 × 9

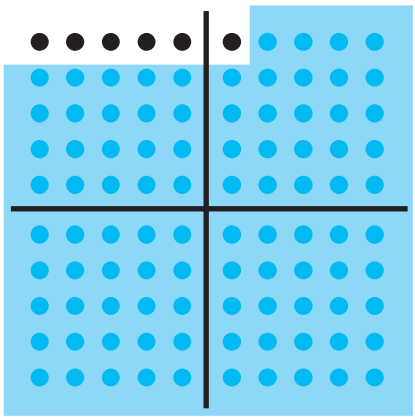
Multiplying by one and zero

Multiply on the dot grid using the L-mask or by drawing lines.

$6 \times 1 =$ $1 \times 6 =$

$8 \times 1 =$ $1 \times 3 =$

$10 \times 1 =$ $1 \times 7 =$



Multiply:

$11 \times 1 =$ $1 \times 44 =$

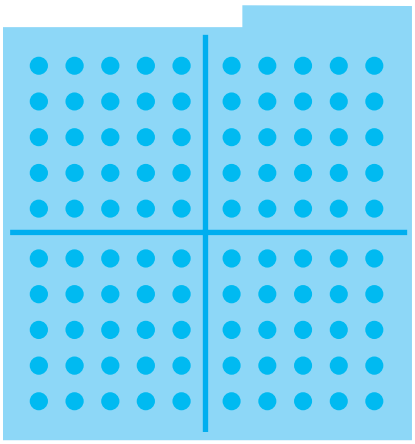
$28 \times 1 =$ $1 \times 75 =$

$1 \times 100 =$ $1 \times 1000 =$

Now try and multiply 0×3 on the dot grid.

What happens? Can you see any dots?

$0 \times 3 = 0$

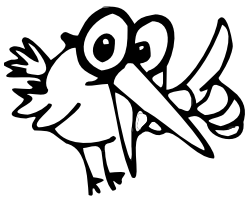


Multiply:

$0 \times 5 =$ $0 \times 23 =$

$7 \times 0 =$ $0 \times 75 =$

$10 \times 0 =$ $254 \times 0 =$



Any number multiplied by one gives the same number.

Any number multiplied by zero gives zero.

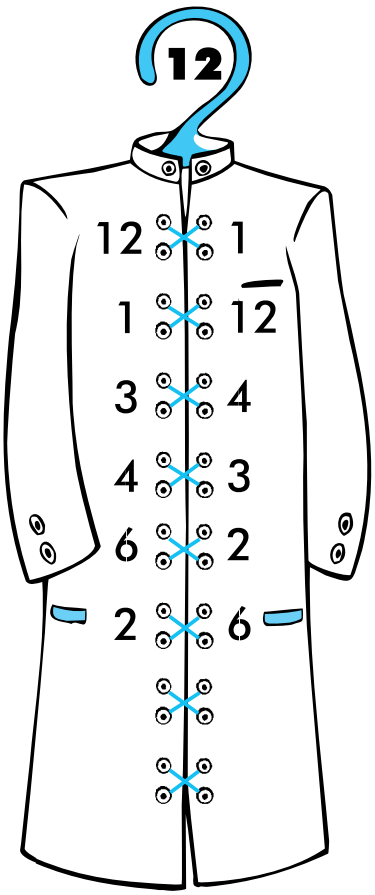
Notebook Exercise

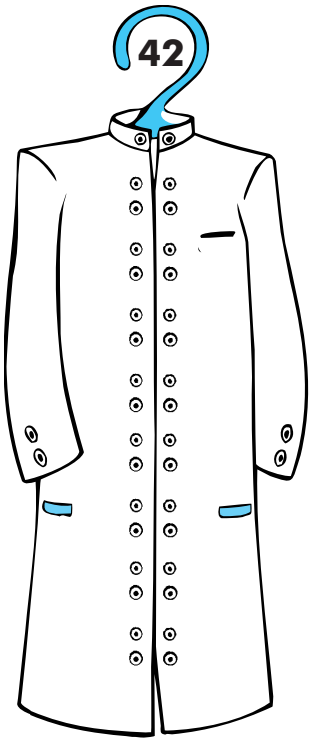
Multiply

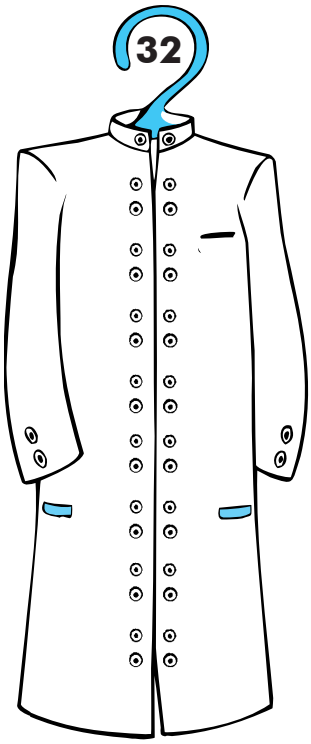
$98 \times 1 =$	$1 \times 371 =$	$0 \times 24 =$	$11 \times 1 =$
$0 \times 16 =$	$100 \times 0 =$	$1 \times 0 =$	$0 \times 0 =$

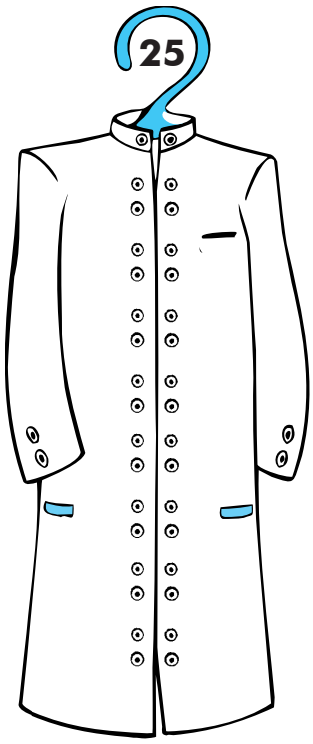
Multiplication facts

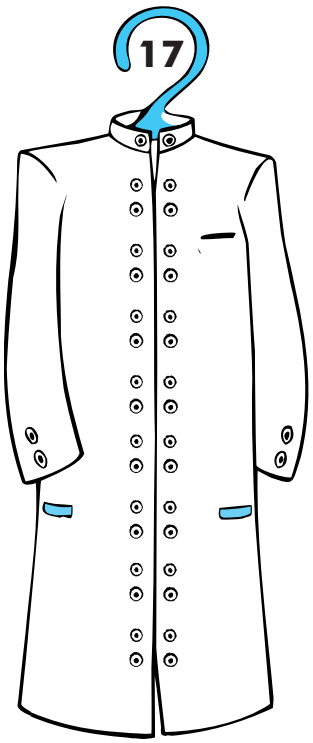
Write down the multiplication facts for these numbers.











A **factor** of a number appears in the multiplication fact for that number.

For example, for the number 12, 3×4 is a multiplication fact. So 3 and 4 are factors of 12.

You can find all the factors of 12 by finding all the multiplication facts for 12: 1, 2, 3, 4, 6 and 12.

Notebook Exercise

Find at least 2 factors for these numbers: 16, 15, 10, 9, 25, 17

Find all the factors of these numbers: 10, 14, 19, 18, 24, 36

The multiplication chart race

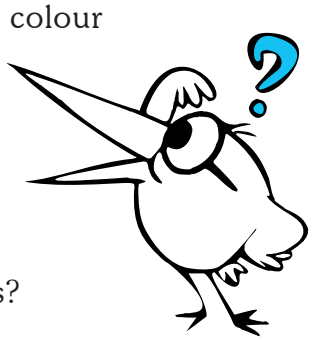
Fill each square on the chart by multiplying the row number and the column number.

Fill up the multiplication chart as quickly as you can.

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

On the multiplication chart shade all the even numbers with one colour and the odd numbers with a different colour.

How many odd numbers are there in the chart? ___



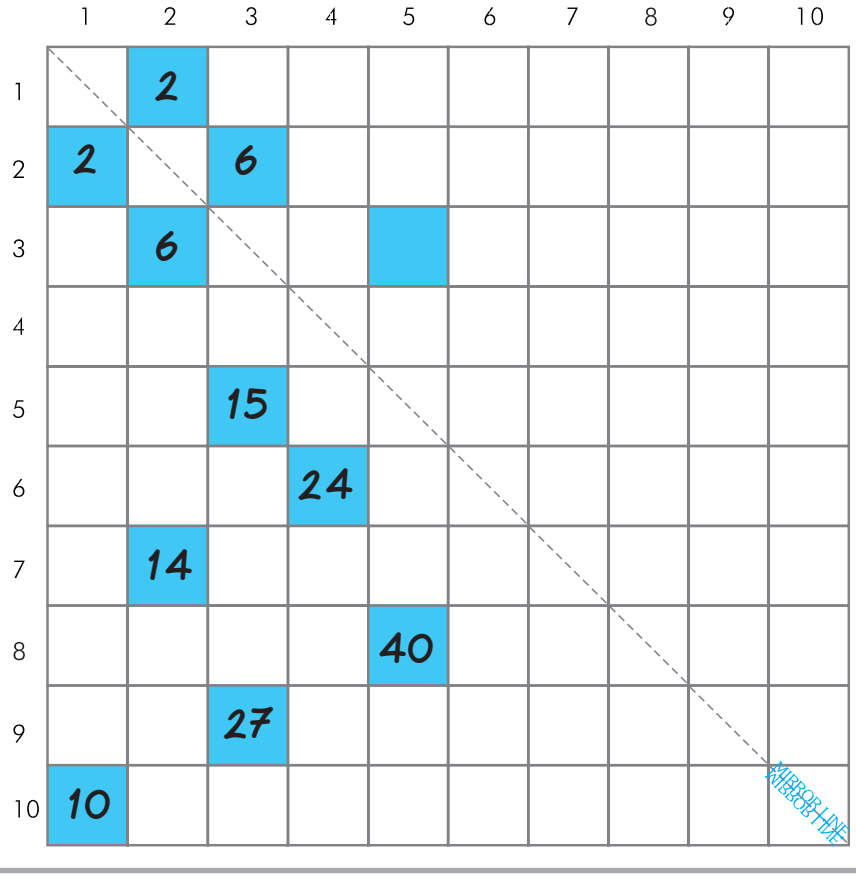
Think, Think!

Why do you get so many even numbers and so few odd numbers?

Mirror patterns

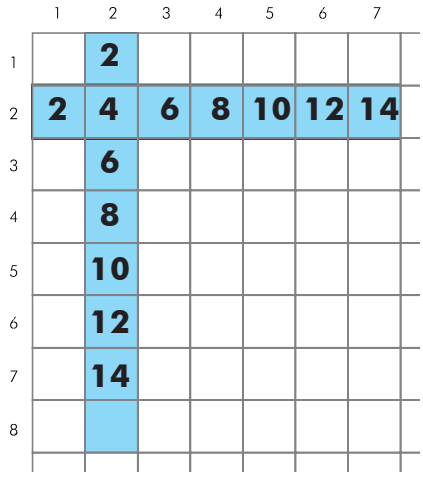
Some squares on the multiplication chart are shaded. Shade the squares which are their reflections about the mirror line. (Three reflected squares are already shaded.)

Fill the correct number in the shaded squares.



Think, think!

Why do the mirror images of the squares contain the same number?
Fill some more numbers on the chart and find their mirror images.
Which numbers on the chart don't have a mirror image?



The numbers which appear in the 2nd row are the same as the numbers which appear in the 2nd column.

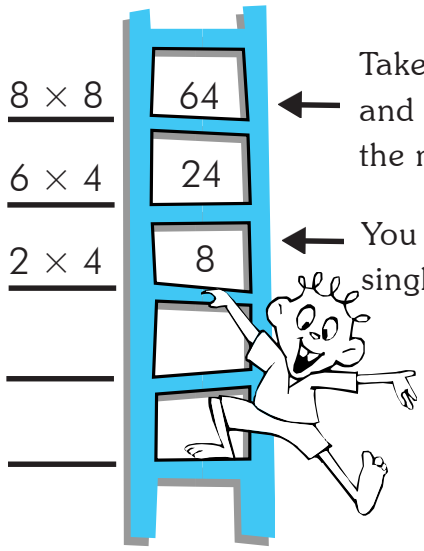
Think why this happens.

Is this true for the 3rd row and the 3rd column?
Is this true for other rows and columns?

Multiplication ladders

Go down the multiplication ladder!

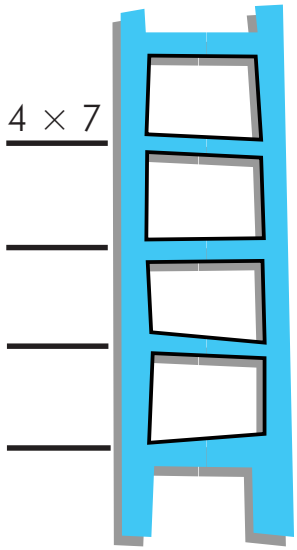
Start with a multiplication fact.

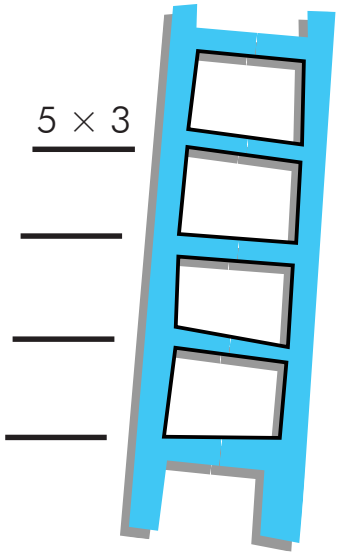


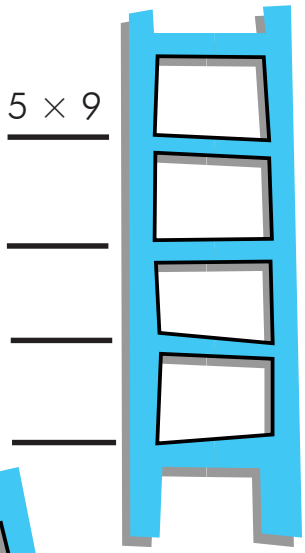
Take the digits in 64 and multiply them in the next step.

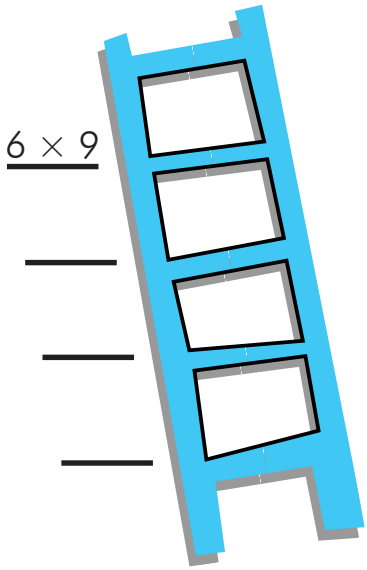
You have come to a single digit. So stop!

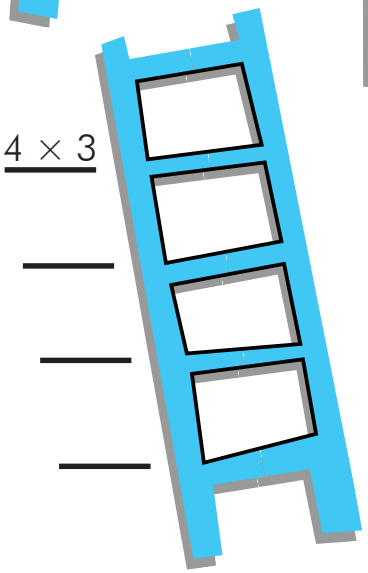
You went down three steps of the ladder.











Find a multiplication fact which gives four steps on the multiplication ladder.

Asking why

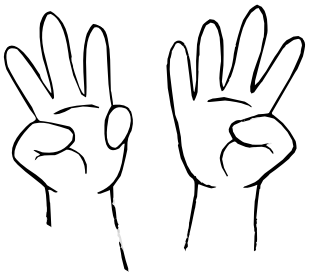
Add

4 + 3 = ____ 12 + 7 = ____

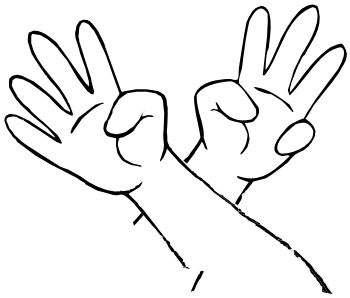
3 + 4 = ____ 7 + 12 = ____

Why do you get the same answer when you turn the numbers around?

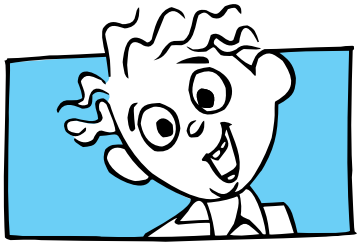
Javed explained it like this.



3 + 4

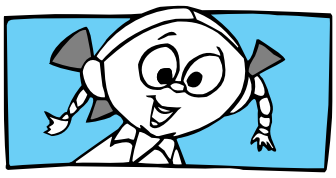


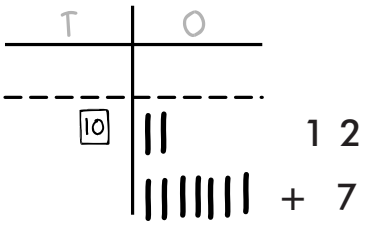
4 + 3

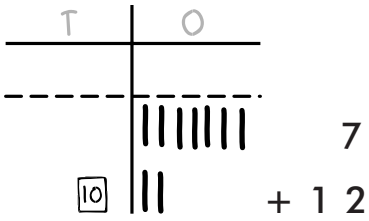


Both are the same.

Rani explained it by drawing matchsticks.







Both are the same!

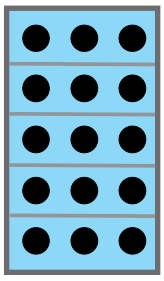
Multiply

5 × 3 = ____ 6 × 4 = ____

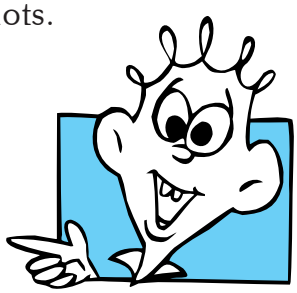
3 × 5 = ____ 4 × 6 = ____

Why do you get the same answer when you turn the numbers around?

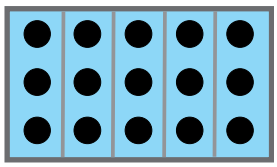
Eti explained it by drawing dots.



5 × 3

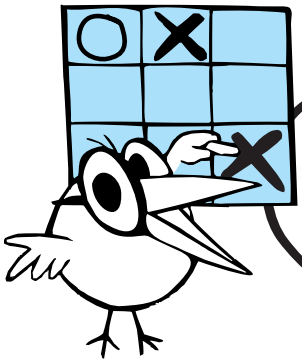


There are 15 dots.
Both are the same!



3 × 5

Tic tac times



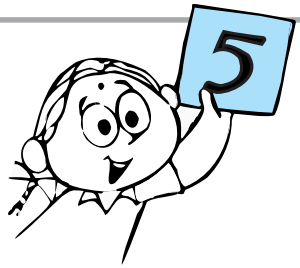
This game is like tic-tac-toe (or dots and crosses).

The winner tries to get three squares or numbers in a line.
You can get a number by choosing a factor and multiplying it with your opponent's factor.

Numberboard

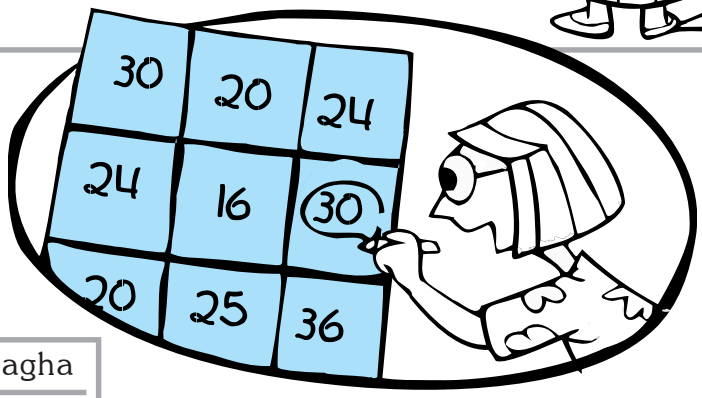
30	20	24
24	16	30
20	25	36

Play with these factors:

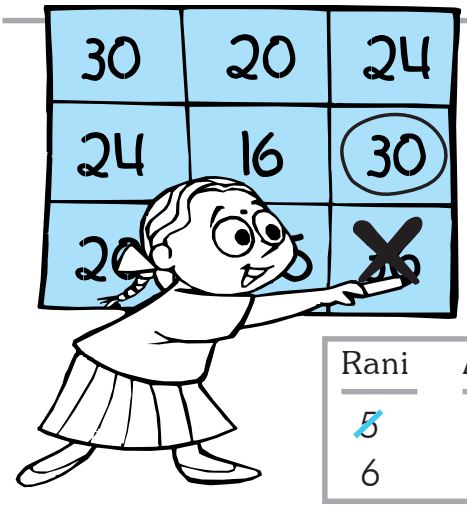


Rani chooses the factor 5 to start the game.

Rani	Anagha
5	6

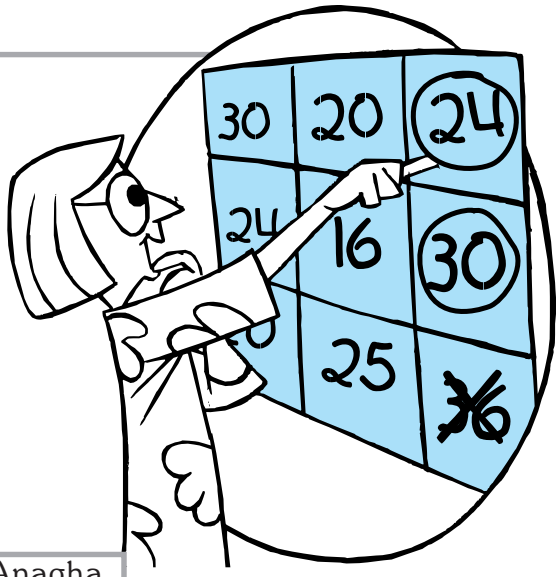


Anagha chooses 6. So she gets 30 (5 × 6).



Rani	Anagha
~~5~~ 6	6

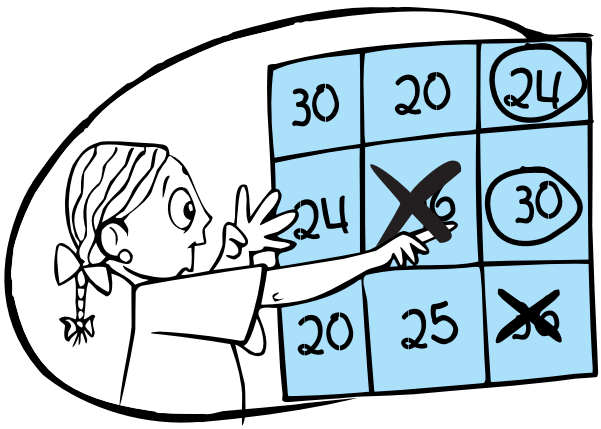
Rani now chooses 6.
So she gets 36 (6 × 6).



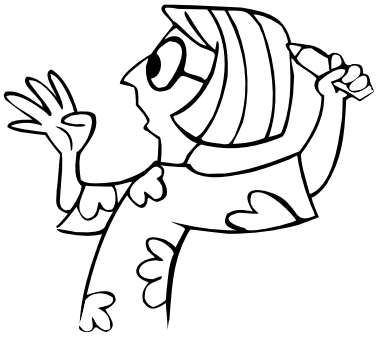
Rani	Anagha
~~5~~ 6	~~6~~ 4

Anagha chooses 4.
She gets 24 (6 × 4).

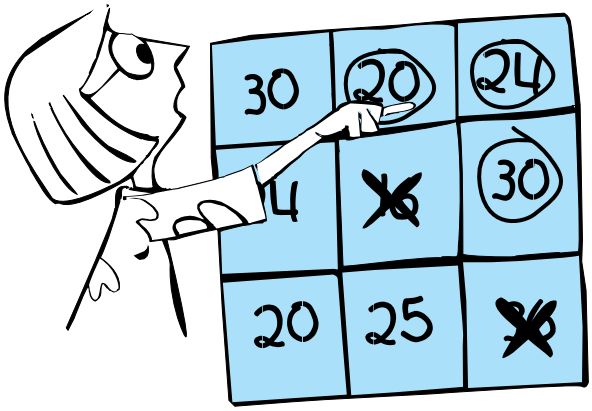
Rani	Anagha
~~5~~	~~6~~
~~6~~	4
4	



Rani chooses 4 and gets 16.

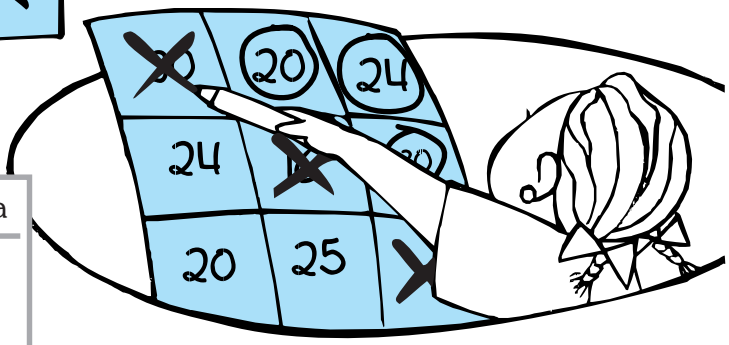


Anagha cannot choose 4 again because $4 \times 4 = 16$ is not free.



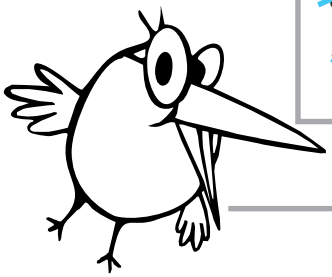
So she chooses 5. She gets 20.

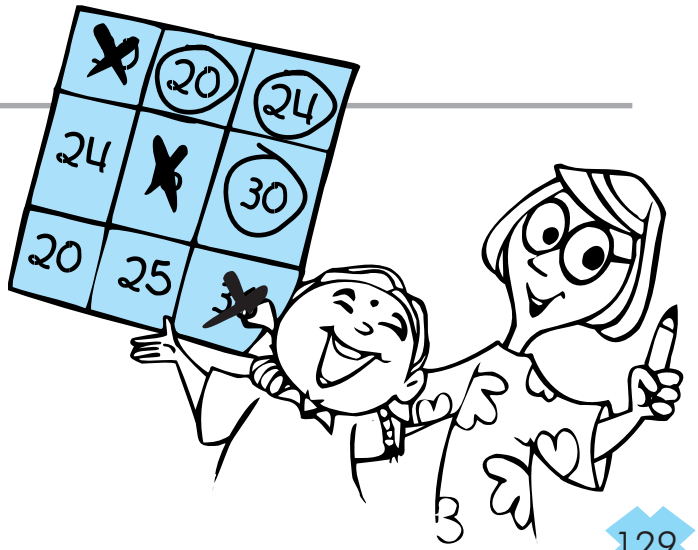
Rani	Anagha
~~5~~	~~6~~
~~6~~	~~4~~
4	5



Rani	Anagha
~~5~~	~~6~~
~~6~~	~~4~~
~~4~~	5
6	

Rani chooses 6 and wins!





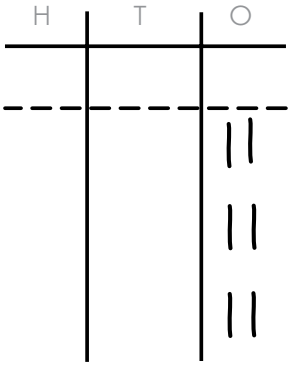
You must choose a factor so that you can put a circle or a cross on an empty square.

The game can end in a draw or can even hang! (When a player cannot choose a factor to get a number which is free.)

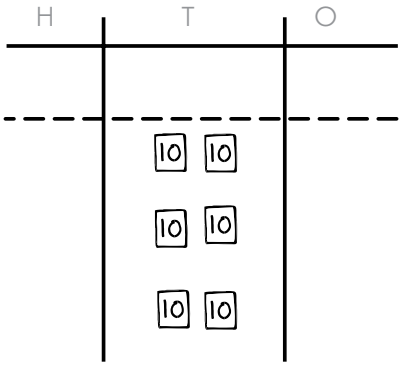
Multiplying tens and hundreds

Look carefully and understand the connection between multiplying ones, tens and hundreds.

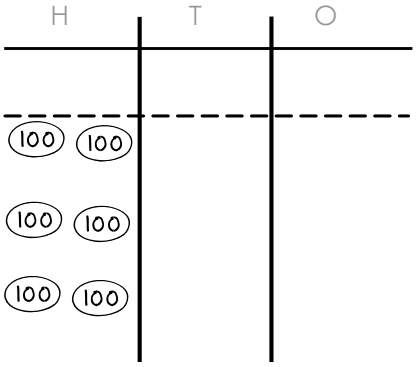
$3 \times 2 = 6$



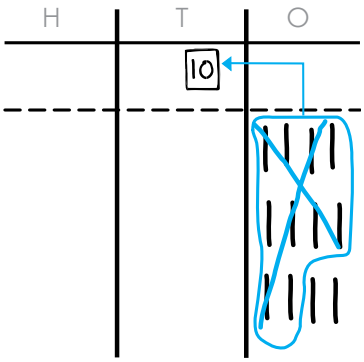
$3 \times 20 = 60$



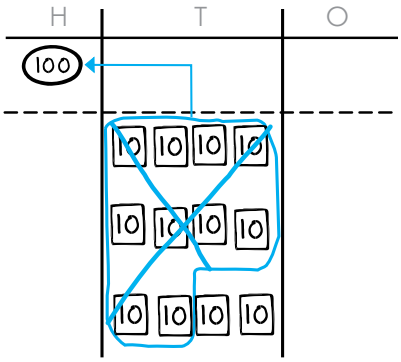
$3 \times 200 = 600$



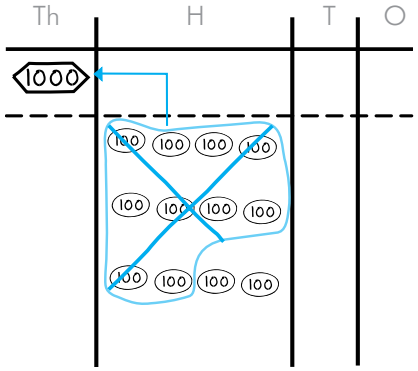
$3 \times 4 = 12$



$3 \times 40 = 120$



$3 \times 400 = 1200$



Multiply

$3 \times 3 =$	$2 \times 4 =$	$4 \times 3 =$	$6 \times 4 =$
$3 \times 30 =$	$2 \times 40 =$	$4 \times 30 =$	$6 \times 40 =$
$3 \times 300 =$	$2 \times 400 =$	$4 \times 300 =$	$6 \times 400 =$
$5 \times 7 =$	$5 \times 6 =$	$3 \times 7 =$	$4 \times 7 =$
$5 \times 70 =$	$50 \times 6 =$	$3 \times 70 =$	$40 \times 7 =$
$5 \times 700 =$	$500 \times 6 =$	$3 \times 700 =$	$400 \times 7 =$

Learn these patterns

$5 \times 10 =$	$3 \times 20 =$	$4 \times 70 =$	$4 \times 100 =$
$10 \times 6 =$	$5 \times 30 =$	$90 \times 4 =$	$100 \times 3 =$
$7 \times 10 =$	$40 \times 6 =$	$40 \times 9 =$	$6 \times 100 =$
$0 \times 10 =$	$8 \times 50 =$	$8 \times 40 =$	$100 \times 8 =$
$10 \times 8 =$	$9 \times 20 =$	$40 \times 8 =$	$9 \times 100 =$
$9 \times 10 =$	$0 \times 40 =$	$70 \times 9 =$	$10 \times 100 =$
$10 \times 10 =$	$8 \times 60 =$	$70 \times 10 =$	$100 \times 0 =$

T O 4 × 6 2 4	T O 4 0 × 6	H T O 4 0 0 × 6
T O 5 × 7	T O 5 0 × 7	H T O 5 0 0 × 7
T O 8 × 6	T O 8 0 × 6	H T O 8 0 0 × 6

$4 \times 300 =$

$200 \times 3 =$

$2 \times 800 =$

$700 \times 0 =$

$4 \times 600 =$

$5 \times 500 =$

$600 \times 7 =$

$8 \times 400 =$

$700 \times 8 =$

$9 \times 500 =$

$10 \times 500 =$

Multiplying two-digit numbers

32 × 3

Split 32 into 30 and 2.

30 and 2

× 3

90 and 6 = 96

32 × 3 = 96

36 × 4

30 and 6

× 4

120 and 24 = 144

36 × 4 = 144

Multiply

43 × 2

37 × 5

63 × 5

54 × 6

Notebook Exercise

Multiply

39 × 8 54 × 6 49 × 7 23 × 9 78 × 9

Multiplying three-digit numbers

134 × 2

Split 134 into 100 and 30 and 4.

100 and 30 and 4

× 2

200 and 60 and 8 = 268

134 × 2 = 268

Multiply

321 × 3

---

346 × 4

300 and 40 and 6

× 4

1200 and 160 and 24 = 1384

1200
+ 160
+ 24
1384

346 × 4 = 1384

Multiply

456 × 3

265 × 4

Multiplication – the short method

example

23 × 3

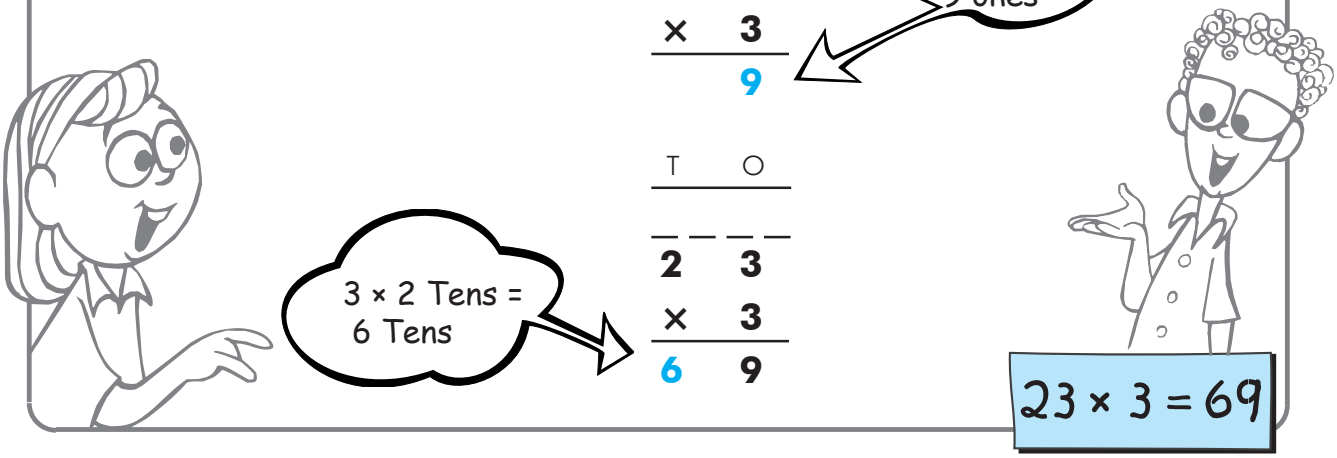
Space for carry over

T	O
2	3
×	3
	9

3 × 3 Ones = 9 ones

T	O
2	3
×	3
6	9

3 × 2 Tens = 6 Tens



23 × 3 = 69

example

36 × 4

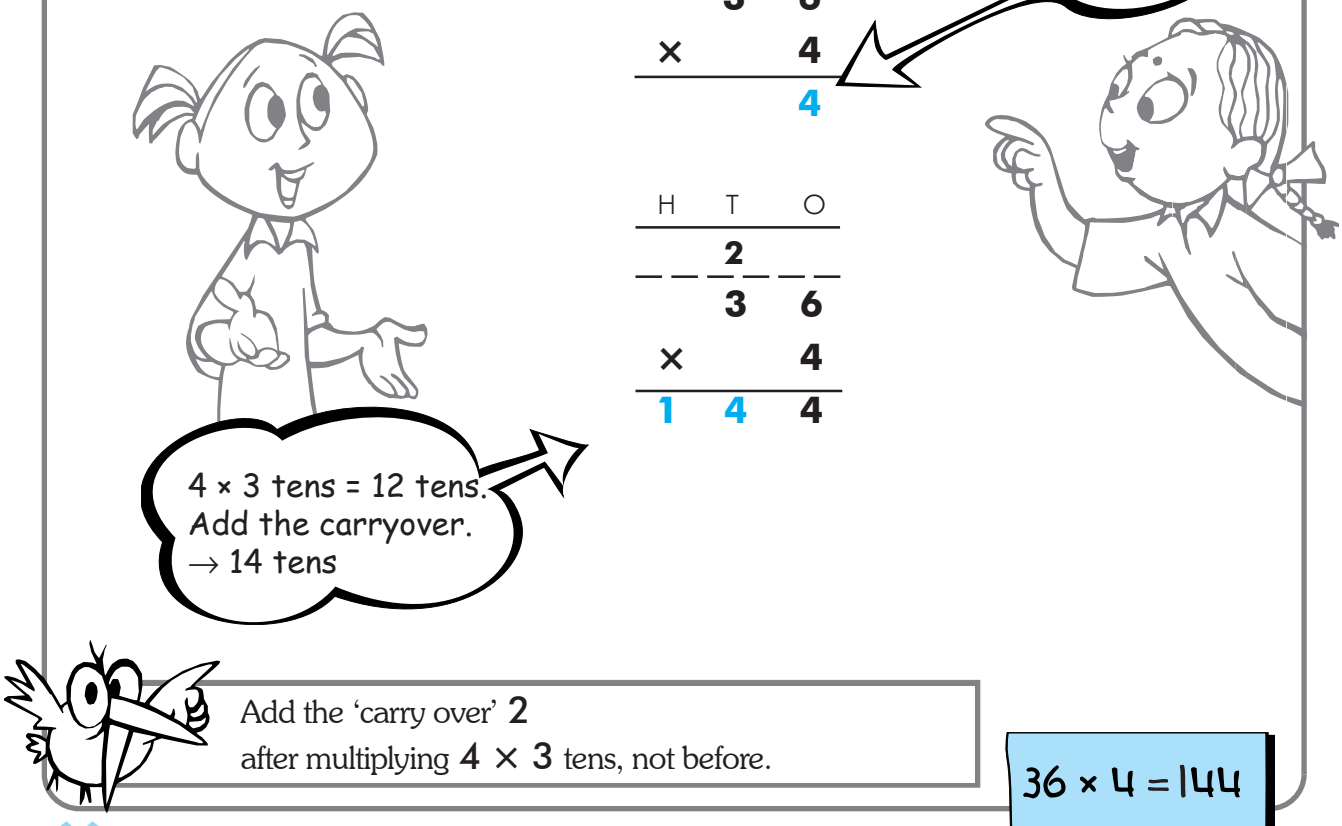
Space for carry over

H	T	O
	2	
	3	6
×		4
		4

4 × 6 Ones = 2 tens and 4 Ones

H	T	O
	2	
	3	6
×		4
1	4	4

4 × 3 tens = 12 tens. Add the carryover. → 14 tens



Add the 'carry over' 2 after multiplying 4 × 3 tens, not before.

36 × 4 = 144

Multiply by both the long and the short method.

34×2

47×4

342×2

254×3

Multiply only by the short method.

T	O
3	4
×	2

T	O
3	5
×	2

T	O
5	3
×	2

T	O
4	6
×	3

T	O
6	4
×	4

T	O
5	6
×	5

T	O
9	8
×	5

T	O
6	7
×	6

T	O
7	7
×	8

T	O
8	7
×	9

H	T	O
2	1	3
×		3

H	T	O
3	4	2
×		2

H	T	O
1	0	4
×		2

H	T	O
4	0	3
×		3

H	T	O
3	1	5
×		2

H	T	O
3	1	0
×		4

H	T	O
4	3	5
×		3

H	T	O
3	6	8
×		2

H	T	O
1	3	4
×		4

H	T	O
1	3	4
×		5

H	T	O
3	4	5
×		4

H	T	O
4	6	2
×		6

H	T	O
5	6	9
×		5

H	T	O
6	7	6
×		7

H	T	O
8	3	6
×		8

Learn these patterns

$10 \times 20 =$	$30 \times 20 =$	$20 \times 90 =$	$10 \times 300 =$
$10 \times 40 =$	$30 \times 30 =$	$50 \times 50 =$	$10 \times 600 =$
$60 \times 10 =$	$40 \times 20 =$	$50 \times 80 =$	$400 \times 10 =$
$30 \times 10 =$	$60 \times 40 =$	$70 \times 60 =$	$100 \times 10 =$
$10 \times 10 =$	$50 \times 30 =$	$80 \times 60 =$	$700 \times 10 =$
$70 \times 10 =$	$30 \times 70 =$	$90 \times 60 =$	$10 \times 400 =$
$10 \times 80 =$	$40 \times 60 =$	$70 \times 90 =$	$800 \times 10 =$
$90 \times 10 =$	$80 \times 40 =$	$90 \times 90 =$	$10 \times 500 =$
$100 \times 10 =$	$90 \times 30 =$	$90 \times 100 =$	$10 \times 1000 =$

$400 \times 20 =$	$2 \times 1000 =$	$8 \times 1000 =$	$5 \times 5000 =$
$200 \times 30 =$	$1000 \times 1 =$	$1000 \times 9 =$	$7 \times 4000 =$
$500 \times 20 =$	$0 \times 1000 =$	$10 \times 1000 =$	$2000 \times 9 =$
$40 \times 800 =$	$1000 \times 0 =$	$2 \times 4000 =$	$9000 \times 4 =$
$500 \times 30 =$	$1000 \times 3 =$	$3000 \times 3 =$	$4000 \times 9 =$
$500 \times 60 =$	$1000 \times 5 =$	$2000 \times 1 =$	$6000 \times 7 =$
$700 \times 30 =$	$4 \times 1000 =$	$0 \times 4000 =$	$8 \times 8000 =$
$50 \times 700 =$	$6 \times 1000 =$	5000×0	$9 \times 5000 =$
$80 \times 600 =$	$1000 \times 7 =$	$6000 \times 3 =$	$10 \times 5000 =$

Notebook Exercise

Multiply by splitting into hundreds, tens and ones.

24 × 5	36 × 7	243 × 5	619 × 3
558 × 6	376× 8	459 × 7	736 × 9

Do these multiplication problems also by the short method.

Write down the multiplication facts for these numbers:

36, 27, 18, 16, 23, 44

Find all the factors of 10, 20, 32, 42, 28, 23.

Strike out the numbers which are not factors of 18.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Strike out the numbers which are not factors of 24.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

Multiply on the dot grid.

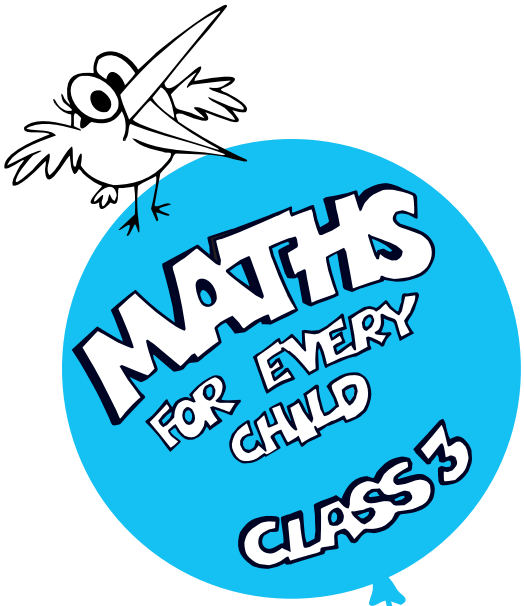
6 × 5 3 × 8 5 × 9 7 × 7 8 × 6 9 × 8.

Learn these multiplication facts.

5 × 5 =	4 × 4 =	6 × 6 =	3 × 3 =
9 × 9 =	8 × 8 =	7 × 7 =	10 × 10 =

Write a story problem for each of these multiplication facts.

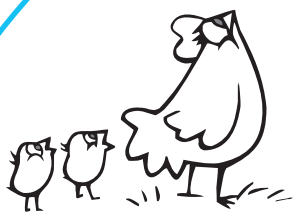
6 × 5 = 3 × 7 = 5 × 4 = 8 × 7 =



PART A

Text-cum-workbook

Author
K. Subramaniam



Homi Bhabha Curriculum for Primary Mathematics

Pilot Version

Homi Bhabha Centre for Science Education
Tata Institute of Fundamental Research, V. N. Purav Marg, Mankhurd, Mumbai 400 088

Maths for Every Child

Text-cum-workbook

Class III

Pilot Edition, 2001 Reprinted, 2006, 2011

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Published by

Homi Bhabha Centre for Science Education
Tata Institute of Fundamental Research
V.N. Purav Marg, Mankhurd. Mumbai 400 088

Printed at

Sai Printers, Gala No. 50, Bharat Bazar,
Gandhi Nagar, Worli, Mumbai 400 018

General preface

Not a day passes in our country when somebody somewhere has not criticized our system of education, particularly our school education. A great many ills and inadequacies of the system probably flow from extraneous causes and need socio-political initiatives that go beyond mere reforms in the school curriculum. Some problems however arise directly from the curriculum – text books, teaching and evaluation practices. We need to keep these problems in view and to continually devise new curricula to overcome them.

Curricular reform efforts and innovations are not new to our country. Nearly every decade, there have been initiatives by the Central and State government agencies to effect changes in curricula. Several independent school networks and voluntary groups have brought out their own textbooks and related materials. There is no doubt that significant progress has been made by the country in better conceptualization of the school curriculum at primary, middle and secondary levels. The paradigms of school curriculum in India have steadily evolved and become more relevant and modern. Unfortunately, the over-all deterioration of the system due to extraneous factors has tended to obscure these gains. Also, and most important for our purpose here, there is a large gap between the generally agreed objectives of the curriculum and their actual translation into textbooks and teaching practices.

Homi Bhabha Curriculum is basically an attempt to close this gap as much as possible. It is not conceived to be a revolutionary curriculum. The broad aims of the curriculum are much the same as those articulated in countless reports and articles of different education departments and agencies. The idea is not to produce a fanciful, 'museum-piece' curriculum that nobody would adopt, but to attempt to discover a sound and wholesome curriculum that is practical to implement in our school system. 'Practical' is, however, not to be regarded as a euphemism for the status quo. As the users will find out, the alternative textbooks of the Homi Bhabha Curriculum are full of radical unconventional ideas that we believe are both urgent, necessary and, given enough efforts, feasible. But rather than describe here what we believe to be these innovative aspects, we leave the users, students and teachers, to find and experience them. In the simplest and most favourable situations, devising a curriculum and translating it into books, laboratories and teacher manuals is a daunting task. In the complex parameters and constraints that govern our country's educational system, the task is formidable. Only time will tell if and to what extent the Homi Bhabha Curriculum is an effort in the right direction.

Arvind Kumar

Note to teachers and parents

As you skim through the pages of Maths for Every Child, you will notice some differences from other textbooks. We have tried to make the book attractive in appearance and interesting to children. However, the most important differences are not in the appearance.

Our aim is to move away from an emphasis on merely knowing procedures to an emphasis on reasoning and understanding. In addition to the learning of facts and procedures, we have laid stress on the connections between concepts and procedures, on finding patterns and on mental arithmetic skills. In many places, we have provided the child with enough concrete experience that will form a strong foundation for further mathematical learning. While doing all this we have retained the positive elements of the traditional approach: systematic organization of topics, careful sequencing and plenty of practice.

If children do not develop a strong sense of the two and three-digit numbers and their operations, it can become a handicap later on. To build a strong number sense, children need plenty of opportunity to play with two and three-digit numbers, to explore patterns and connections and to carry out simple addition and subtraction mentally. Units 1, 3 and 4 give them this opportunity. Unit 5 introduces a systematic approach to word problems using key diagrams, which will be developed further in class IV and V.

In Unit 2, it is important that students get an opportunity to work individually at adding and subtracting with actual matchstick bundles and sticks, at least at home if not at school. This helps children understand the basis for the 'carry' and 'borrow' procedures. The 'games for two', spread through different units, are also intended for playing outside the classroom, possibly at home. The measurement units (9-13) are all activity based and much will be lost if these activities are omitted. To make it easier for the student to carry and use the text-cum-workbook, we have bound it in two parts - Part A (Units 1 to 7) and Part B (Units 8 to 14).

The text-cum-workbook has been designed to be teacher friendly and easy to implement in the classroom. The material in the book has been developed through a process of continuous classroom trials with the participation of able teachers. However we realize that the needs of different kinds of classrooms vary. To take care of such needs we have provided additional help in a separate teachers' book.

We hope that this book takes us part of the way towards an educational culture where mathematics is no longer a source of fear and mystery. Do write and tell us how successful we have been in our endeavour. We would appreciate your feedback about how you used the books and your suggestions.

K. Subramaniam

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Acknowledgement

Porus Lakdawala, my colleague, produced the initial drafts of the first few units. His contribution to the overall approach and framework of the curriculum has been fundamental.

Venola Fernando shouldered both the teaching and the organizational responsibilities of the trial programs. I thank her for her steady support and all-round contributions to the design of the curriculum.

Sumant Rao, Anagha Deshpande and Chetan Sharma, together with the team of Animagic Special Effects, not only produced the beautiful layout and illustrations but also greatly enhanced the quality of the book through their design and content suggestions. The book owes a great deal to their efforts.

I thank my colleagues at HBCSE for their support, feedback and encouragement through the long gestation period of the books. Arvind Kumar, Centre Director, HBCSE, initiated the Homi Bhabha Curriculum project and supported the work on these books at all stages. H.C. Pradhan, co-ordinator, Mathematics Curriculum, helped shape the framework underlying the books besides providing detailed criticism and feedback. Chitra Natarajan, Jayashree Ramadas, G. Nagarjuna and Arun Mavlankar shared their insights and criticisms and helped to make significant improvements in the content and presentation.

Adarsh Gupta helped me learn something about the fine art of teaching. I am indebted to her and to Hemakshi Selani for handling the bulk of the teaching in the vacation trial programs and for their contributions to the design of the learning material.

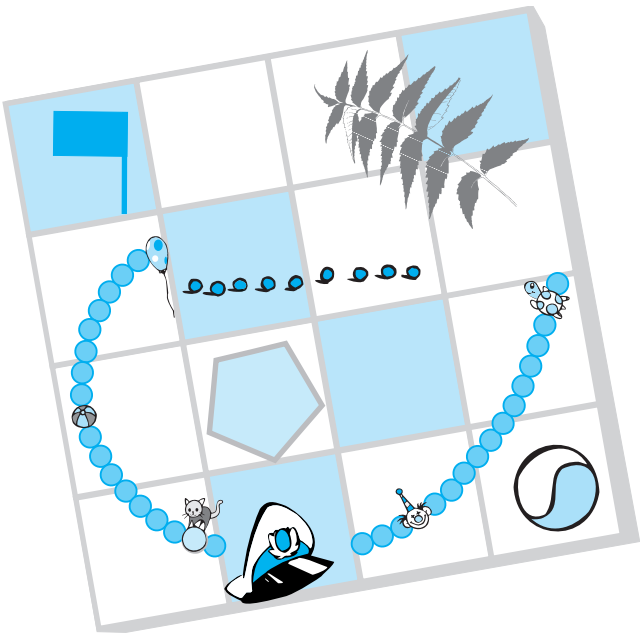
I thank the principals and teachers of the following schools in Mumbai for permission to try the curriculum material in their classrooms: Atomic Energy Central Schools no. 3 and no. 5, Children's Aid Society, Deonar Pada Municipal School, and Nutan Vidya Mandir.

I also thank U. Subbaraju of Timbaktu School, Andhra Pradesh, and Nilesh Nimkar of Grammangal for help with trials with the children of their schools and for valuable feedback and suggestions.

I thank P. R. Fadnavis of HBCSE and his team for providing administrative support. Gajanan Mestry and N. S. Thigale gave prompt help in the production of drafts.

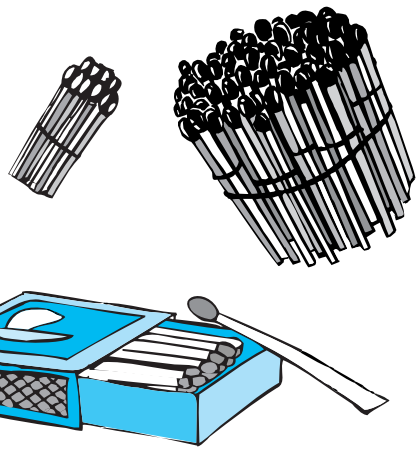
Leena and Chaitanya gave unflinching support and made many criticisms and suggestions.

K. Subramaniam

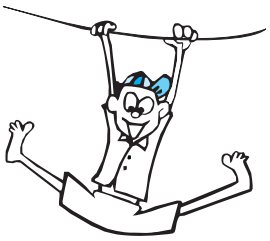


UNIT 1
Number Warm-up

UNIT 2
Matchstick Maths

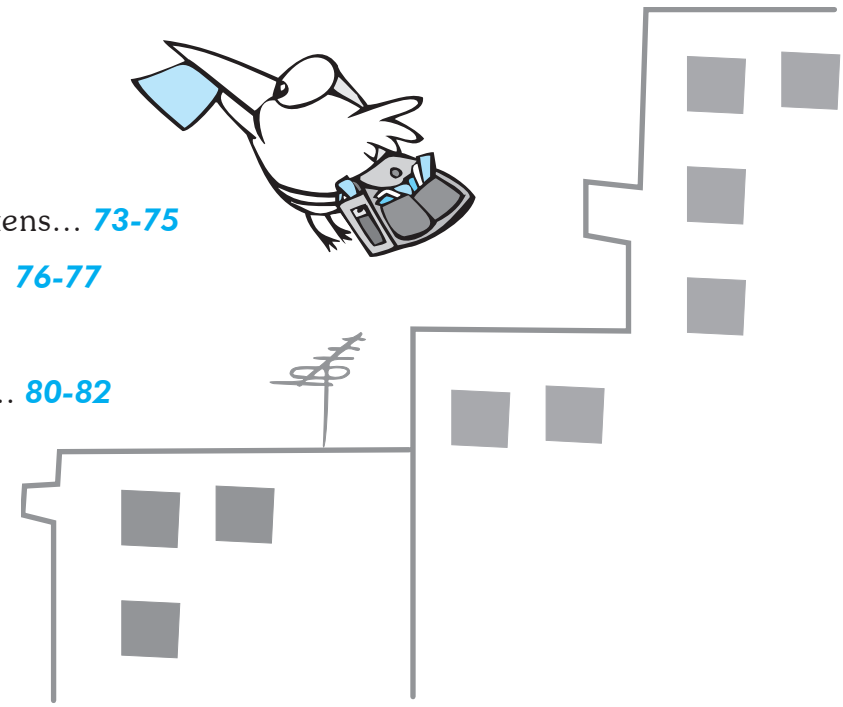


UNIT 3
Number Building



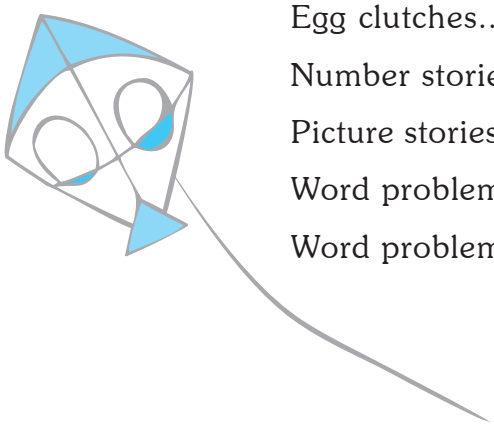
UNIT 4

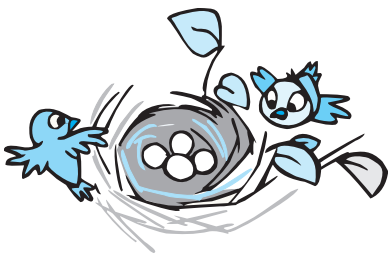
Bigger Numbers



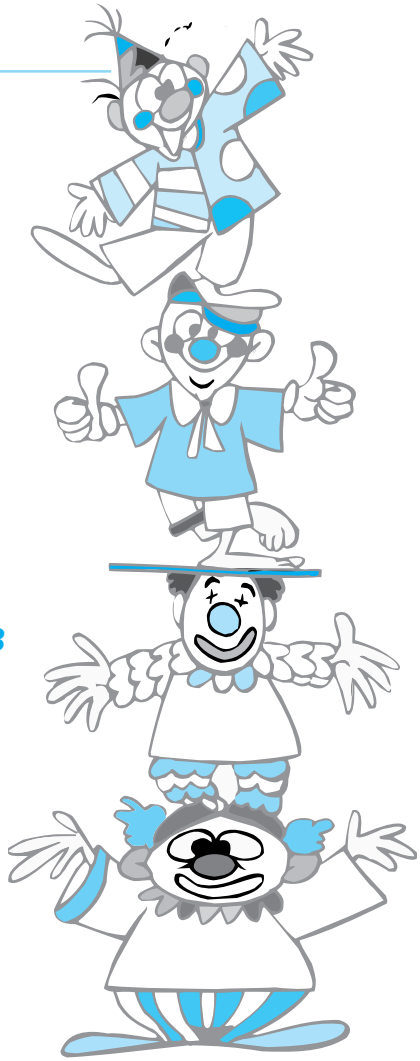
UNIT 5

Numbers in the World

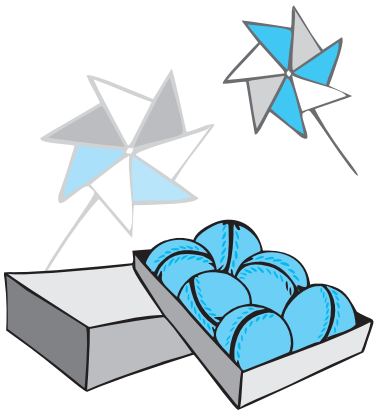




UNIT 6
Multiplication

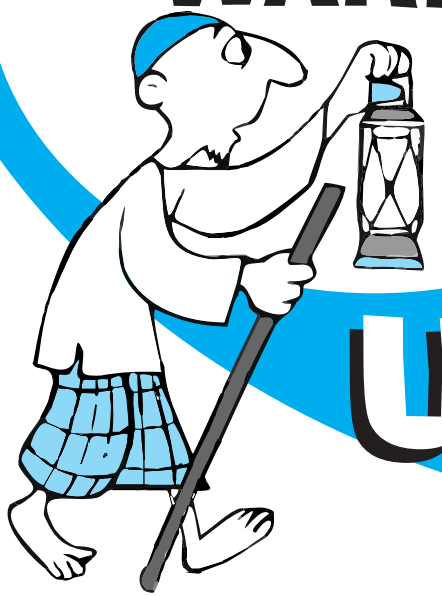


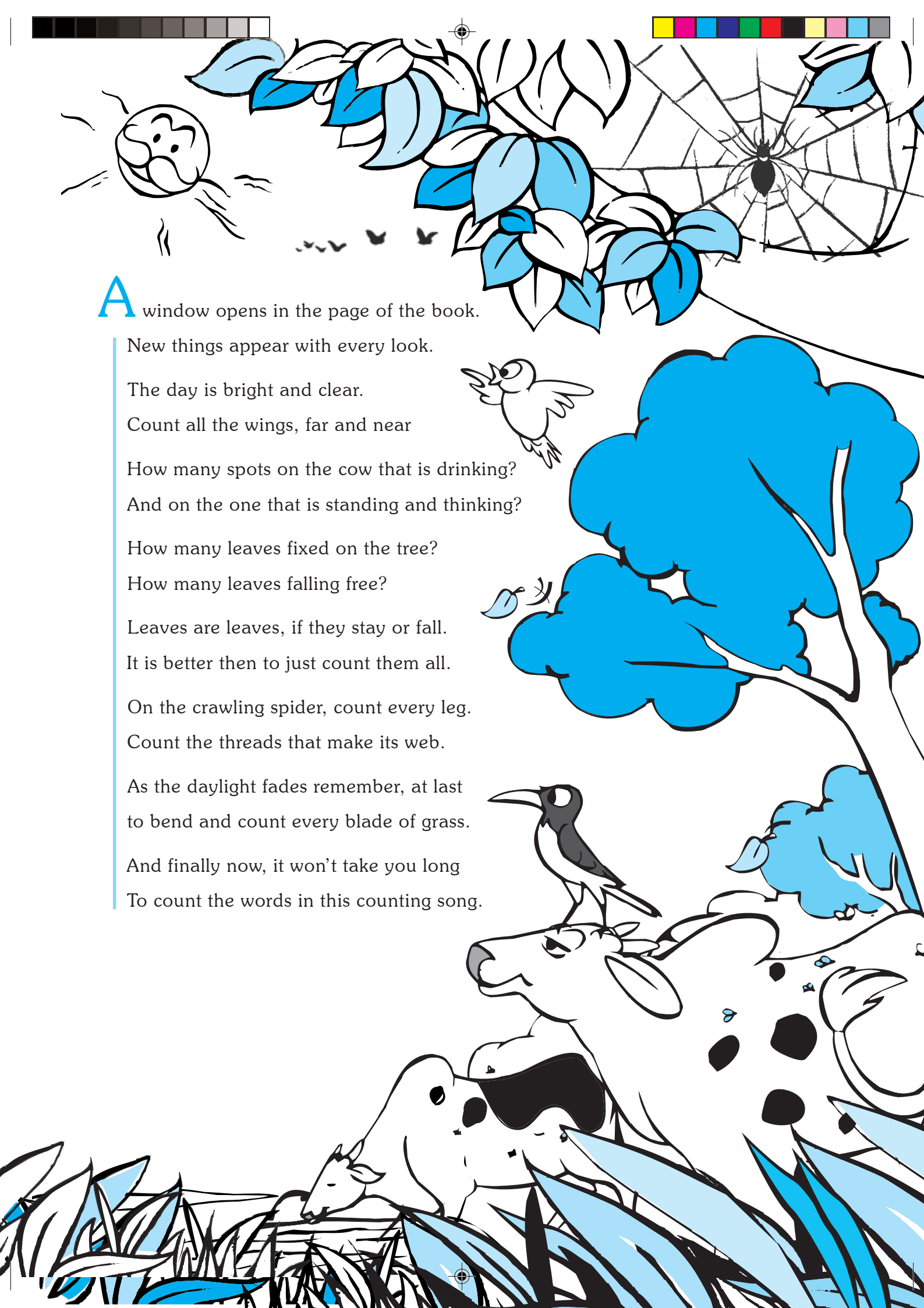
UNIT 7
Division



Unit 1

NUMBER WARM-UP





A window opens in the page of the book.
New things appear with every look.

The day is bright and clear.
Count all the wings, far and near

How many spots on the cow that is drinking?
And on the one that is standing and thinking?

How many leaves fixed on the tree?
How many leaves falling free?

Leaves are leaves, if they stay or fall.
It is better then to just count them all.

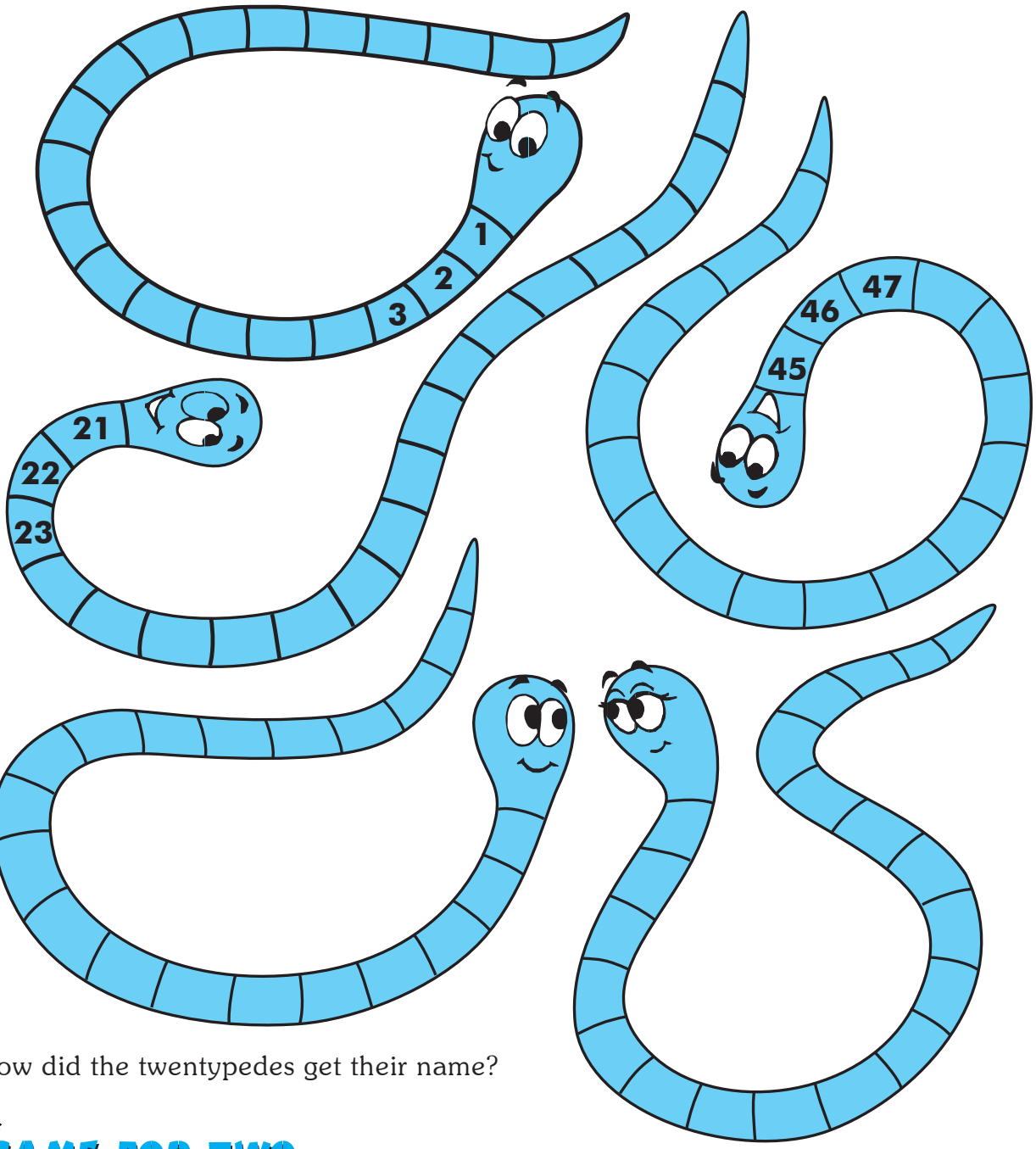
On the crawling spider, count every leg.
Count the threads that make its web.

As the daylight fades remember, at last
to bend and count every blade of grass.

And finally now, it won't take you long
To count the words in this counting song.

Meet the twentypedes

Write the numbers on each twentypede. Start with any number you like for the last two twentypedes.



How did the twentypedes get their name?

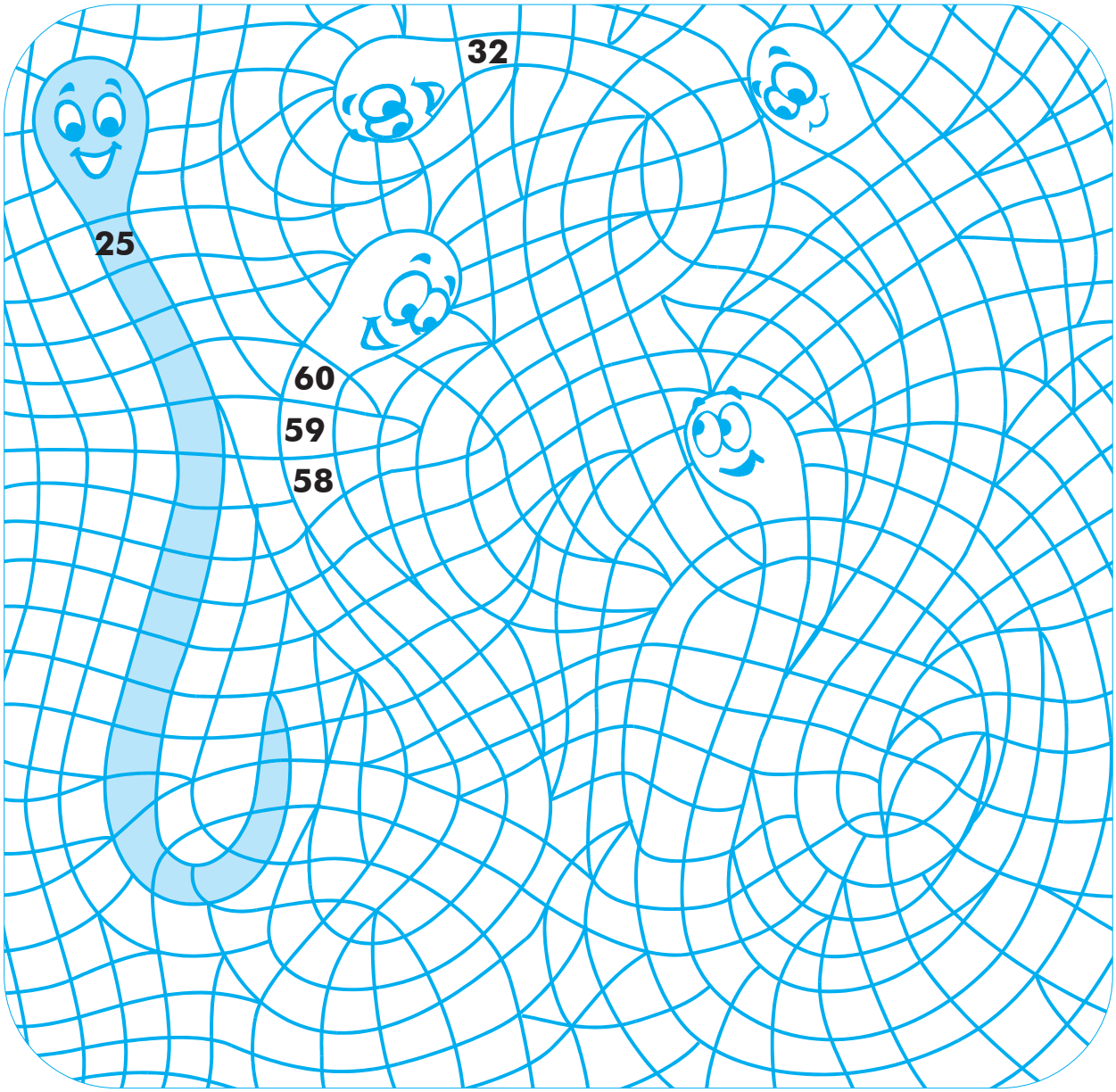
GAME FOR TWO

Counting games :

Count as fast as you can from 50 to 100.
As you count ask your friend to draw faces like this.

How many faces did he draw?

Now write the numbers in reverse order on each twentypede.



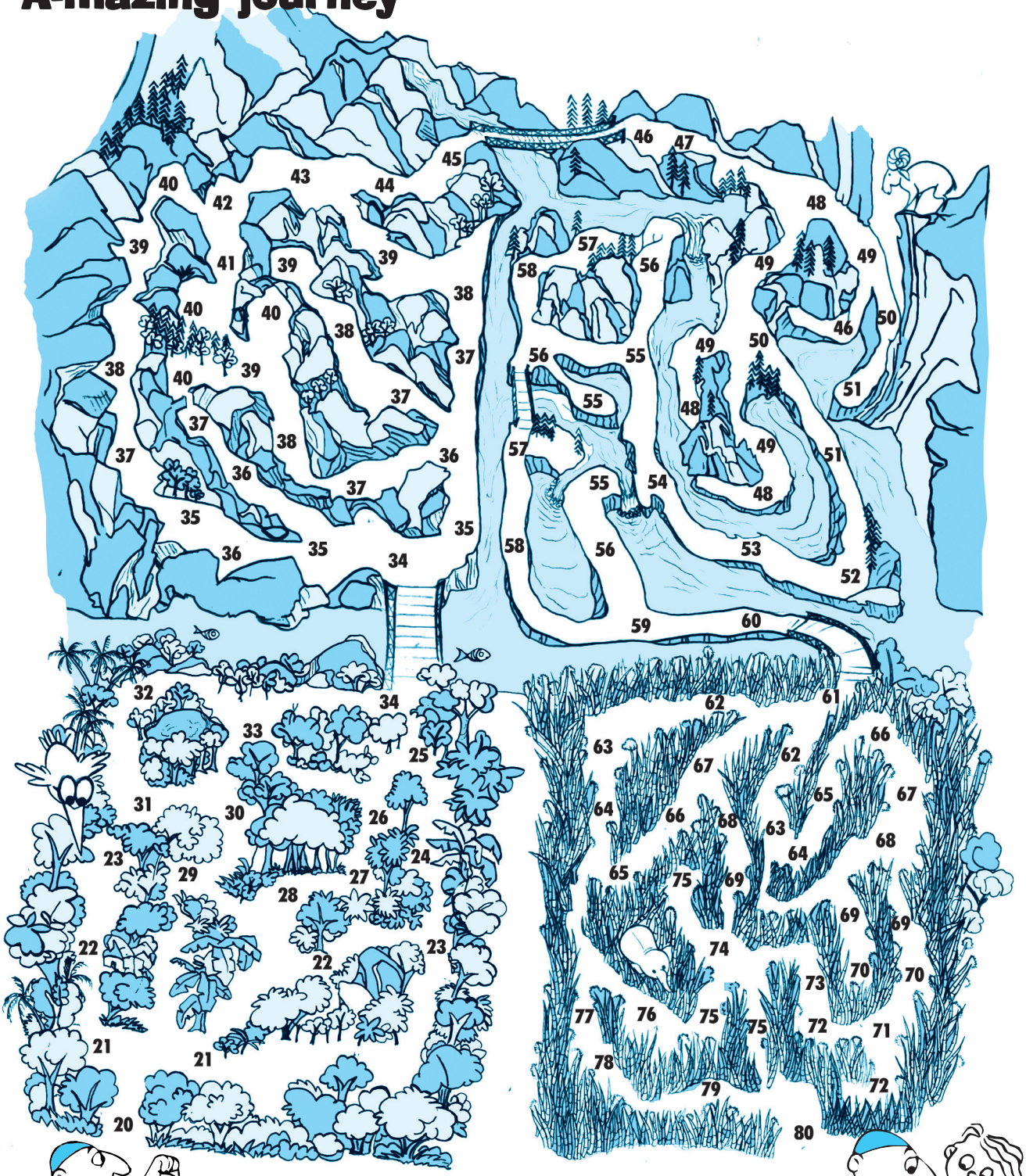
GAME FOR TWO

Counting games :

Count backwards from 20 to1 while your friend draws faces.

Try counting backwards from 30 to 20 and from 50 to 20.

A-mazing journey



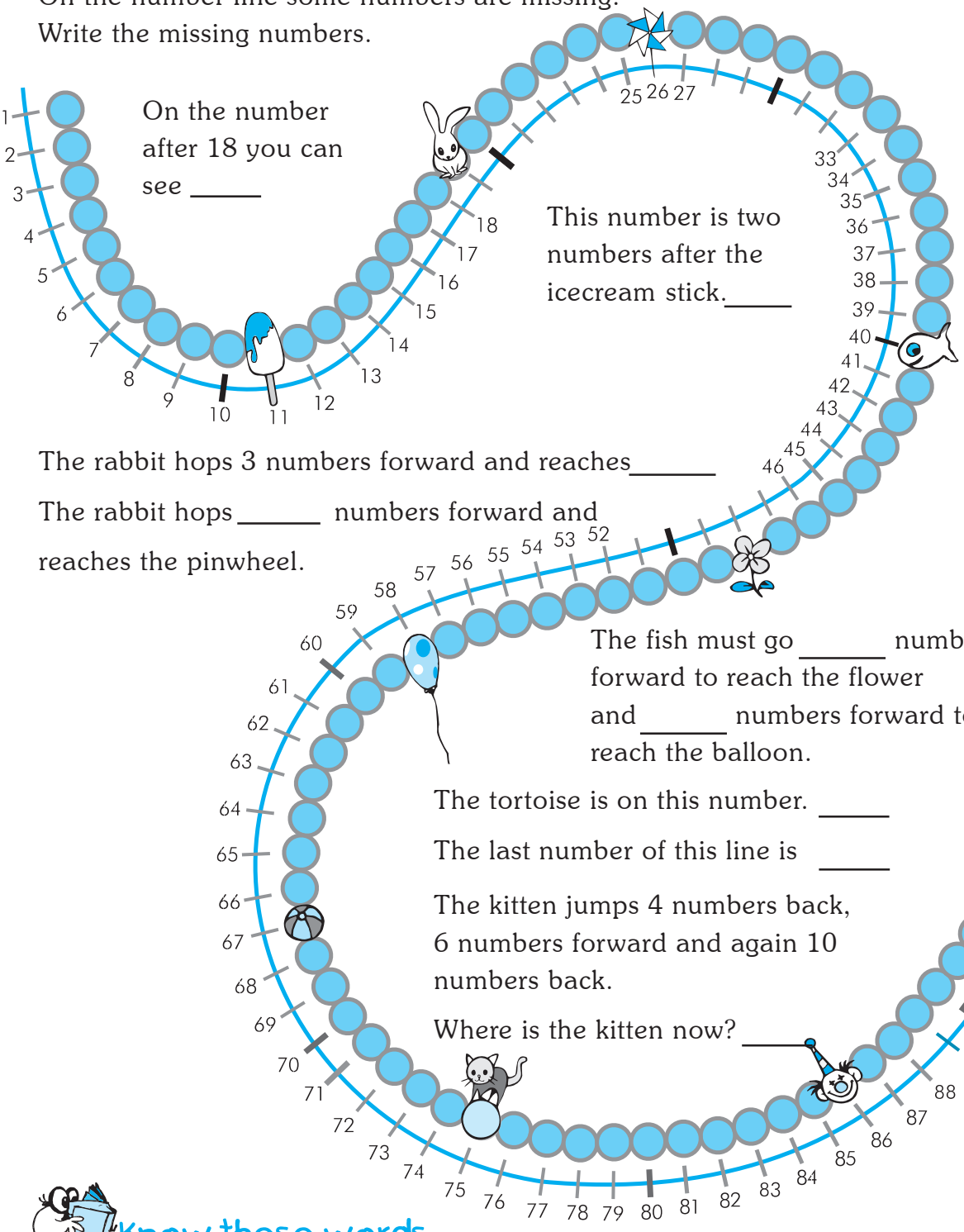
Rahim chacha is looking for Javed and Parveen who are wandering around in the forest.

The only safe path through the forest has all the numbers from 20 to 80 in the correct order.

Help Rahim chacha by tracing the safe path.

Number line

On the number line some numbers are missing.
Write the missing numbers.



On the number after 18 you can see _____

This number is two numbers after the icecream stick._____

The rabbit hops 3 numbers forward and reaches_____

The rabbit hops _____ numbers forward and reaches the pinwheel.

The fish must go _____ numbers forward to reach the flower and _____ numbers forward to reach the balloon.

The tortoise is on this number. _____

The last number of this line is _____

The kitten jumps 4 numbers back, 6 numbers forward and again 10 numbers back.

Where is the kitten now? _____

Know these words

greater than, less than

Do you remember the sign for **'greater than'** and **'less than'**?

25  22 25 > 22 36  45 36 < 45

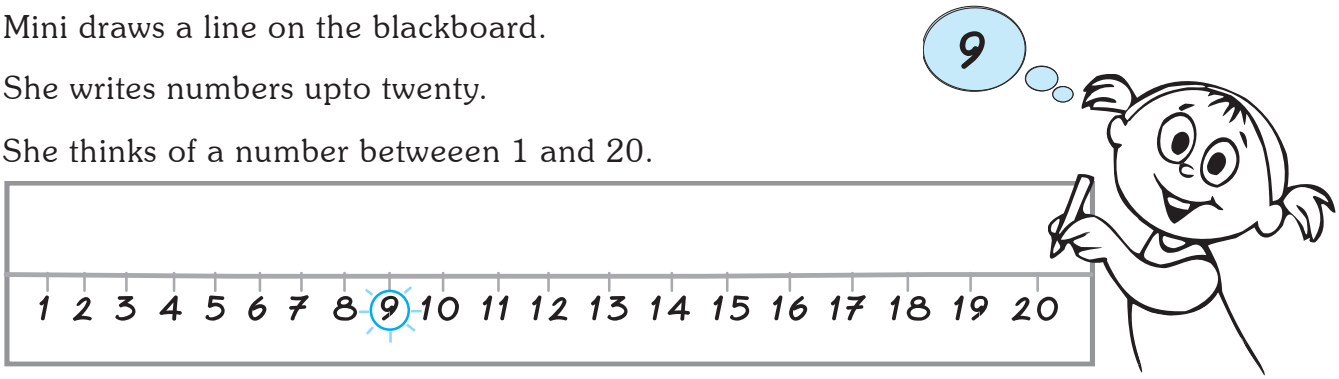
Bury the flags

How to play

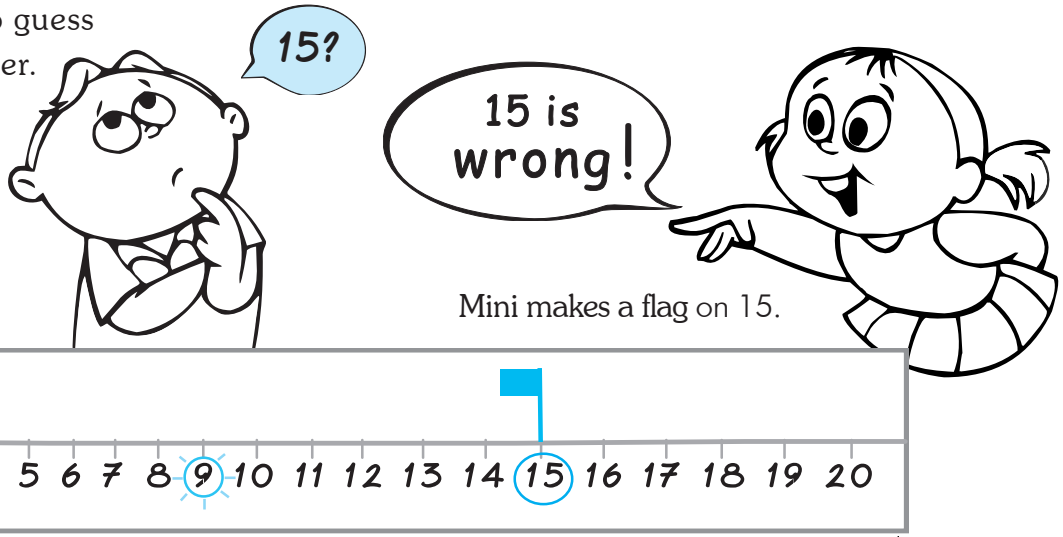
Mini draws a line on the blackboard.

She writes numbers upto twenty.

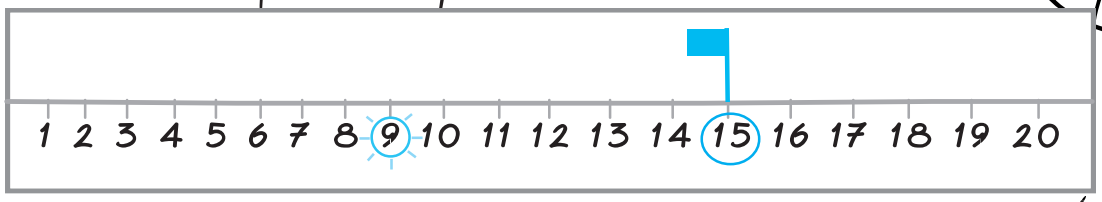
She thinks of a number betweeen 1 and 20.



Tuttu tries to guess Mini's number.



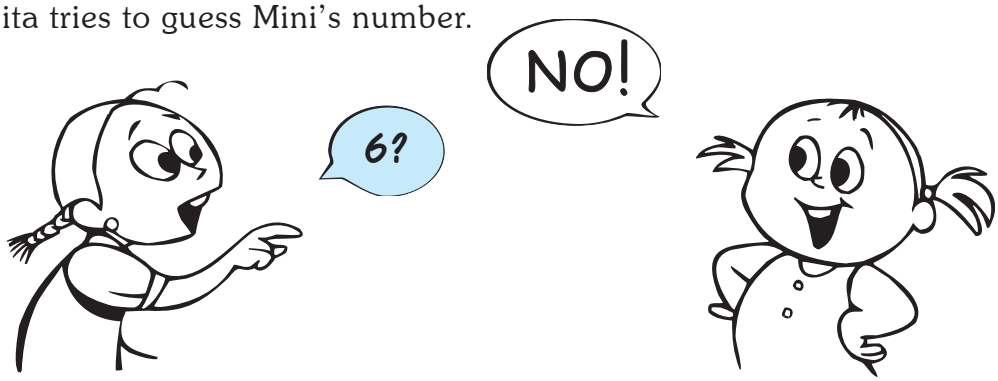
Mini makes a flag on 15.



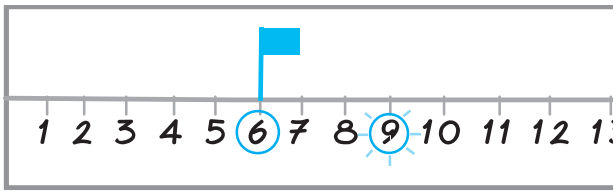
Why does the flag point to the left ?

Because Mini's number is smaller than 15.

Now Smita tries to guess Mini's number.

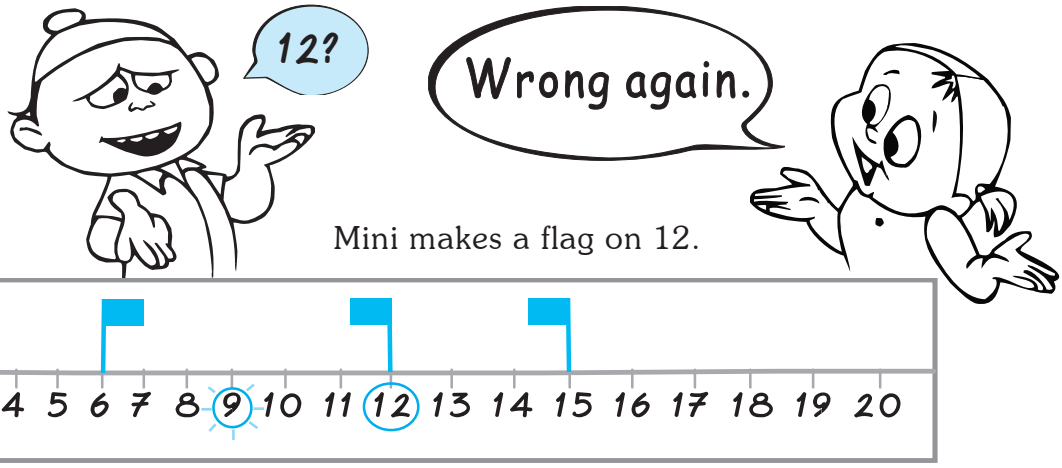


Mini makes a flag on 6.

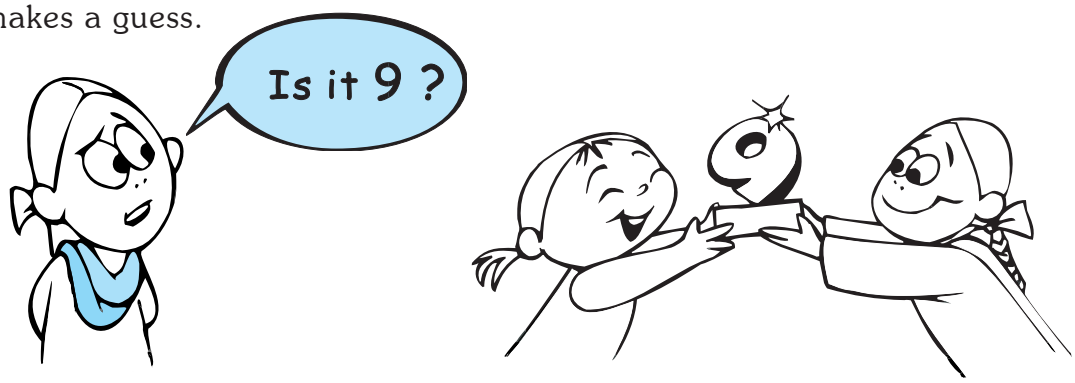


Why does the flag point to the right?

Chunindar tries to guess too. . .



Razia makes a guess.



GAME FOR TWO

1. Draw a different number line in your notebook, for example, from 21 to 40. Play the game on this number line.

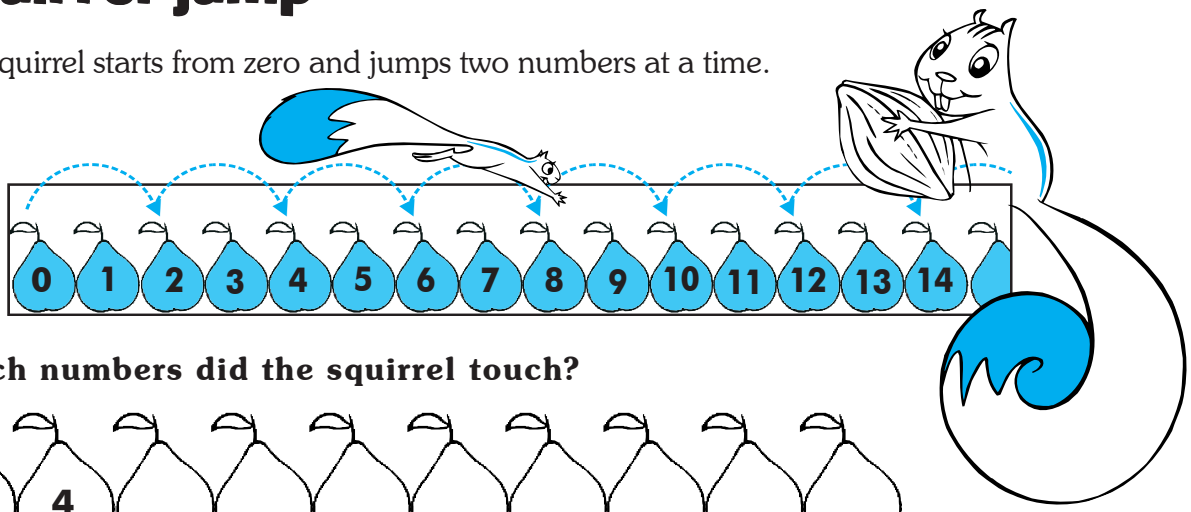
   Try to guess the number in less than 5 chances.

2. Guess the number written on the folded paper from the clues.

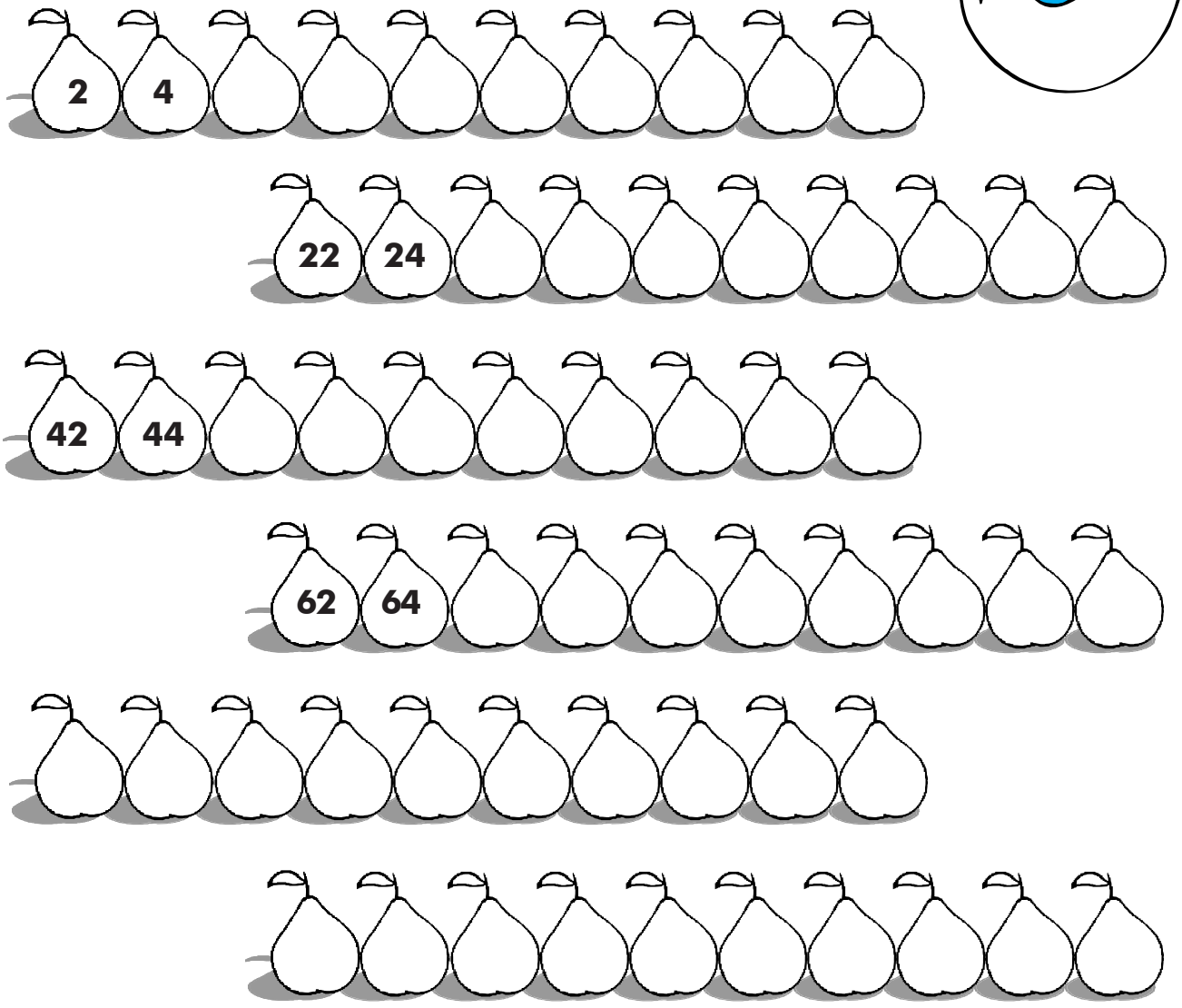
   Clues: ? > 43 ? < 54 ? < 50 ? < 45

Squirrel jump

The squirrel starts from zero and jumps two numbers at a time.



Which numbers did the squirrel touch?

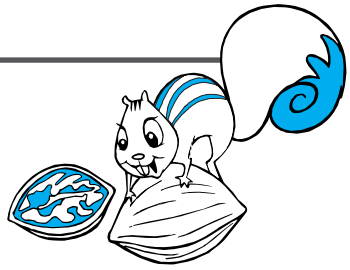


EXERCISE

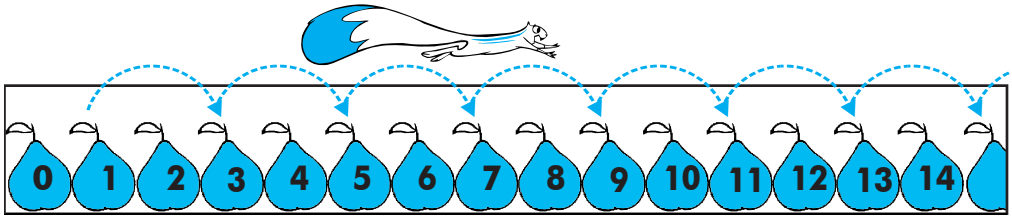
Write down ten numbers after 190 that the squirrel touched.

Circle the numbers that the squirrel touched:

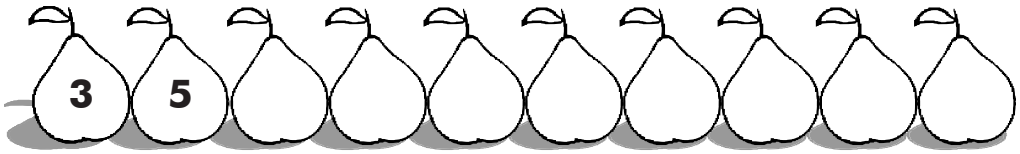
23, 27, 28, 88, 96, 121.

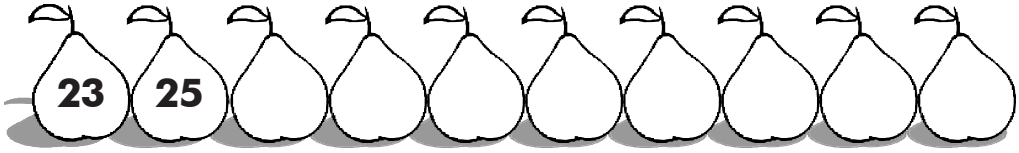


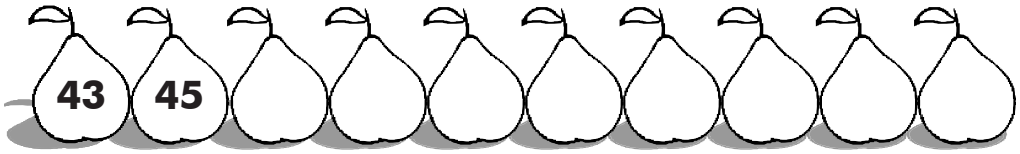
Now the squirrel starts jumping from one.

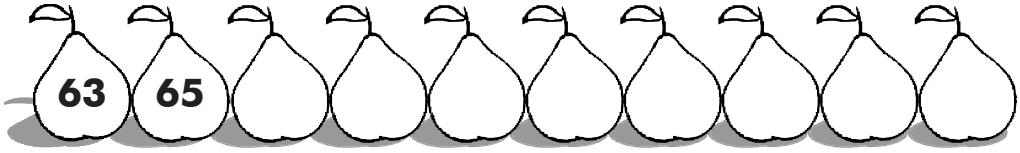


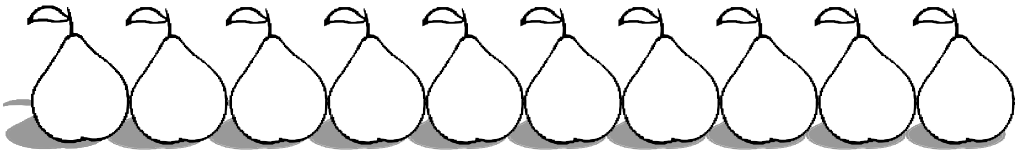
Which numbers did the squirrel touch?

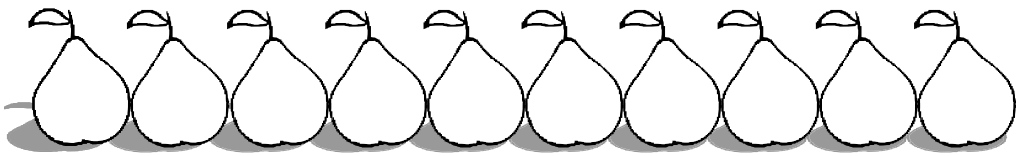












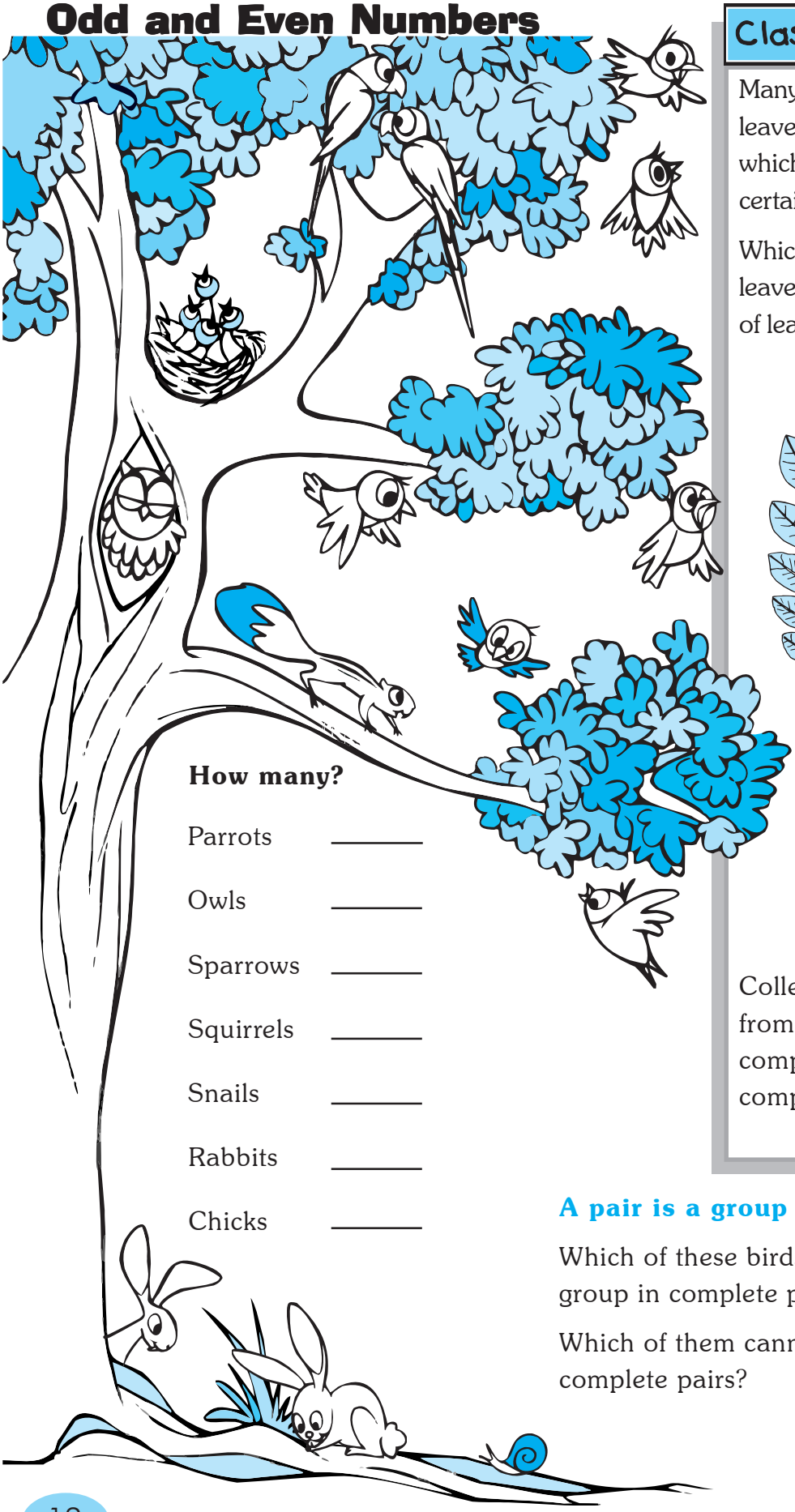
EXERCISE

Learn these different ways of counting:

Count up and count down starting from any number.

Count in jumps of 2, 3, 5 and10.

Odd and Even Numbers



How many?

Parrots _____

Owls _____

Sparrows _____

Squirrels _____

Snails _____

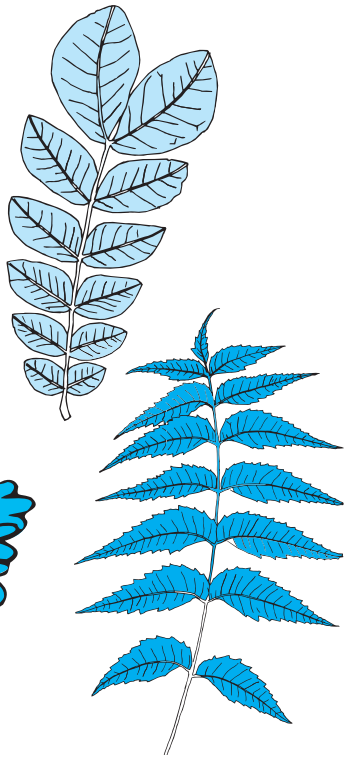
Rabbits _____

Chicks _____

Classroom Activity

Many trees have compound leaves made up of leaflets which are arranged in a certain pattern.

Which of these compound leaves has complete pairs of leaflets?



Collect compound leaves from nearby trees. Which compound leaves have complete pairs of leaflets?

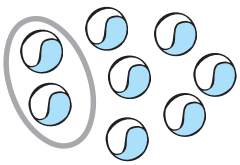
A pair is a group of two.

Which of these birds and animals can you group in complete pairs?

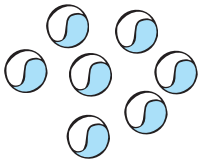
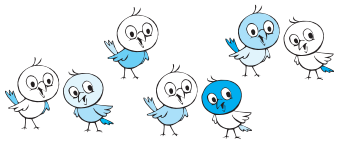
Which of them cannot be grouped in complete pairs?

When you have 8 things you can group them in complete pairs. So 8 is an **even** number.

Group these into pairs by drawing rings.



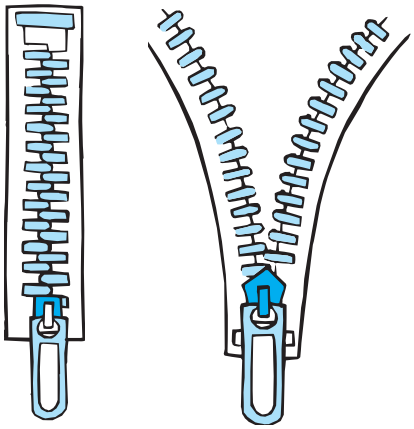
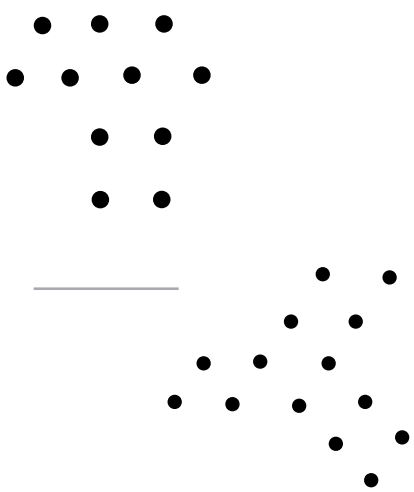
Now try to make complete pairs of these things.


7 is an **odd** number. Why? _____

Guess whether even or odd.

Then check your guess by counting and making pairs.

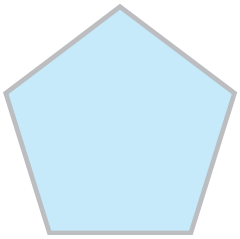
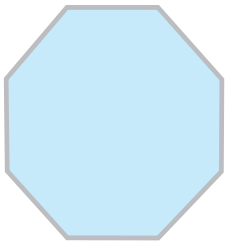
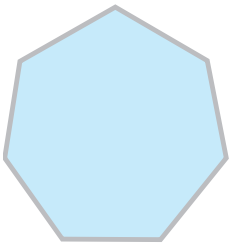
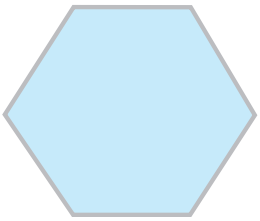

EXERCISE

Draw dots and find out if the numbers are odd or even.

Example: 12  12 is even.

4 9 2 10 5 1 3 15

Odd or even number of sides?

_____ _____ _____ _____

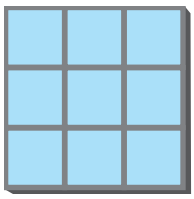
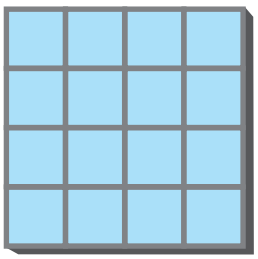
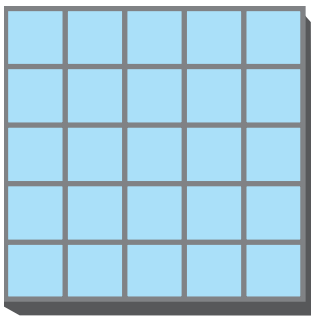
Classroom Activity

This is a domino shape. 

Trace the shape on paper and cut it out.

Make about 10 to 15 domino shaped pieces of paper.

Try to completely fill these checkerboards with the domino shapes. The domino shapes should not lie outside the checkerboards.

Which checkerboards can you fill?

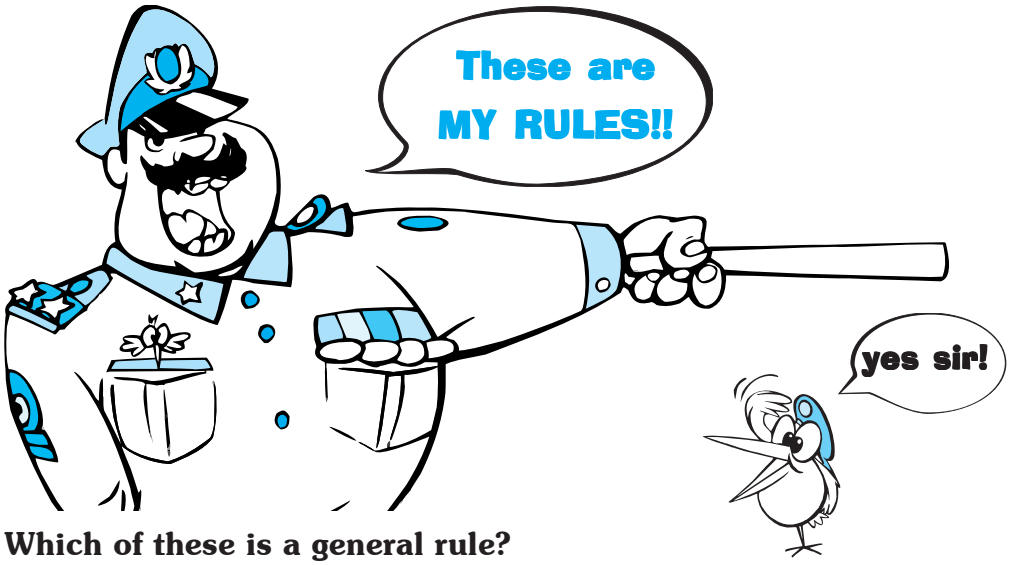
Why can't you fill some of them? _____

_____

EXERCISE

Write down the odd numbers between 10 and 20 and between 90 and 110.

Write down the even numbers between 11 and 21 and between 91 and 111.



Which of these is a general rule?

Rule 1 You must brush your teeth at night if you have eaten sweets.

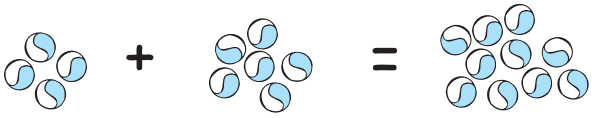
Rule 2 You must always brush your teeth at night.

What is the difference between a rule and a general rule? Give some examples.

Another Rule

Even + Even = Even

Example



4 + 6 = 10

(even) (even) (even)

Check if the rule works for other even numbers.

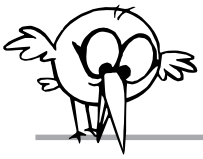
Why does the rule work?

An odd rule

Find this rule:

Odd + Odd = _____

Test these rules out with your own numbers and see if they work.



Rule to check if a number is even :

If a number ends in '0' it is even.

Check if the rule is correct.

Can the rule be used to check all even numbers?

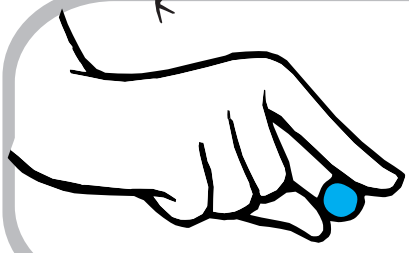
Make a general rule to check whether any number is even.

Nim game

It's time for the NIM GAME.

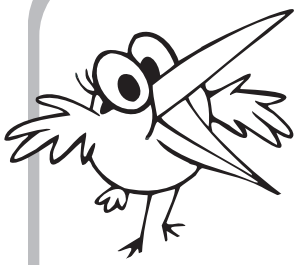
This is a game for two people.

You can play this game on a blackboard, in your notebook or simply with pebbles.*



Let`s play with pebbles. Put 10 pebbles in a row.

RULES

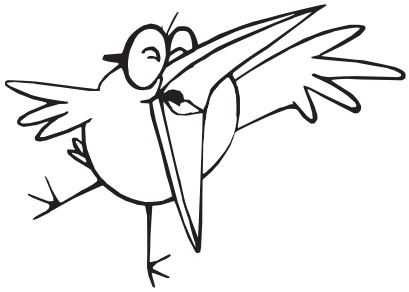


Take turns to pick up pebbles from each end.

You can pick only ONE or TWO pebbles at a time.

The one who picks the last one or two pebbles

WINS THE GAME !



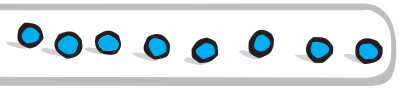
LET'S GO!

*To play on a blackboard or in a notebook, draw 10 circles. Rub out or cross out one or two circles at a time.

The game begins.

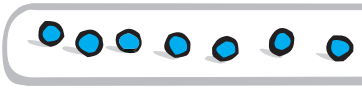
Bittoo

Bittoo picks up two Pebbles.



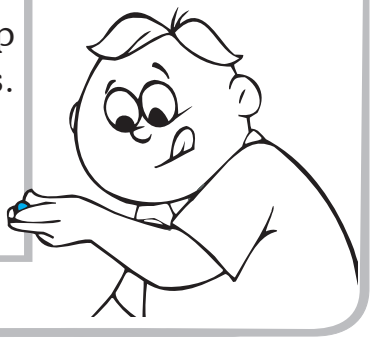
Tuttu

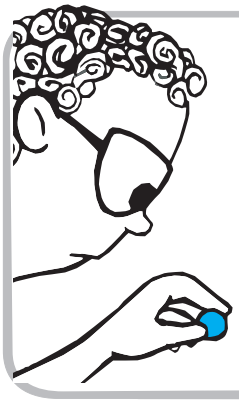
Tuttu picks up one pebble.



Bittoo again picks up two Pebbles.

Tuttu picks up two pebbles.



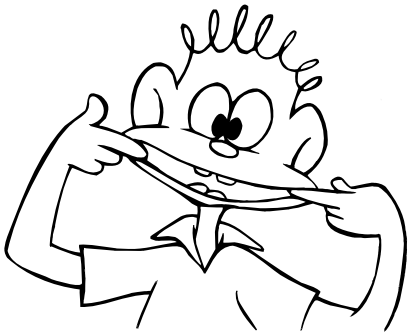


Bittoo picks up one pebble.

Tuttu picks up the last two pebbles.

WINNER!

Finding the opposite



Eti Soppo was a friendly child, but he had a naughty habit. When someone asked him to do something, he would do the opposite.

Once Eti's mother told him to clean his shoes. Instead Eti pasted it with mud. He got a pasting for doing that!

One day Eti's teacher gave him this sum: 5 + 3 =____

Eti knew the answer, but he wanted to do the opposite of adding.

What is the opposite of adding? _____

Eti wrote: 5 - 3 = 8.

Oops! Eti knew he had written something wrong.

So he struck it out . ~~5 - 3 = 8.~~

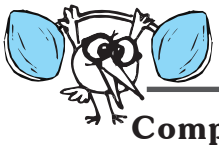
and wrote 5 - 3 = 2.

Although this was correct, Eti was not happy because he had a new number 2, in place of 8. He wanted the same three numbers: 5, 3 and 8.

Write a subtraction problem with these numbers 5, 3, 8 : _____

Eti found that there were actually two opposites of 5 + 3 = 8.
Can you find both of them? _____

If you ask Eti Soppo to write his name, how do you think he would write it?



EXERCISE

Complete these addition facts and write the opposites.

6 + 5 = *11*
11 - 5 = 6
11 - 6 = 5

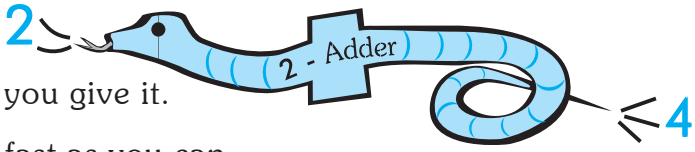
21 + 5 =

10 + 15 =

Adders

The adders add very fast.

The 2-adder adds 2 to any number that you give it.



Now you be different adders and add as fast as you can.

Add 2

3 → 5	7 → 9	1 →	5 →	8 →	4 →
9 →	12 →	15 →	10 →	13 →	11 →
17 →	26 →	19 →	28 →	46 →	59 →
78 →	89 →	98 →	99 →	106 →	118 →

Add 3

4 → 7	2 → 5	6 →	1 →	7 →	3 →
10 →	8 →	13 →	9 →	11 →	5 →
12 →	15 →	14 →	17 →	25 →	27 →

Add 4

2 → 6	3 → 7	1 →	5 →	7 →	4 →
6 →	8 →	11 →	14 →	10 →	15 →
13 →	16 →	22 →	26 →	36 →	48 →

Add 5

1 → 6	3 → 8	5 →	2 →	6 →	4 →
7 →	9 →	12 →	8 →	10 →	11 →
14 →	16 →	13 →	15 →	18 →	17 →

Notebook Exercise

Write down all the numbers from 40 to 60 and from 78 to 99.

Write the numbers backwards from 80 to 50.

Write down the odd numbers between 18 and 32.

Write down the even numbers between 27 and 45.

EXERCISE

Fill in numbers of your choice.

25 > __ 36 > __ __ < 41 __ > 10

Check Raju's answers. Put a `tick' for correct and a `cross' for wrong.

18 > 19 ☐	17 < 18 ☐	23 < 22 ☐	16 > 15 ☐
12 > 21 ☐	22 < 33 ☐	19 < 91 ☐	36 > 36 ☐

Fill in '>', '<' or '=' in the box.

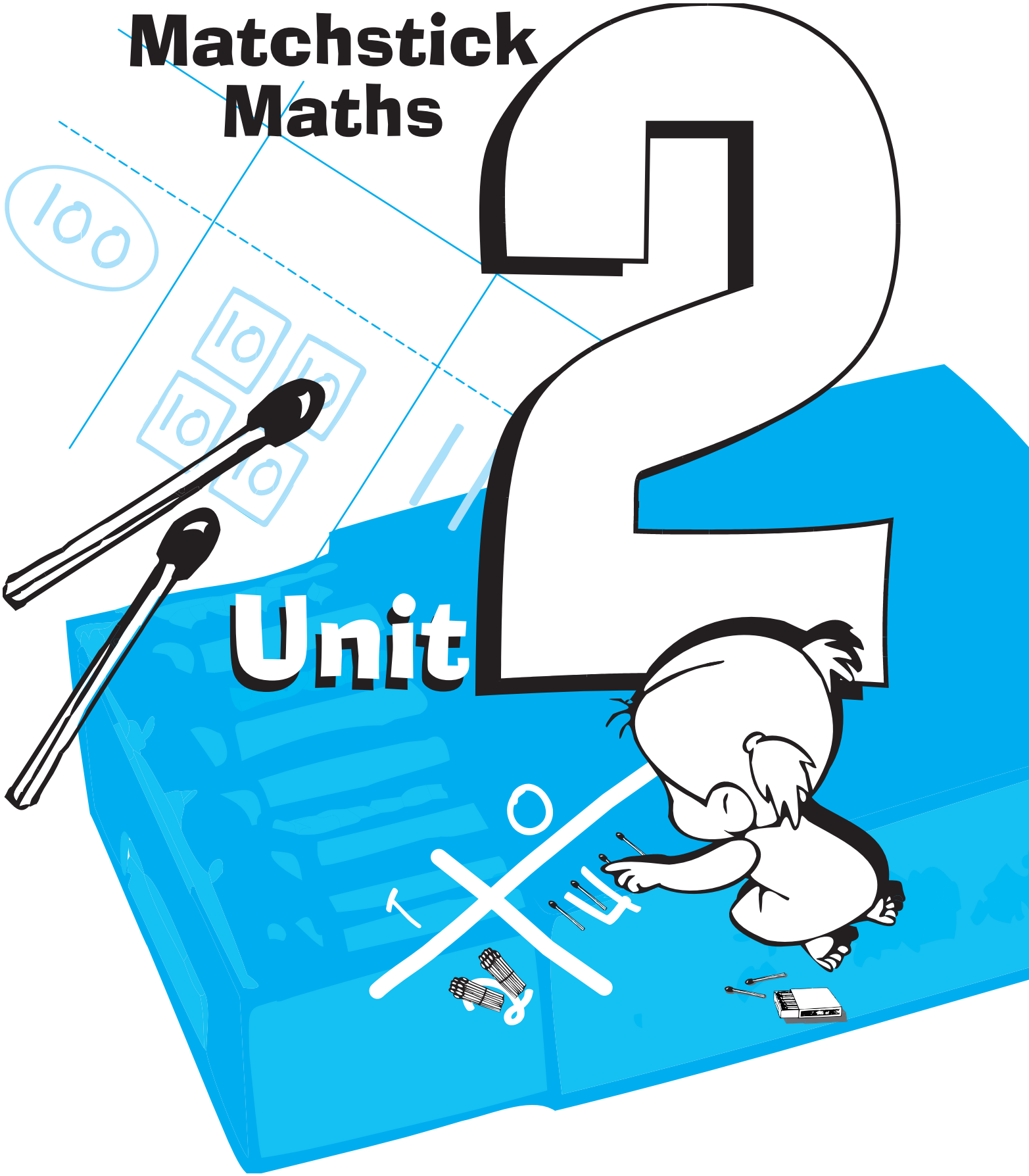
3 + 7 ☐ 11	3 + 18 ☐ 21	8 + 7 ☐ 15
15 + 5 ☐ 19	7 + 7 ☐ 13	12 + 9 ☐ 21
18 – 6 ☐ 13	17 – 10 ☐ 6	10 ☐ 19 – 9
31 ☐ 14 + 20	16 ☐ 20 – 4	23 ☐ 30 – 7

Complete these addition facts and write the opposites.

8 + 6 =	16 + 12 =	20 + 11 =
19 + 1 =	8 + 0 =	9 + 9 =

Matchstick Maths

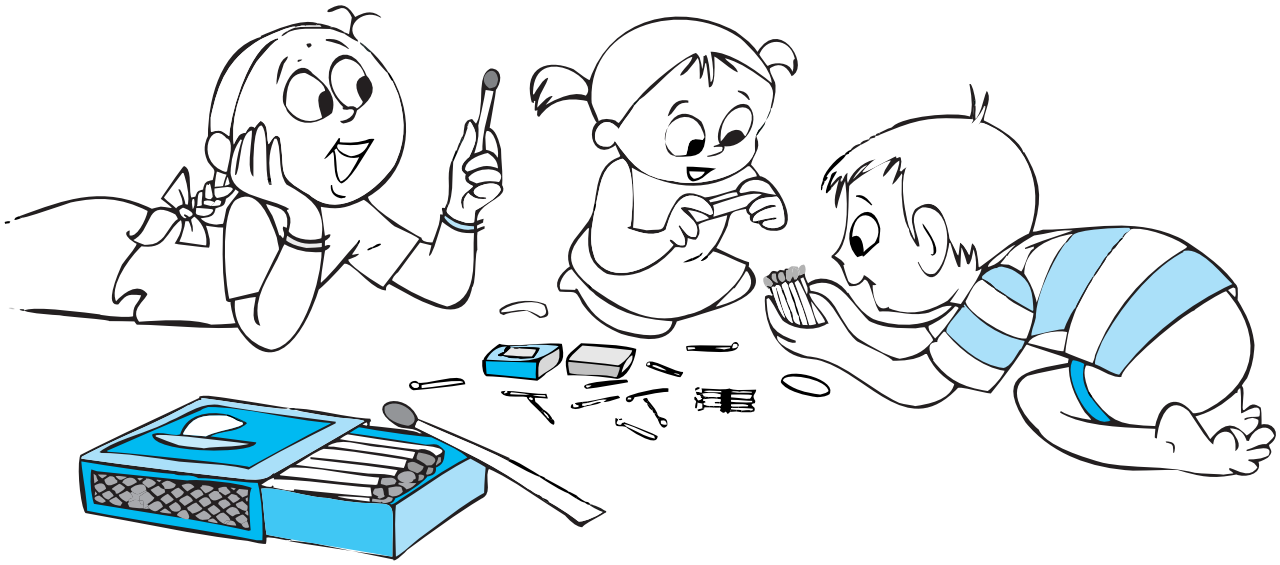
Unit 2



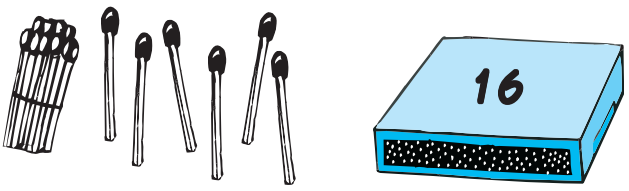
Making ones and tens

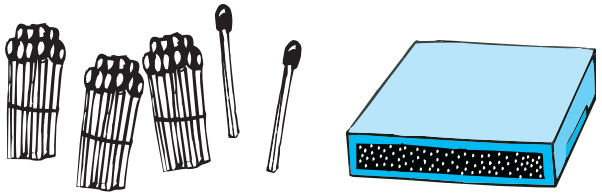
A single matchstick is a ONE.

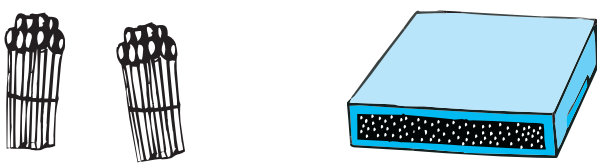
A bundle of ten matchsticks is a TEN.



Which numbers are shown?







Classroom Activity

Show these numbers using matchsticks.*

34 12

43 6

21 9

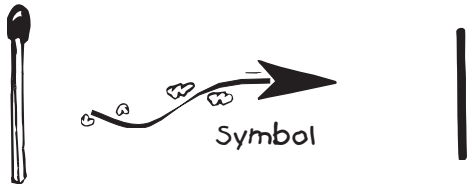
69 10

70

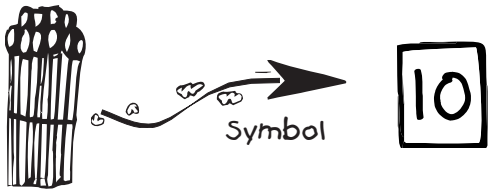
* Use actual matchsticks and rubberbands. See teacher's book.

Drawing ones and tens

Show a ONE by drawing a LINE.



Show a bundle of TEN by drawing a BOX. Write '10' inside the box.



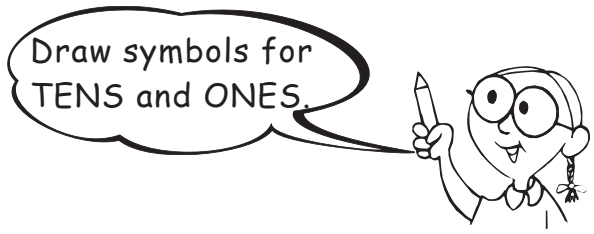
Draw ones and tens.

Tens column | Ones column

23

T	O
10 10	|||

T	O
2	3



28

T	O

T	O

46

T	O

T	O

64

T	O

T	O

19

T	O

T	O

20

T	O

T	O

8

T	O

T	O

Notebook Exercise

Write how many tens and ones.

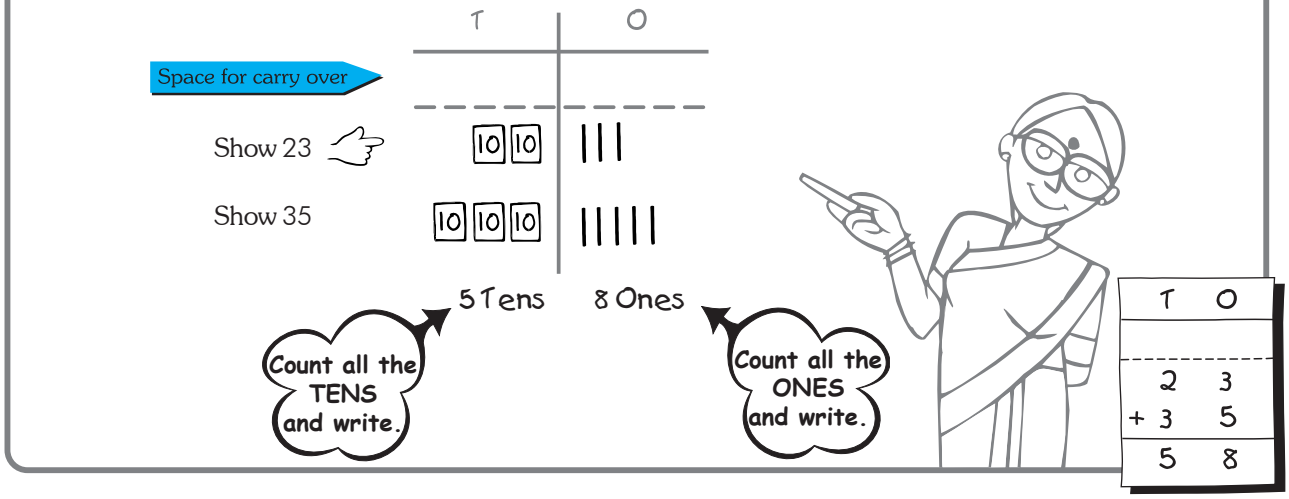
43 = 4 tens and 3 ones

37 55 19 78 16 61 5 6

Adding with matchsticks 1

example

23 + 35 =



Draw matchsticks and add.

34 + 12 = ____

T O

T O

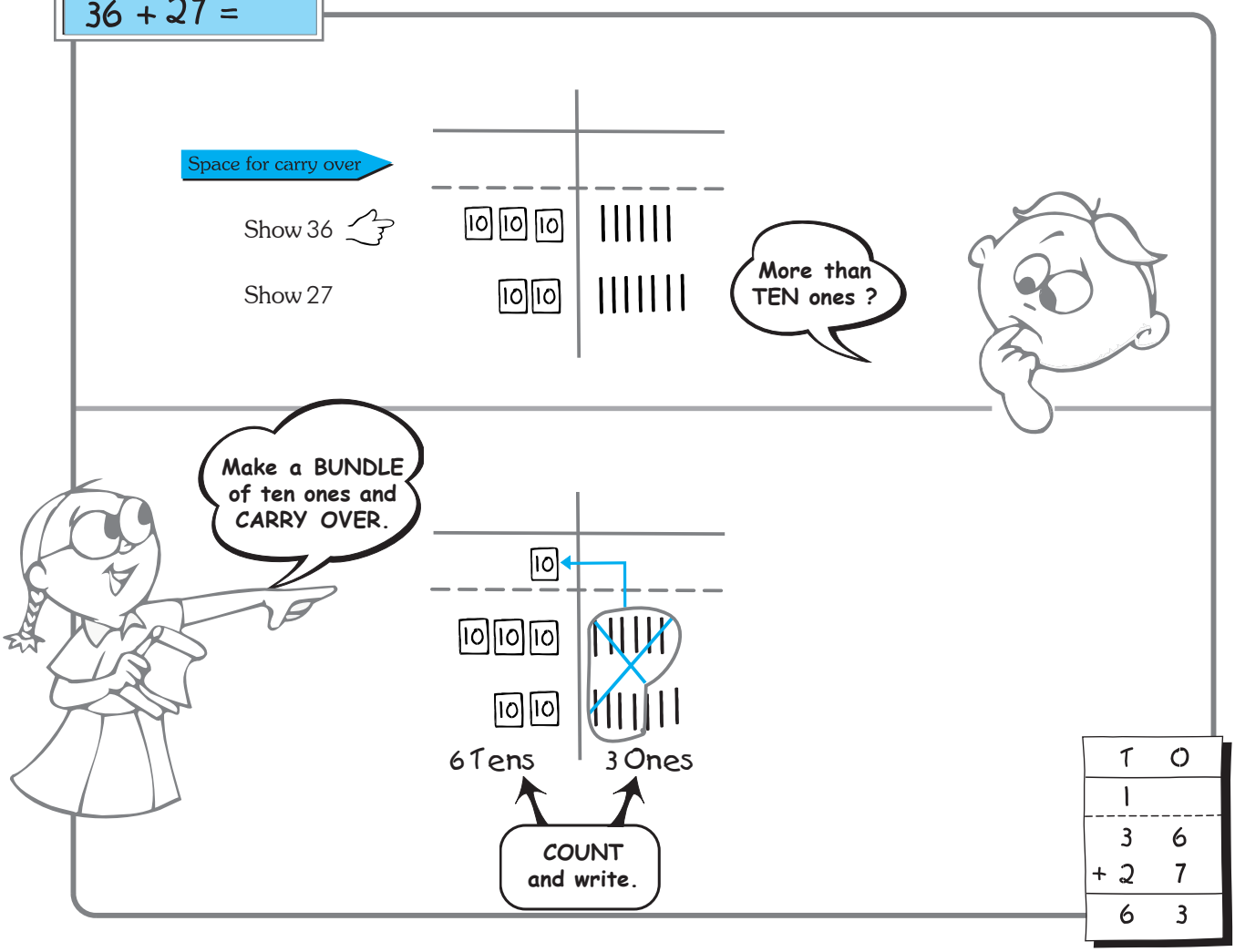
15 + 43 = ____

T O

T O

example

36 + 27 =



Draw matchsticks and add.

34 + 18 = ____

T O

T O

Notebook Exercise

Draw matchsticks and add.

27 + 16

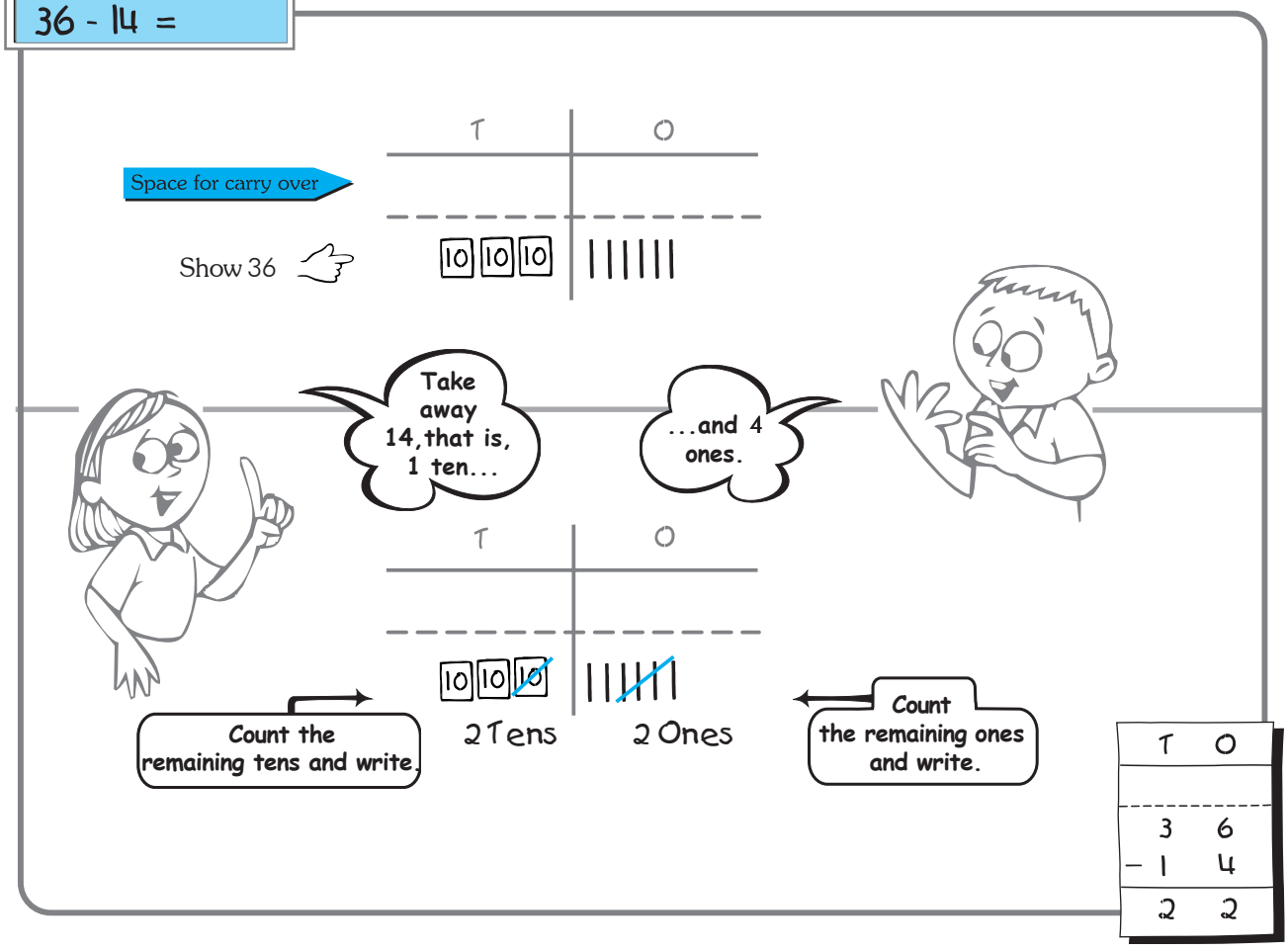
36 + 28

16 + 44

Subtracting with matchsticks 1

example

36 - 14 =



Draw matchsticks and subtract.

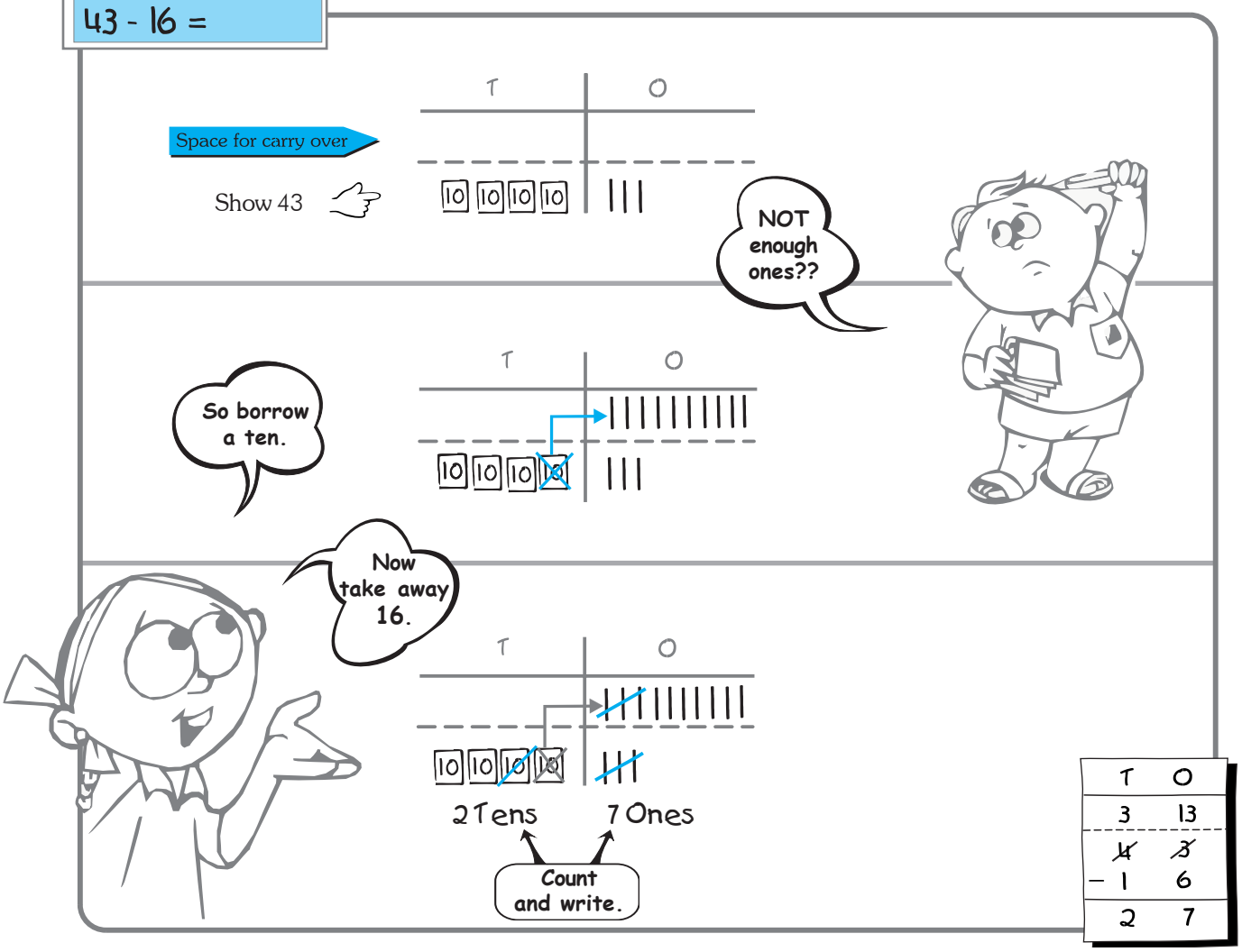
46 − 23 = ___

T O

T O

example

43 - 16 =



T	O
3	13
~~4~~	~~3~~
− 1	6
2	7

Draw matchsticks and subtract.

36 − 18 = ____

T O

T O

Notebook Exercise

Draw matchsticks and add.

28 + 42 25 + 14 + 23 36 + 28 + 19

Draw matchsticks and subtract.

52 – 27 40 – 18 20 – 19

PRACTICE SUMS

Add without drawing matchsticks.

T	O
4	6
+ 2	3

T	O
4	5
+	3

T	O
2	7
+ 1	3
+ 5	6

T	O
3	7
+ 1	8
+ 3	6

Subtract without drawing matchsticks.

T	O
6	4
– 3	2

T	O
3	9
– 2	3

T	O
5	6
– 1	8

T	O
1	7
–	9

Notebook Exercise

Add without drawing matchsticks.

7 + 34 8 + 39 49 + 4 + 17 6 + 22 + 67

Subtract without drawing matchsticks

54 – 48 62 – 45 80 – 17 16 – 9 38 – 19

Clap-snap game

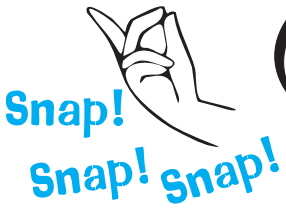
REMEMBER

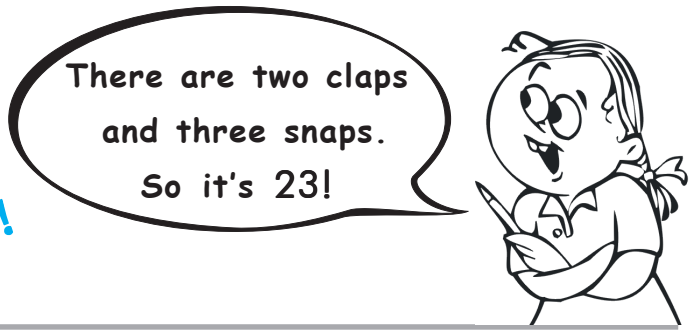
A Snap means 1.

Snap!

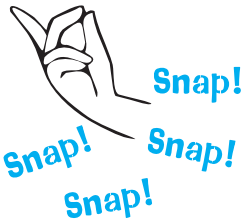
A Clap means 10.

Clap!





Count the claps and snaps and write the number.



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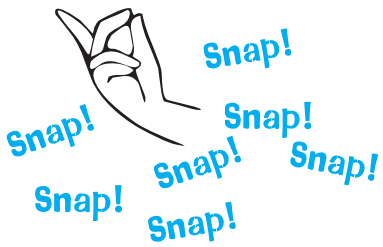

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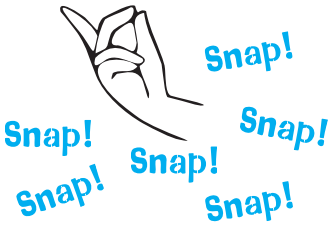

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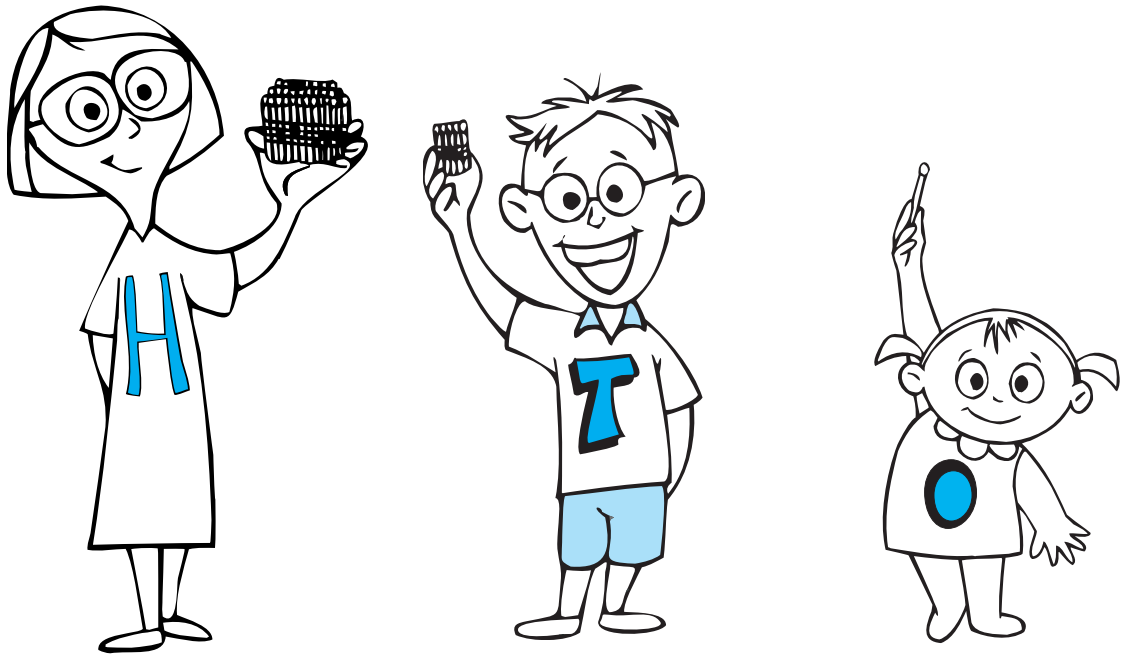
Play the clap-snap game in the class. One of you shows a number through claps and snaps. The others say which number it is.

Making hundreds

A single matchstick is a ONE.
A bundle of ten matchsticks is a TEN.
A bundle of ten TENS is a HUNDRED.



Which numbers are shown?

235

Classroom Activity

Show these numbers using matchsticks.*

317

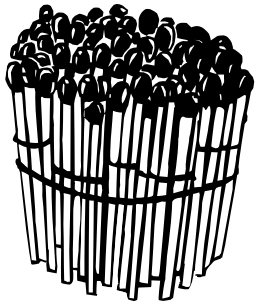
256

109

199

200

* Use actual matchsticks and rubberbands. See teacher's book.



Show a HUNDRED by drawing a CIRCLE.
Write '100' inside the circle.

100

Draw hundreds, tens and ones.

213

H	T	O
100 100	10	III

H	T	O
2	1	3

Draw symbols for HUNDREDS,
TENS and ONES.

101

H	T	O

H	T	O

110

H	T	O

H	T	O

111

H	T	O

H	T	O

99

H	T	O

H	T	O

100

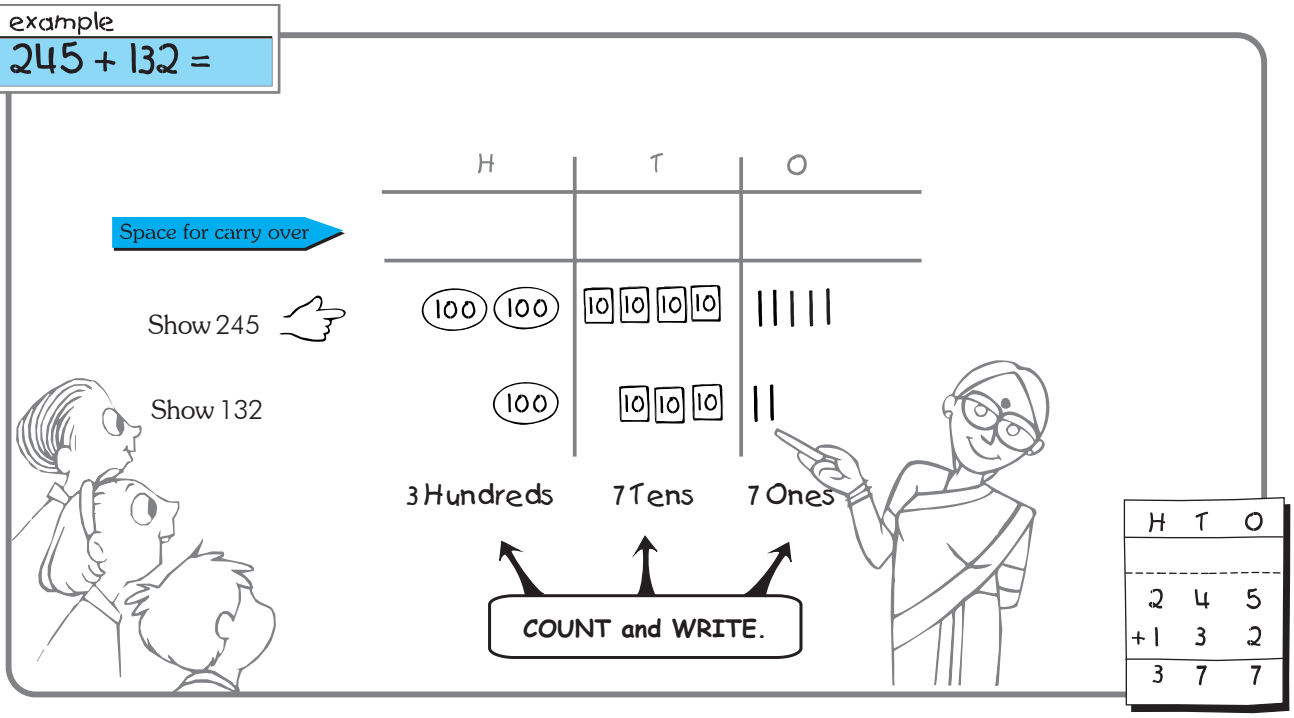
H	T	O

H	T	O

Adding with matchsticks 2

example

245 + 132 =



243 + 155 = ___

H	T	O

H	T	O

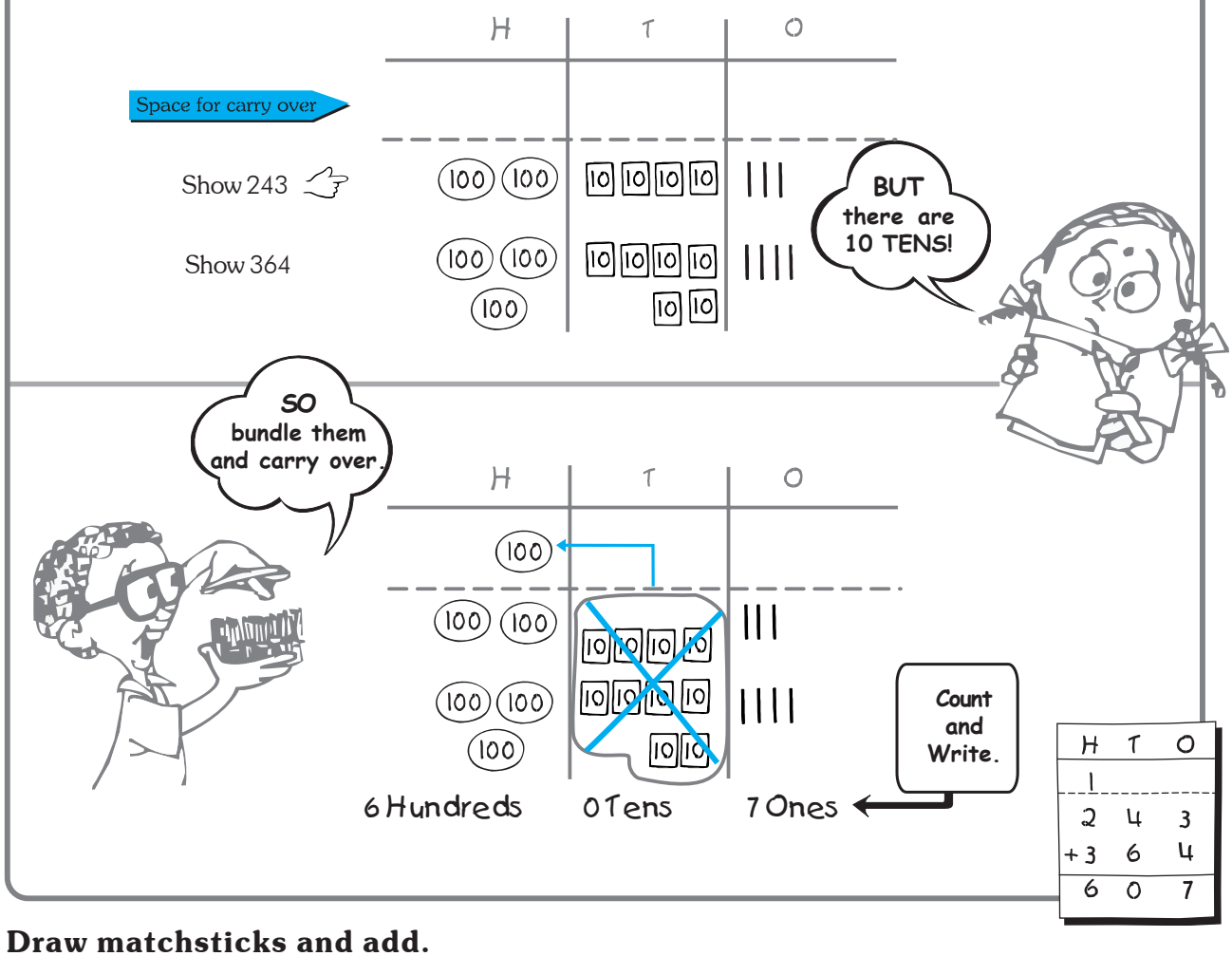
Notebook Exercise

Draw matchsticks and add.

316 + 272 153 + 326

example

243 + 364 =



Draw matchsticks and add.

273 + 256 = ____

H T O H T O

Notebook Exercise

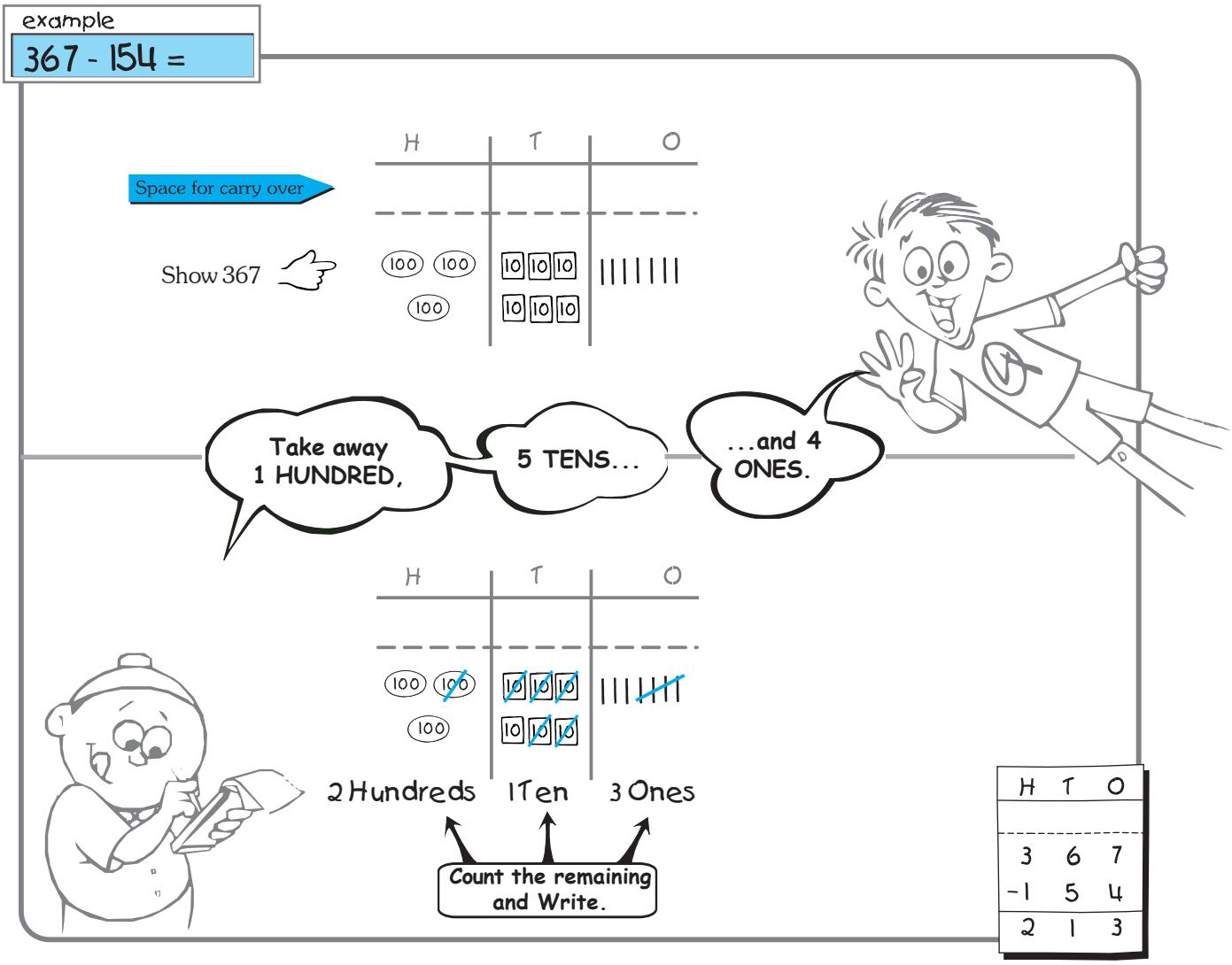
Draw matchsticks and add.

383 + 175 293 + 15

Subtracting with matchsticks 2

example

367 - 154 =



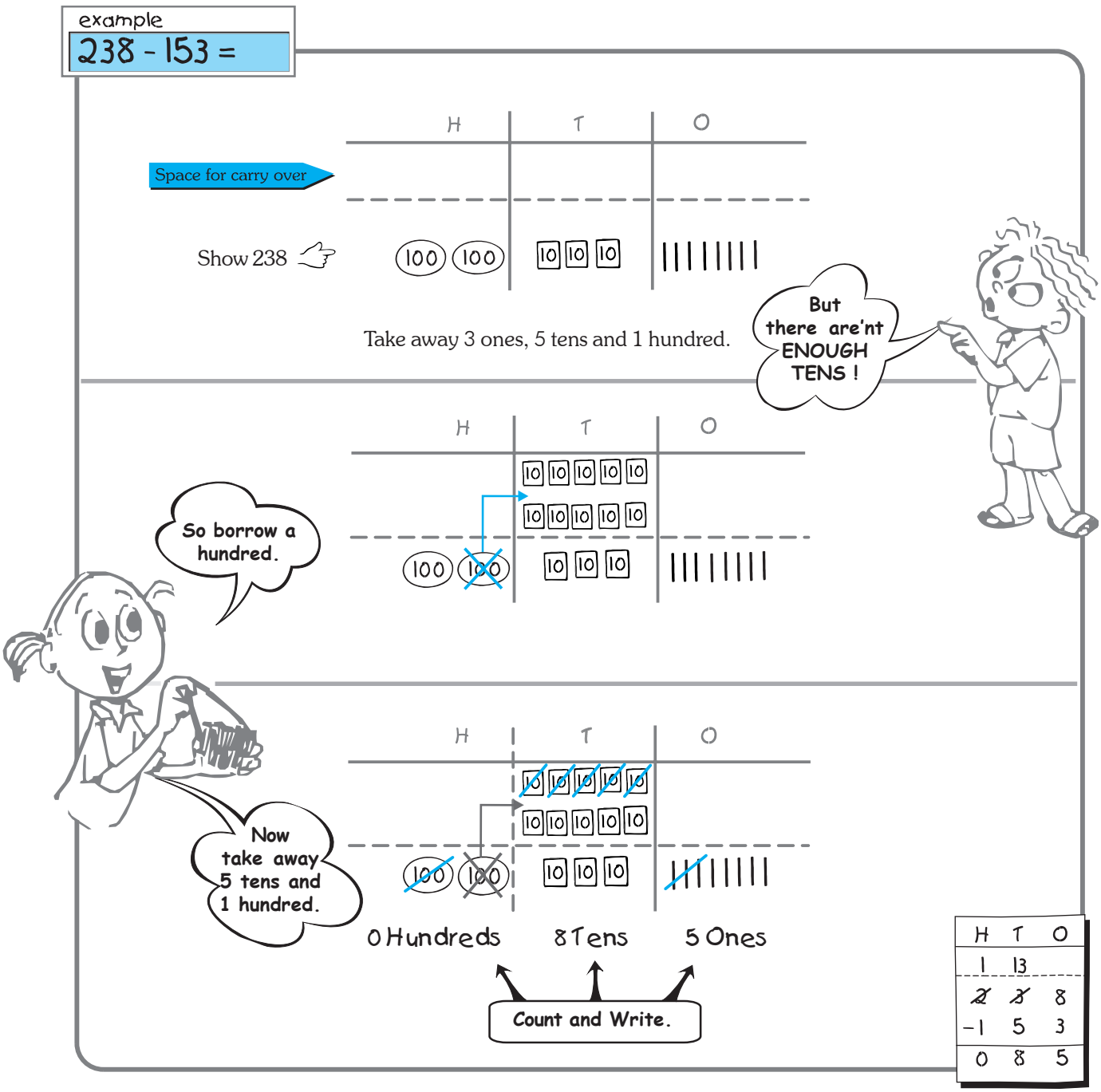
Draw matchsticks and subtract.

236 – 125 =____

H T O H T O

example

238 - 153 =



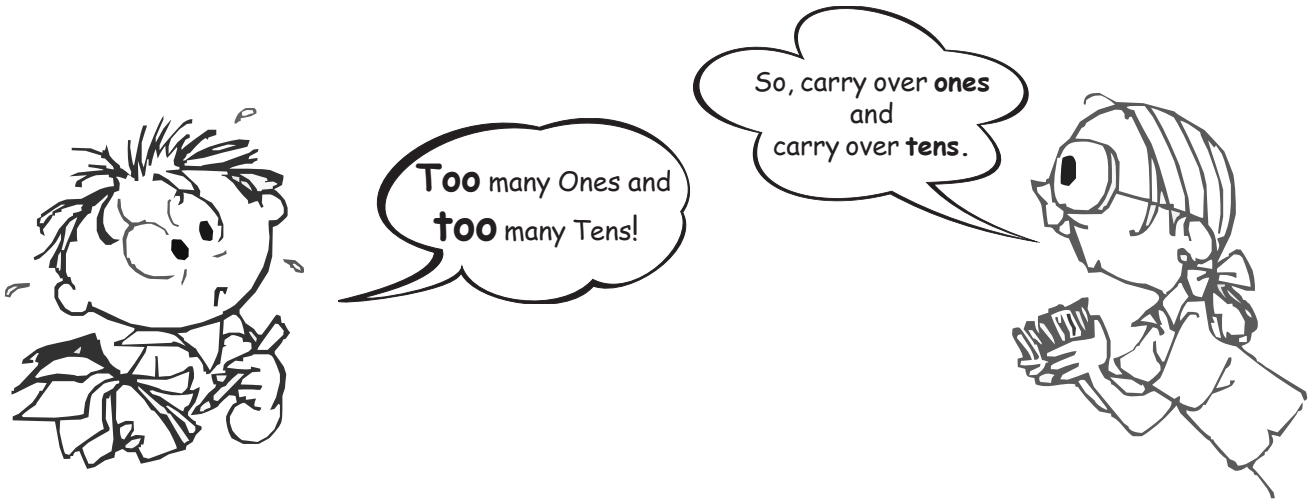
Notebook Exercise

Draw matchsticks and subtract.

346 – 254 303 – 172 215 – 45

10 10 10 | | | | |

Adding with matchsticks 3



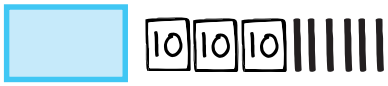
Draw matchsticks and add.

246 + 167 = ___

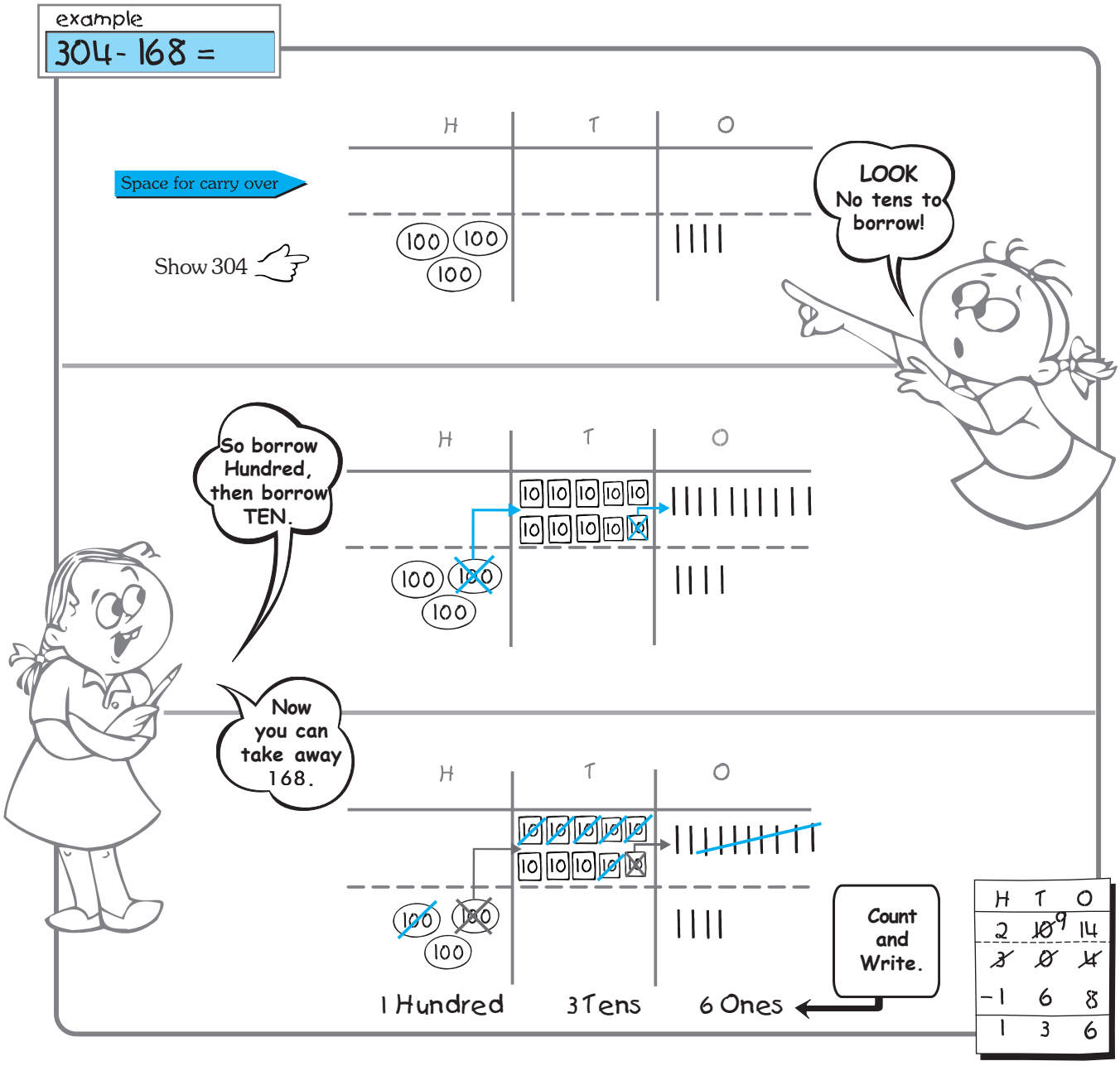
H	T	O	H	T	O

204 + 96 = ___

H	T	O	H	T	O



Subtracting with matchsticks 3



Draw matchsticks and subtract.

205 – 156 =___

H T O

H T O

Notebook Exercise

Draw matchsticks and add or subtract.

383 + 175	257 + 168	2 + 198	99 + 211
321 – 132	364 – 265	208 – 19	200 – 1

PRACTICE SUMS

Add without drawing matchsticks.

H T O	H T O	H T O	H T O
2 3 6	5 6 9	2 1 1	2 8 7
+ 5 8 5	+ 3 6 9	+ 9 9	+ 1 3

Subtract without drawing matchsticks.

H T O	H T O	H T O	H T O
6 2 5	5 8 5	4 7 6	2 0 6
– 2 6 7	– 3 7 9	– 3 8 7	– 1 7

Notebook Exercise

Add or subtract without drawing matchsticks.

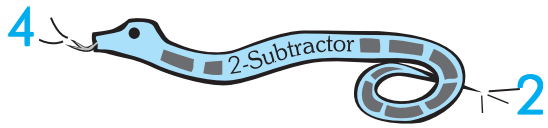
469 + 469	1 + 499	19 + 581	4 + 696
100 – 1	500 – 3	200 – 19	1000 – 1

Subtractors

The subtractors are a bit like the adders. They subtract very fast.

The 2-subtractor subtracts 2 to any number that you give it.

Like the subtractors, subtract as fast as you can.



Subtract 2

3 → 1	7 → 5	5 →	2 →	4 →	8 →
9 →	12 →	15 →	10 →	13 →	11 →
17 →	26 →	21 →	32 →	46 →	51 →
78 →	80 →	91 →	99 →	101 →	110 →

Subtract 3

5 → 2	4 → 1	6 →	7 →	3 →	10 →
8 →	13 →	9 →	11 →	12 →	15 →
19 →	21 →	34 →	30 →	42 →	51 →

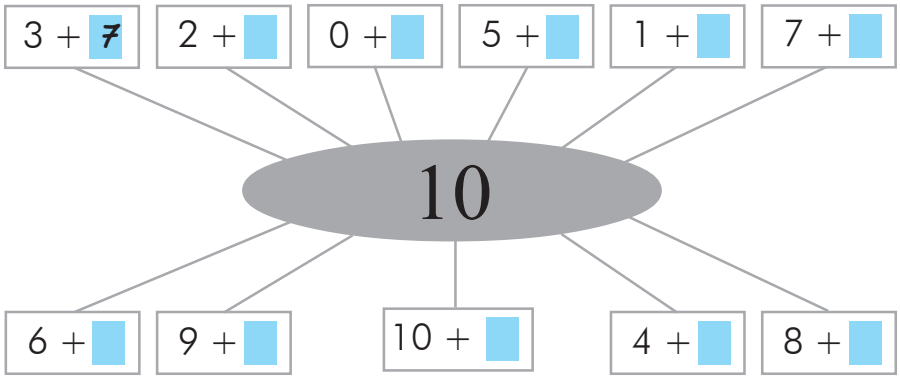
Subtract 4

6 → 2	7 → 3	5 →	8 →	4 →	9 →
10 →	12 →	11 →	14 →	19 →	21 →
23 →	26 →	32 →	36 →	40 →	48 →

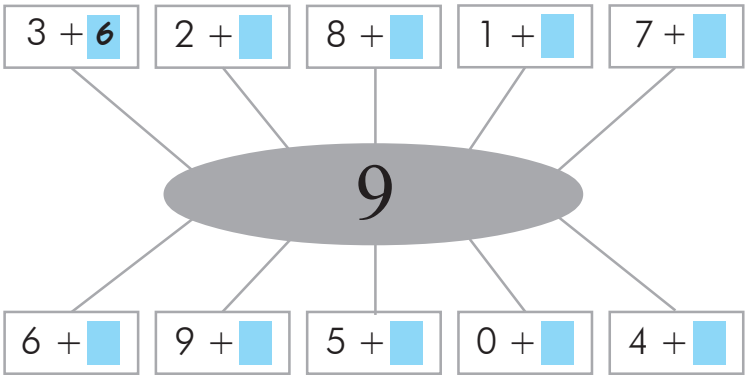
Subtract 5

6 → 1	8 → 3	7 →	9 →	5 →	10 →
12 →	11 →	15 →	20 →	24 →	31 →
35 →	36 →	33 →	45 →	38 →	47 →

Add a number so that the total is 10.



Add a number so that the total is 9.



Add and write the total.

2 + 2 =	10 + 10 =	17 + 17 =	21 + 21 =
3 + 3 =	11 + 11 =	19 + 19 =	23 + 23 =
4 + 4 =	13 + 13 =	20 + 20 =	25 + 25 =
6 + 6 =	12 + 12 =	22 + 22 =	27 + 27 =
8 + 8 =	14 + 14 =	24 + 24 =	29 + 29 =
5 + 5 =	16 + 16 =	26 + 26 =	32 + 32 =
7 + 7 =	15 + 15 =	28 + 28 =	31 + 31 =
9 + 9 =	18 + 18 =	30 + 30 =	34 + 34 =

Number Building

Number building

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

FIRST

GROUND

Exploring the Number Building

The number building has ten floors. It has many, many rooms.

Which are the rooms on the ground floor? _____

Which are the rooms on the second floor? _____

Which are the rooms on the top floor? _____

Which are the rooms on the fifth floor? _____

CROSSWORD PUZZLE

Across

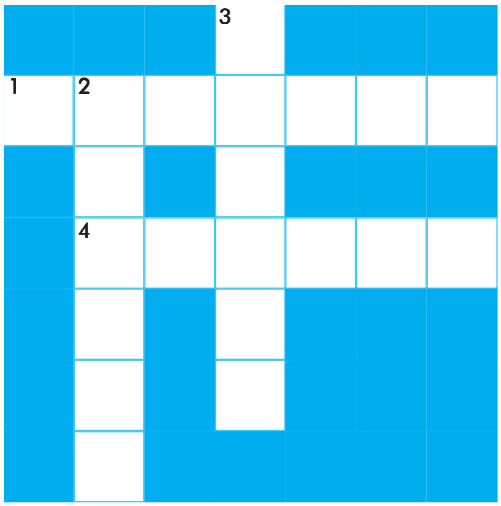
1) The cat is on this floor.

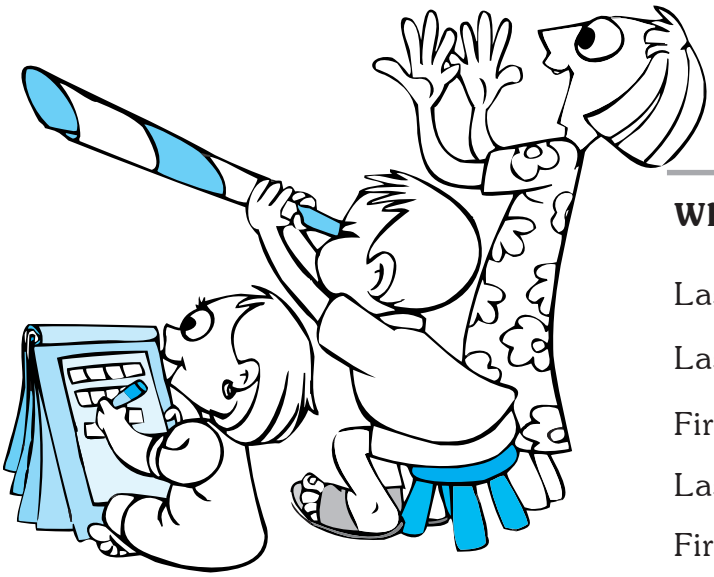
4) The boy is on this floor.

Down

2) 87 is on this floor.

3) The clothes are on this floor.





Which rooms are these?

Last room on the fourth floor _____

Last room on the third floor _____

First room on the seventh floor _____

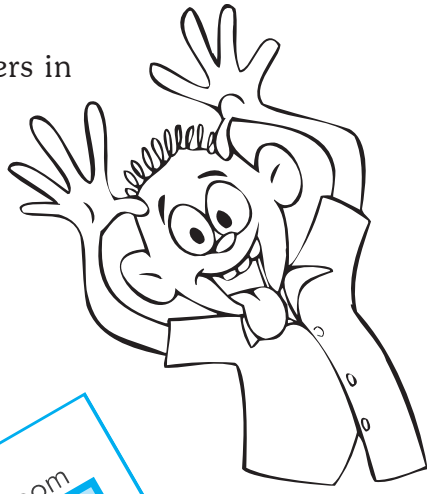
Last room in the number building _____

First room in the number building _____

Which room?

Eti Soppo has sent Diwali greetings to his friends in the number building. Instead of room numbers, he has written clues.

Help Postman chacha by writing the correct room numbers in the empty boxes.



Example

Greetings — Above 38 — Room 48

Greetings — Above 77 — Room

Greetings — Before 31 — Room

Greetings — Below 94 — Room

Greetings — Above 27 — Room

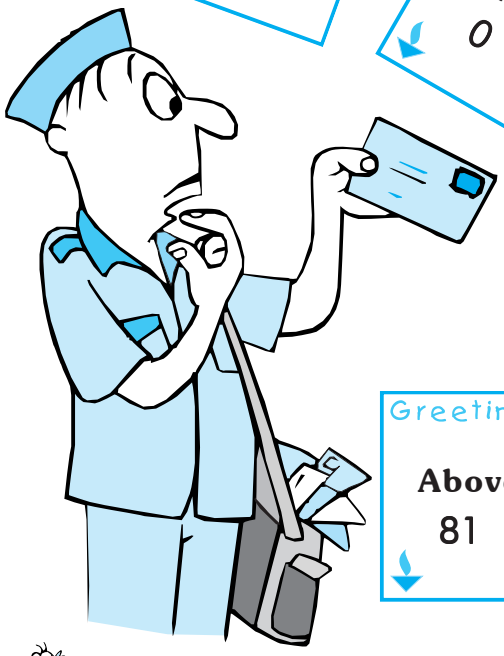
Greetings — After 0 — Room

Greetings — Before 99 — Room

Greetings — Below 49 — Room

Greetings — Above 81 — Room

Greetings — After 20 — Room



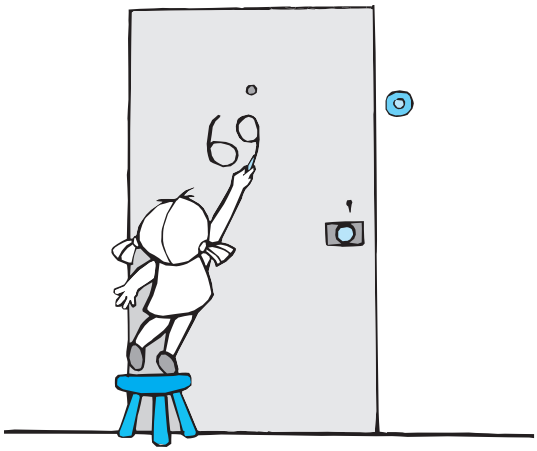
GAME FOR TWO

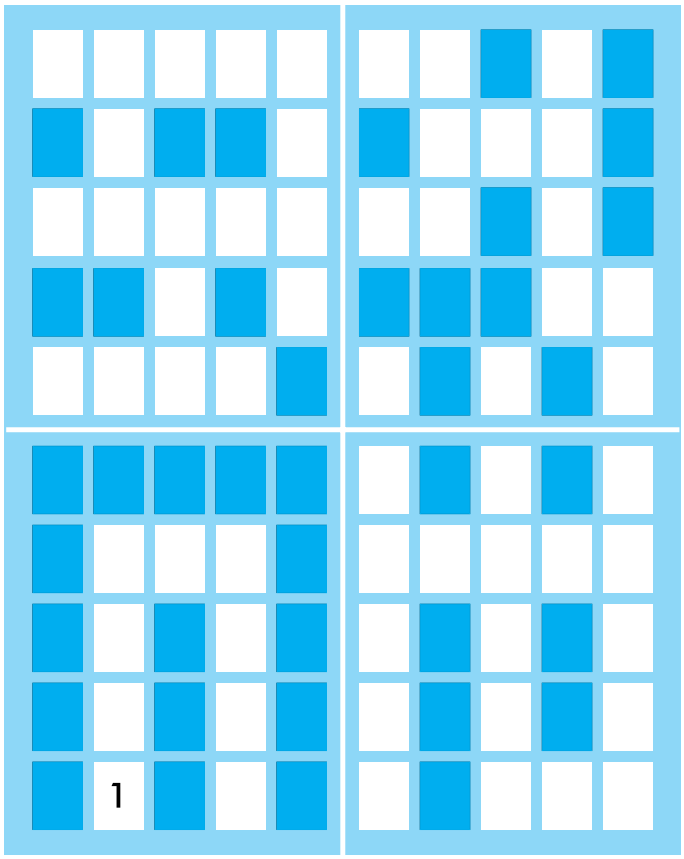
Give your friend clues like the ones above. She should guess the room number without looking at the number building.

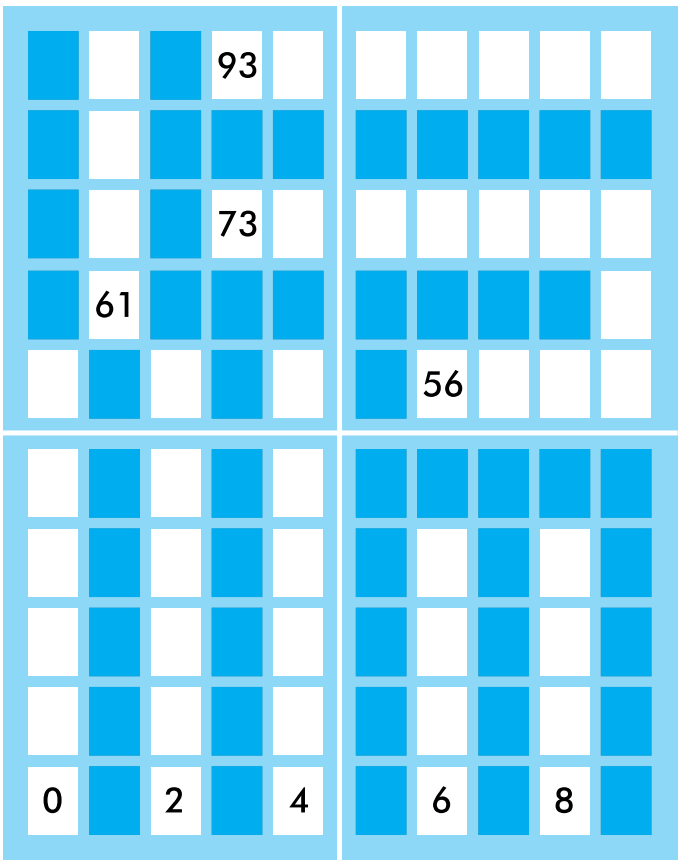
Help the postman

Postman chacha has come to give letters to people. Let's help him!

Write the room numbers of the rooms which are not shaded.



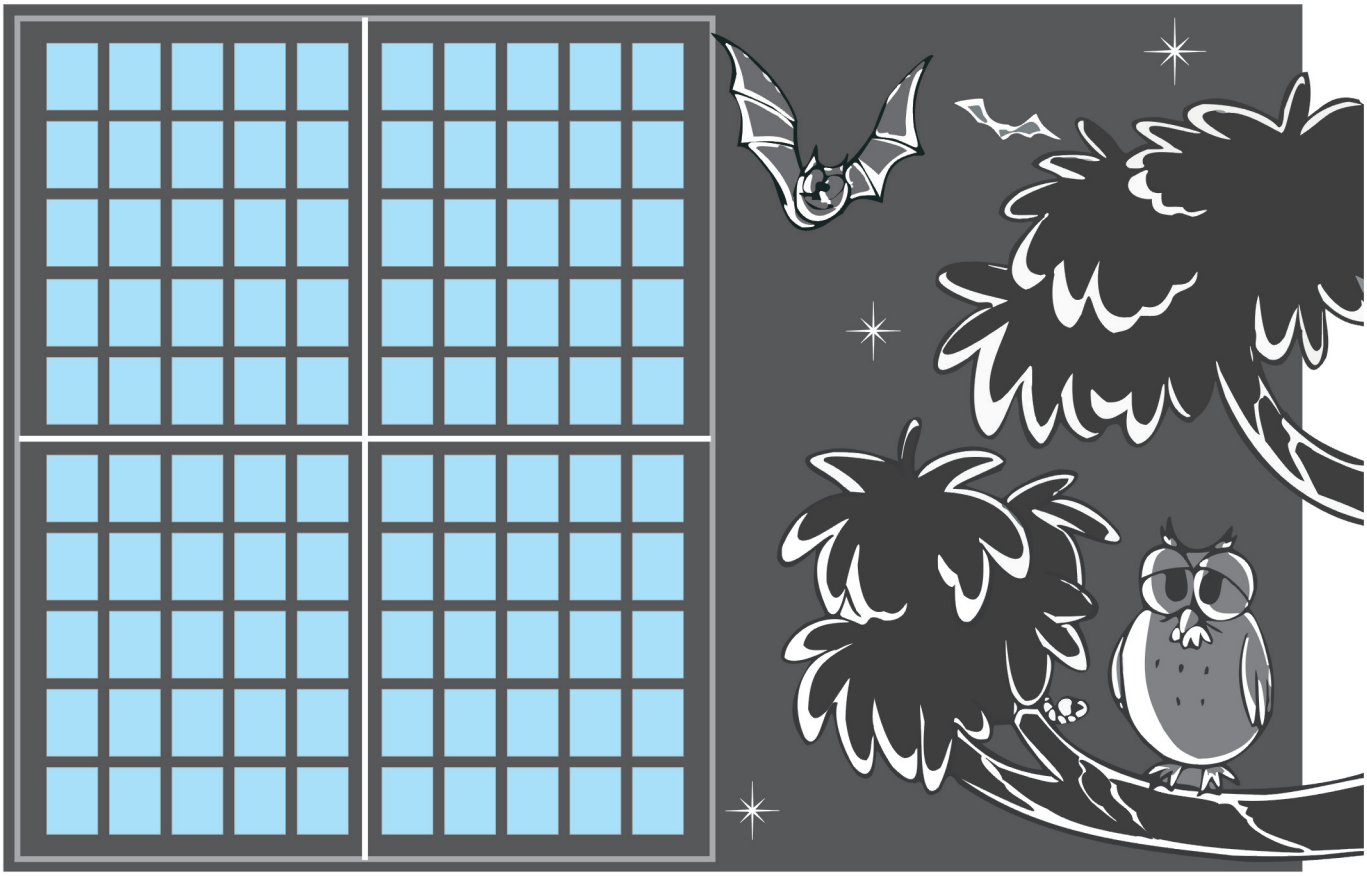


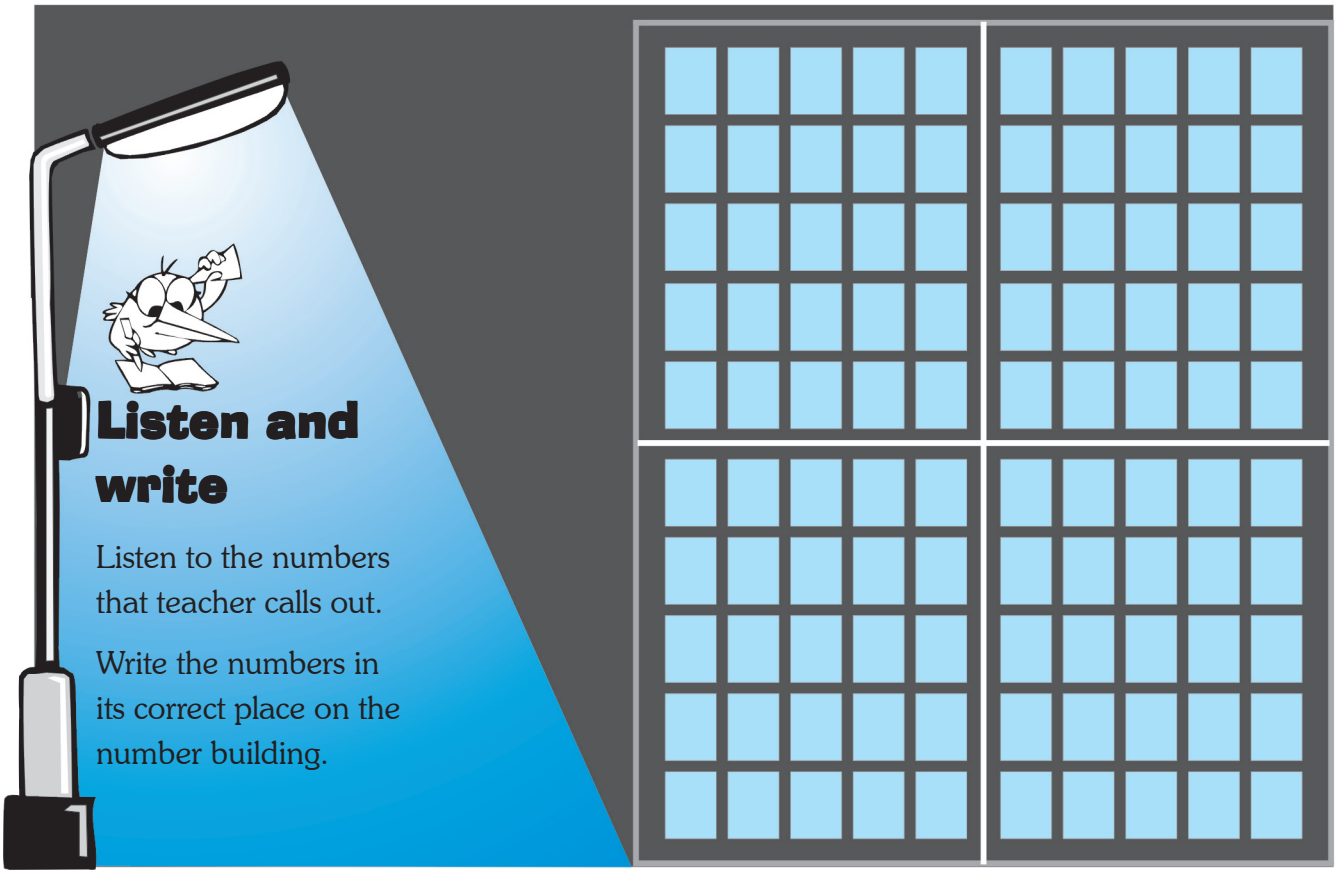


When it's dark

When it is dark all you can see are the lights that shine from the rooms that are open.

Write the numbers of the rooms that are open.





Listen and write

Listen to the numbers that teacher calls out.

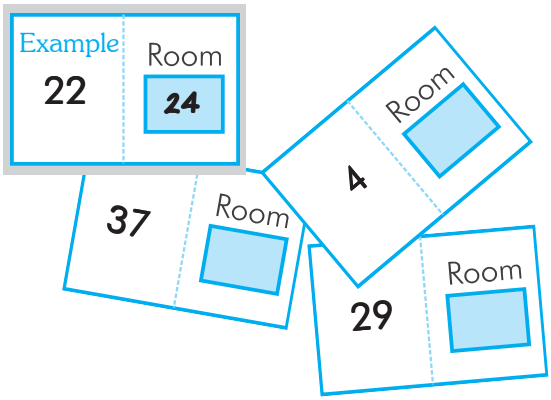
Write the numbers in its correct place on the number building.

Which room?

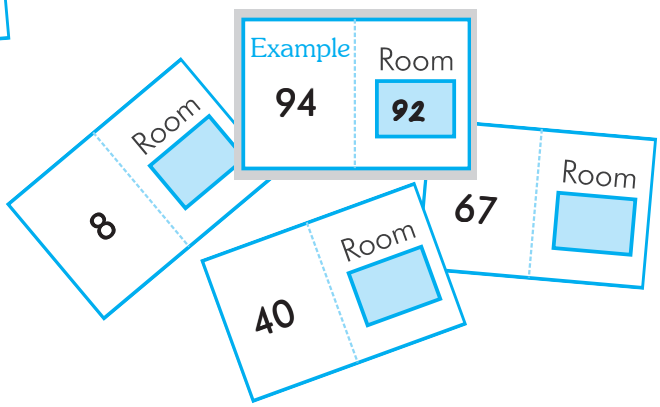
Eti soppo has done it again!

Can you write the correct room numbers?

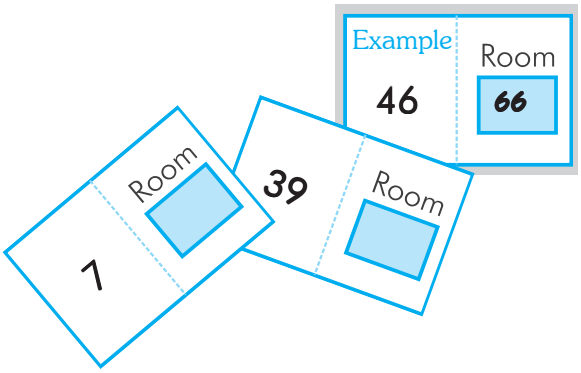
Two rooms after



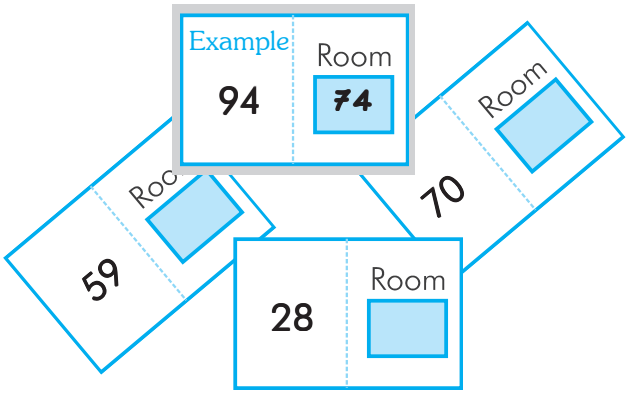
Two rooms before



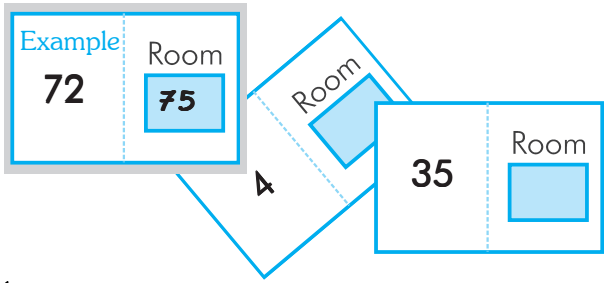
Two floors above



Two floors below



Three rooms after



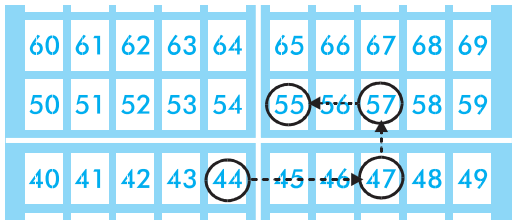
GAME FOR TWO

Give your friend clues like the ones above. Let her guess the room numbers as quickly as possible.

Where are you?

Geeta's kitten is lost in the number building. Can you help find her ?

Follow the clues and write the room numbers you come to.

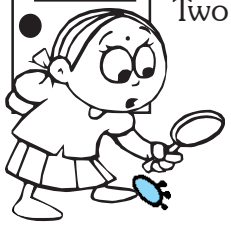


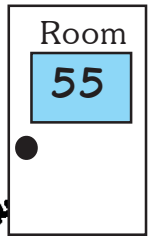
1 Start from room 44.

Go three rooms forward. 47

One floor up. 57

Two rooms back. 55

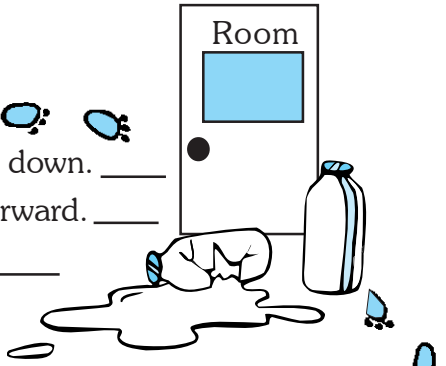




2 Now go one floor down. ____

Three rooms forward. ____

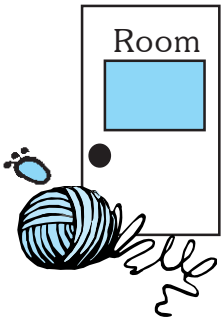
Two floors up. ____



3 Now go three rooms back. ____

Two floors down. ____

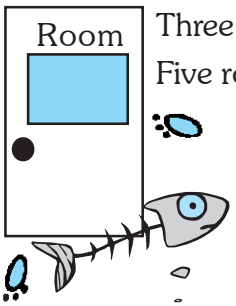
Four rooms forward. ____



4 Now go one room forward. ____

Three floors down. ____

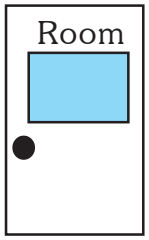
Five rooms back. ____

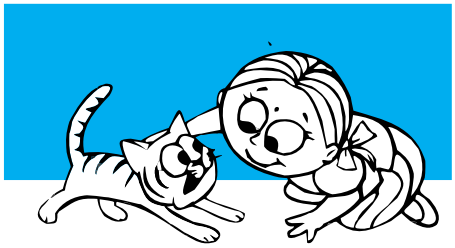


5 Now go two rooms forward. ____

Three floors up. ____

Three rooms back. ____





GAME FOR TWO

Make a 'where are you' puzzle for your friend to solve.

Adding ones

Do you remember how to carry over?

Do these sums.

Draw a ring around the problems where you need to carry over.

T	O
1	
2	5
+	6
3	1

T	O
1	3
+	5

T	O
1	3
+	6

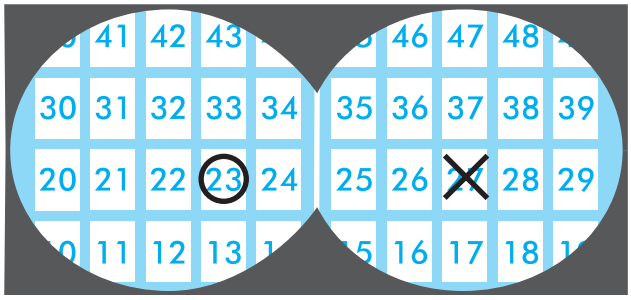
T	O
1	3
+	7

T	O
2	2
+	8

A burglar has entered the number building !

The answers to the problems tell you which rooms have been burgled.

Put a cross on each room that has been burgled. Write if you are on the same floor as 23 or on the next floor. Ring the problems where you go to the next floor.



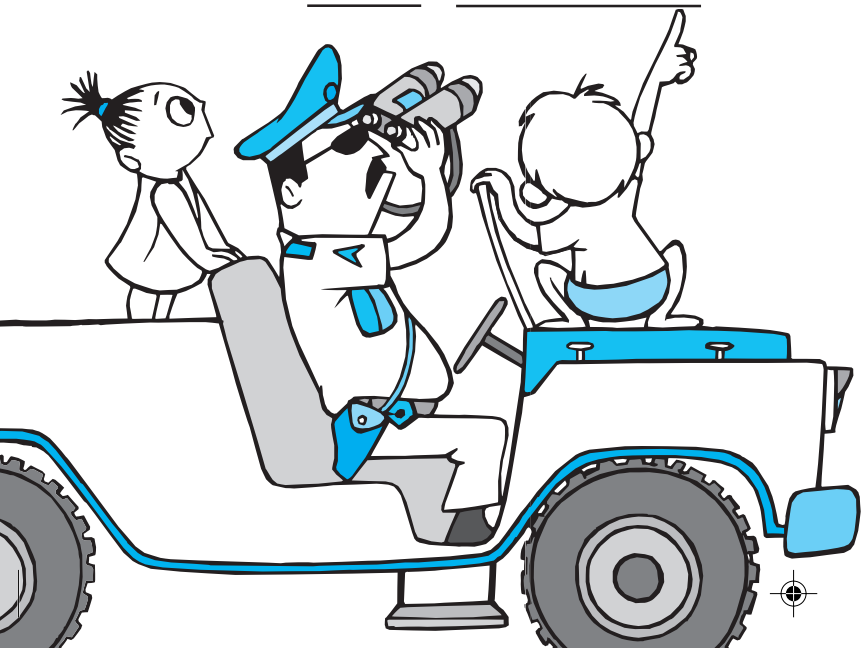
23 + 4 = 27 (same floor)

23 + 5 = _____ _____

23 + 6 = _____ _____

23 + 7 = _____ _____

23 + 8 = _____ _____



Now do the same additions in vertical columns.

Ring the problems where you need to carry over.

T	O
2	3
+	4

T	O
2	3
+	5

T	O
2	3
+	6

T	O
2	3
+	7

T	O
2	3
+	8

The burglar has burgled more rooms !

Find out which ones.

Put a cross on each room. Write if you are on the same floor as 34 or on the next floor. Ring the problems where you go to the next floor.

40	41	42	43	44	45	46	47	48	49
30	31	32	33	(34)	35	36	✕	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19

34 + 3 = 37 (same floor)

34 + 4 = _____ _____

34 + 5 = _____ _____

34 + 6 = _____ _____

34 + 7 = _____ _____

Now do the same addition in vertical columns.

Ring the problems where you need to carry over.

T	O
3	4
+	3

T	O
3	4
+	4

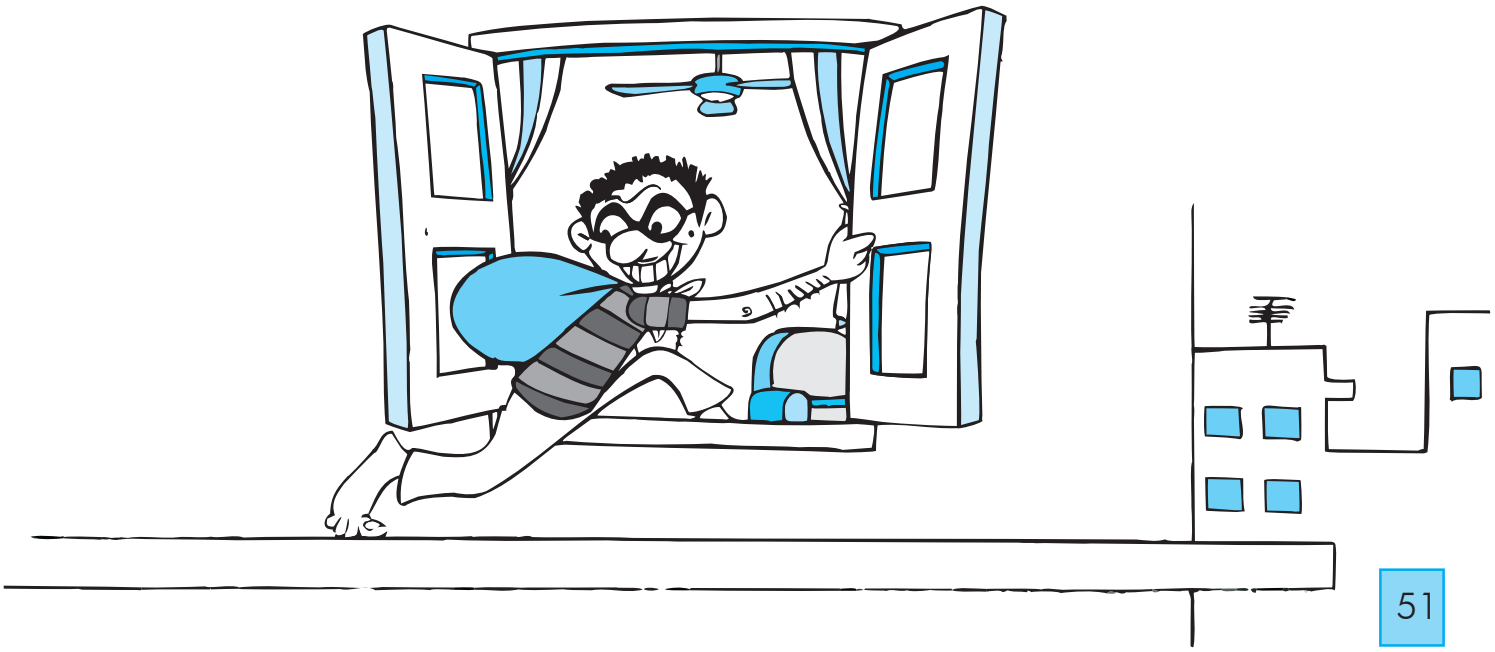
T	O
3	4
+	5

T	O
3	4
+	6

T	O
3	4
+	7

Sometimes when you add ones, you go to the next floor.

Check if this happens whenever there is a carry over.



Subtracting ones

Do you remember how to borrow?

Draw a ring around the problems where you need to borrow.

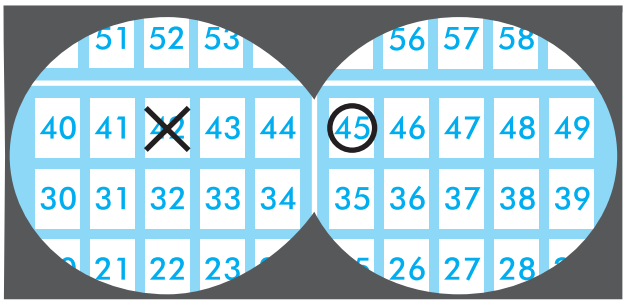
T	O
~~3~~ 2	~~2~~ 12
– 4	
2	8

T	O
3	2
– 5	

T	O
1	7
– 6	

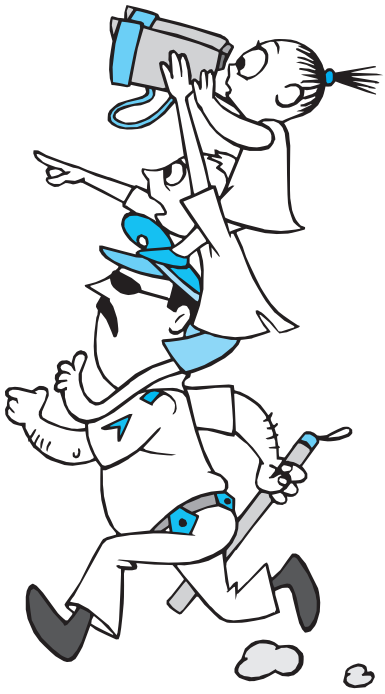
T	O
1	7
– 7	

T	O
1	7
– 8	



Put a cross on each room. Are you on the same floor as 45 or on the floor below? Ring the problems where you go to the floor below.

Help the children keep track of the burglar by solving these subtraction problems.



45 – 3 = 42 (same floor)

45 – 4 = _____ _____

45 – 5 = _____ _____

45 – 6 = _____ _____

45 – 7 = _____ _____

Do the same subtractions in vertical columns.

Ring the problems where you need to borrow.

T	O
4	5
– 3	

T	O
4	5
– 4	

T	O
4	5
– 5	

T	O
4	5
– 6	

T	O
4	5
– 7	

It's time to catch the burglar !

The answer to the last problem tells you in which room he was caught.

Cross the answers to these problems.

Are you on the same floor as 56 or on the floor below? Ring the problems where you go to the floor below.

56 – 5 =	51	(same floor)
56 – 6 =		
56 – 7 =		
56 – 8 =		
56 – 9 =		

Sometimes when you subtract ones, you go to the floor below.

Check if this happens whenever there is a borrow.

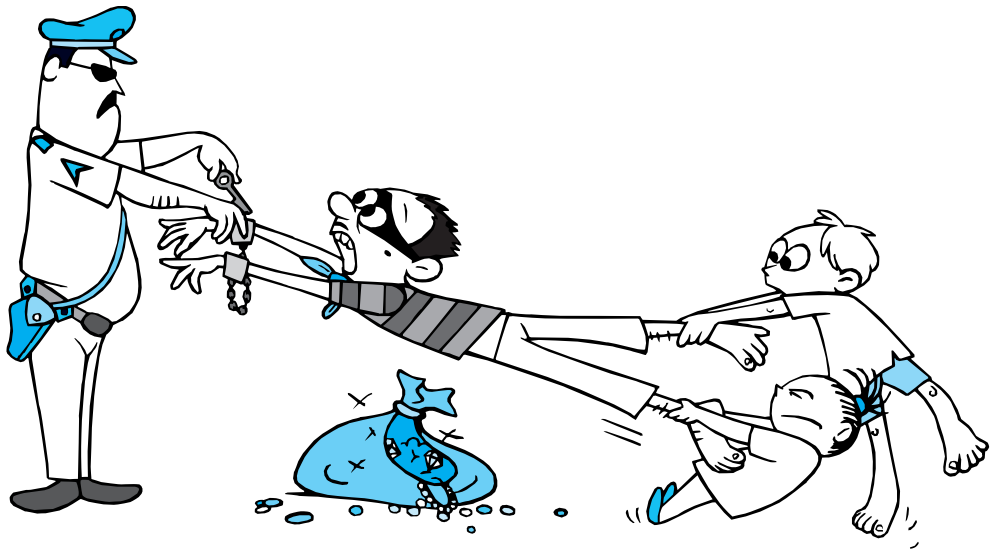
60	61	62	63	64	65	66	67	68	69
50	~~51~~	52	53	54	55	(56)	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39

Do the same subtractions in vertical columns.

Ring the problems where you need to borrow.

T	O	T	O	T	O
5	6	5	6	5	6
– 5		– 6		– 7	

T	O	T	O
5	6	5	6
– 8		– 9	



Clap-snap game

Teacher writes a number on the board. She then claps 3 times.

Add the claps to the number.

REMEMBER

A clap means a 10.

25 + Clap! Clap! Clap! = 55

44 + Clap! Clap! Clap! Clap! =

17 + Clap! Clap! Clap! Clap! Clap! =

Teacher writes a number on the board. Subtract the claps from the number.

78 - Clap! Clap! Clap! Clap! =

66 - Clap! Clap! Clap! Clap! Clap! =

GAME FOR TWO

1. Play the game of adding and subtracting claps with your friends.
2. Change the game. Give your friends claps **and** snaps to add.

Adding and subtracting ten

1) Circle room 14.

Now cross out the answer for 14 + 10.

2) Circle 36, cross out 36 + 10.

3) Circle 64, cross out 64 + 10.

4) Circle 77, cross out 77 + 10.

5) Circle 6, cross out 6 + 10.

6) Circle 20, cross out 20 + 10.

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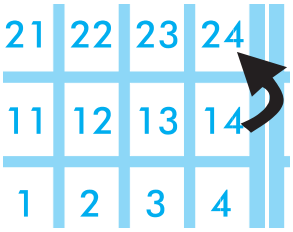

What happens when you add ten?

Adding 10 is like jumping one floor up!

1) Circle room 54.

Now cross out the answer for 54 – 10.

2) Circle 27, cross out 27 – 10.

3) Circle 64, cross out 64 – 10.

4) Circle 83, cross out 83 – 10.

5) Circle 15, cross out 15 – 10.

6) Circle 40, cross out 40 – 10.

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
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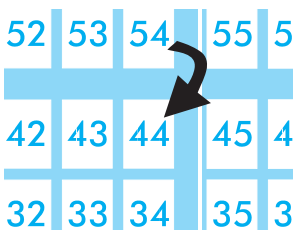


What happens when you subtract ten?

Subtracting 10 is like jumping one floor down!

Adding twenty

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

Now let us see what happens when you add 20.

1) Circle room 32.

Cross out the answer for 32 + 20.

2) Circle 11, cross out 11 + 20.

3) Circle 46, cross out 46 + 20.

4) Circle 55, cross out 55 + 20.

5) Circle 3, cross out 3 + 20.

6) Circle 50, cross out 50 + 20

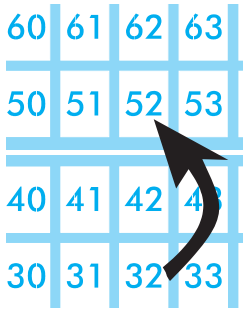
What happens when you add 20 ?

Adding 20 is like

_____

_____

_____



Find out what happens when you add 30 and 40.

Adding 30 is like _____

Adding 40 is like _____

Do these problems as quickly as you can. Imagine that you are jumping floors on the number building.

25 + 10 = ____	36 + 30 = ____	41 + 50 = ____
88 + 10 = ____	60 + 30 = ____	16 + 60 = ____
10 + 44 = ____	30 + 57 = ____	60 + 24 = ____
16 + 20 = ____	44 + 40 = ____	36 + 60 = ____
75 + 20 = ____	18 + 40 = ____	50 + 27 = ____
20 + 58 = ____	40 + 35 = ____	70 + 18 = ____

Subtracting twenty

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

1) Circle room 52.

Cross out the answer for 52 – 20.

2) Circle 31, cross out 31 – 20.

3) Circle 46, cross out 46 – 20.

4) Circle 77, cross out 77 – 20.

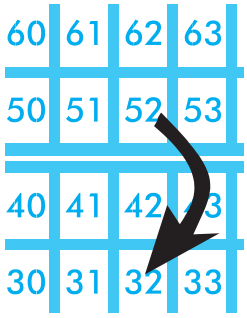
5) Circle 23, cross out 23 – 20.

What happens when you subtract 20 ?

Subtracting 20 is like _____

_____

_____



Find out what happens when you subtract 30 and 40.

Subtracting 30 is like _____

Subtracting 40 is like _____

Do these problems as quickly as you can. Imagine that you are jumping floors on the number building.

31 – 10 = _____	54 – 30 = _____	85 – 50 = _____
70 – 10 = _____	36 – 30 = _____	99 – 70 = _____
13 – 10 = _____	88 – 30 = _____	74 – 70 = _____
63 – 20 = _____	59 – 40 = _____	69 – 50 = _____
49 – 20 = _____	48 – 40 = _____	96 – 80 = _____
71 – 20 = _____	73 – 40 = _____	75 – 60 = _____

Adding tens and ones

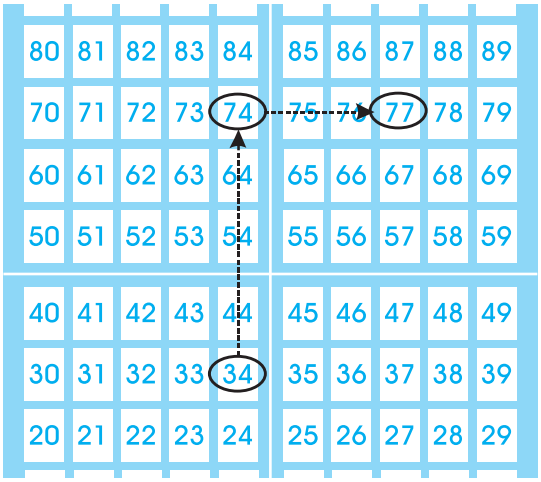
34 + 43

34 + (4 Tens + 3 Ones)

34 + (4 floors up + 3 rooms forward)

74 + 3

77

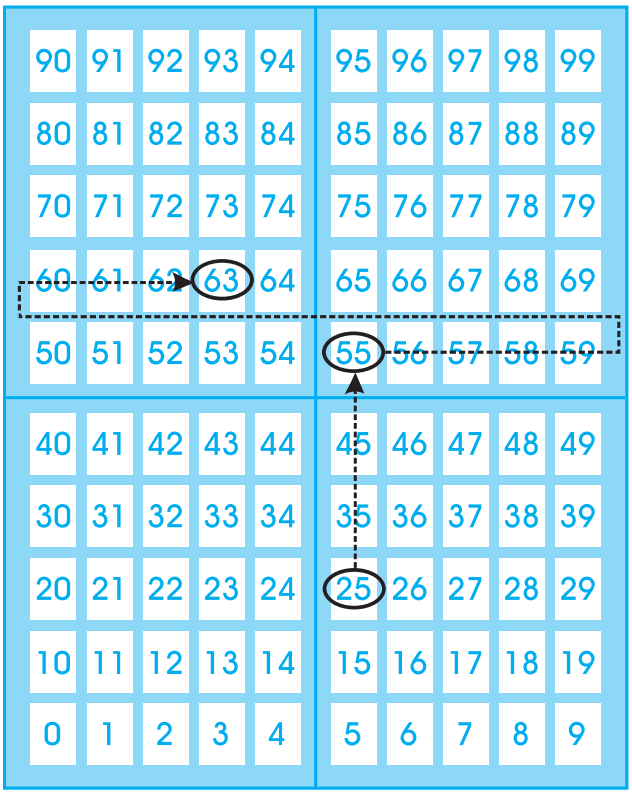


34 + 43 = 77

Trace the path for this problem on the number building.

Start from 34. Go 4 floors up, 3 rooms forward.

What happens if you go 3 rooms forward, **then** 4 floors up?



25 + 38

25 + 30 + 8

55 + 8

63

25 + 38 = 63

Trace the path: start from 25, go 3 floors up, 8 rooms forward.

What happens if you go 8 rooms forward, **then** 3 floors up?

Do these problems in your mind and trace the path on the number building.

54 + 21 = _____ 67 + 24 = _____

43 + 36 = _____ 28 + 69 = _____

Subtracting tens and ones

56 – 24

56 – (2 Tens and 4 Ones)

56 – (2 floors down + 4 rooms back)

36 – 4

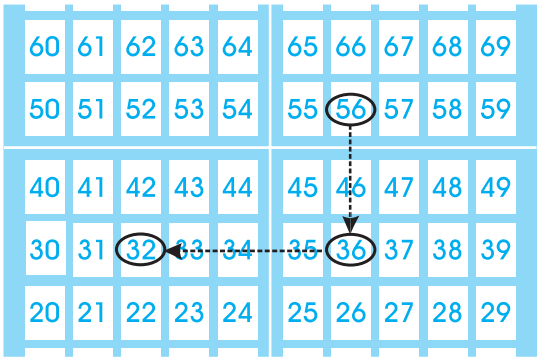
32

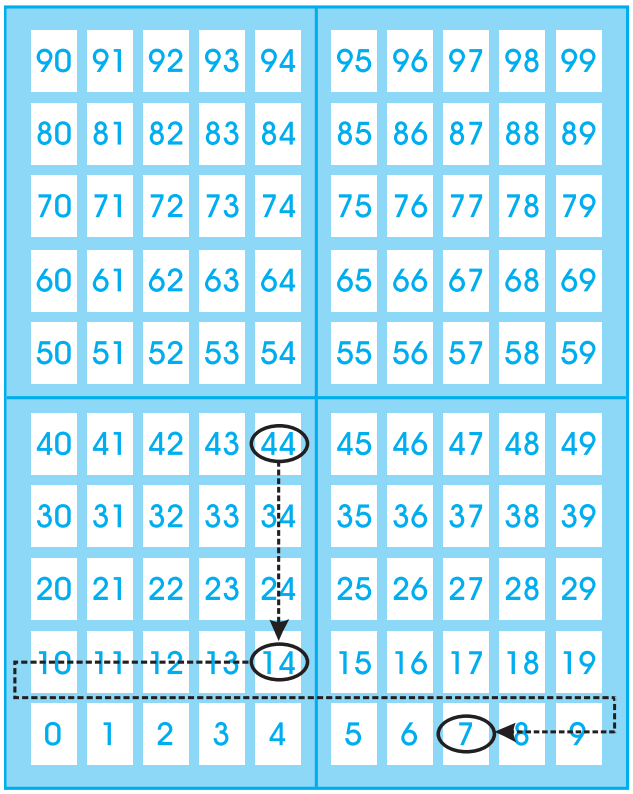
56 – 24 = 32

Trace the path for this problem on the number building.

Start from 56. Go 2 floors down, 4 rooms back.

What happens if you go 4 rooms back, **then** 2 floors down?





44 – 37

44 – 30 – 7

14 – 7

7

44 – 37 = 7

Trace the path: start from 44, go 3 floors down, 7 rooms back.
What happens if you go 7 rooms back, **then** 3 floors down?

Do these problems in your mind and trace the path on the number building.

54 – 23 = _____ 67 – 26 = _____

43 – 37 = _____ 65 – 28 = _____

Now where are you?

We can make a problem from a 'where are you' puzzle.

The Puzzle

Start from 34.

Go two floors up (+ 20)

Six rooms forward (+ 6)

Two rooms back (– 2)

Where are you? _____

The Problem

34 + 20 + 6 – 2 = _____

Now make a problem from this puzzle.

The Puzzle

Start from 41.

Go one floor up _____

Three rooms back _____

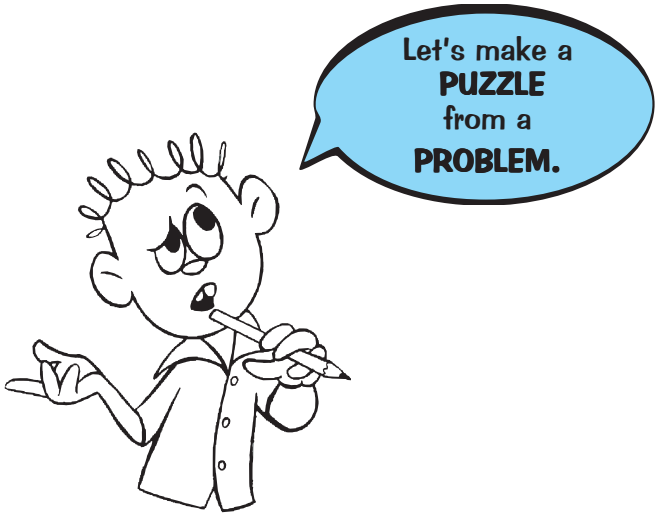
Two floors up _____

Where are you? _____

The Problem

41 _____ = _____

Eti Soppo has another idea.



The Problem

26 + 10 – 4 – 20 = _____

The Puzzle

Start from 26.

Go one floor up (+ 10)

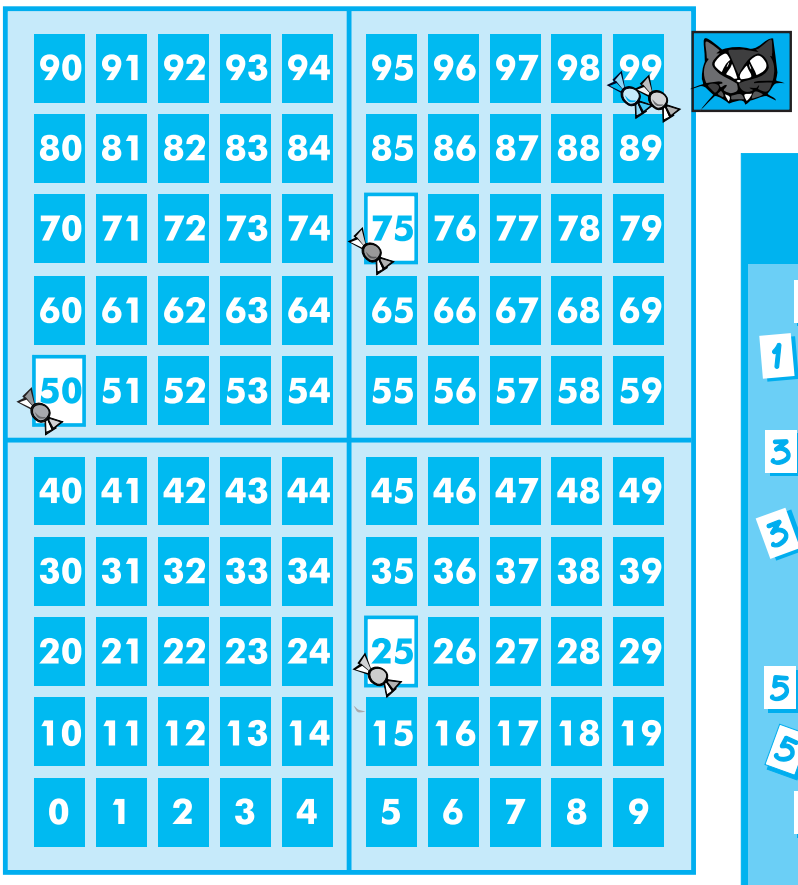
Four rooms back (– 4)

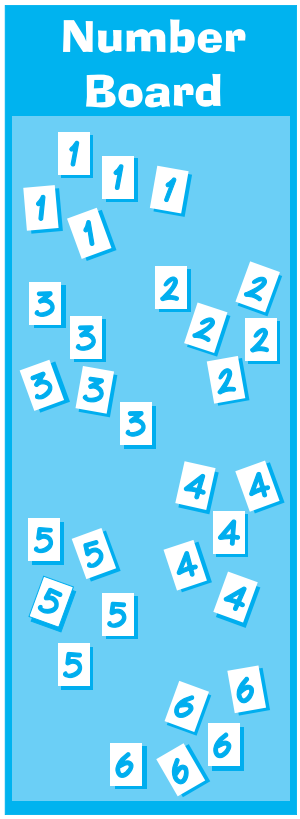
Two floors down (– 20)

Try making puzzles from these problems along with Eti.

5 + 30 – 2 + 10 + 7 67 – 20 + 4 + 30 – 6

Rat race





GAME FOR TWO

This game is for two players, but both move the **same** rat.

Start by keeping the rat on Room number 0. Choose a number card from the Number Board and move the rat forward by those many rooms. Your opponent now choses a number and moves the same rat forward. Take turns and continue the game. Once you choose a number from the number board, cross it out. You or your opponent cannot choose it again.

The Points

If you bring the rat exactly to

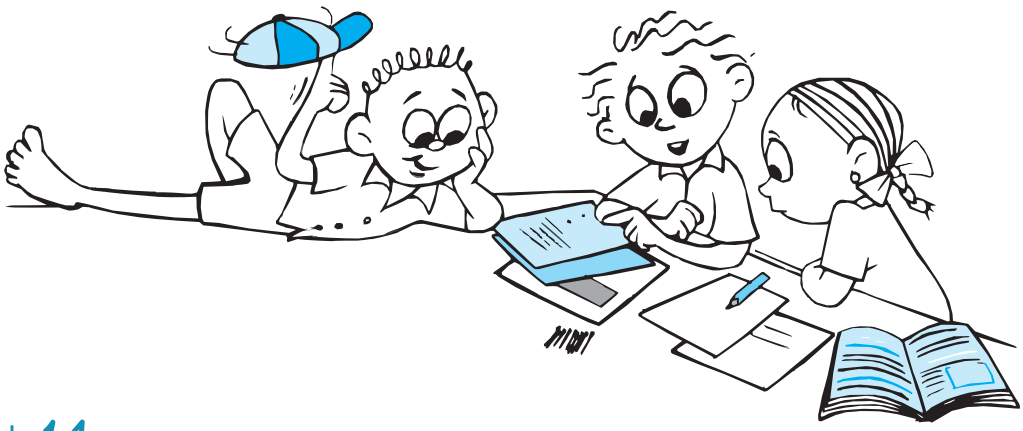
Room 25	1 point	Room 50	1 point
Room 75	1 point	Room 99	2 points

If the rat crosses these rooms you get zero points.

If the rat crosses room 99 it will be caught by the cat. So you lose two points.

Making connections

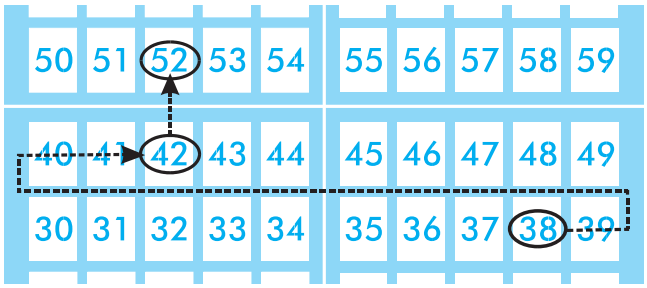
Rani, Javed and Eti Soppo were solving addition and subtraction problems.



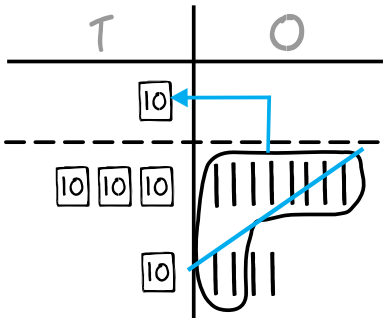
38 + 14 = _____

I can solve this with the number building.

I can do it with our **matchstick bundles** too!



T	O
1	
3	8
+1	4
5	2

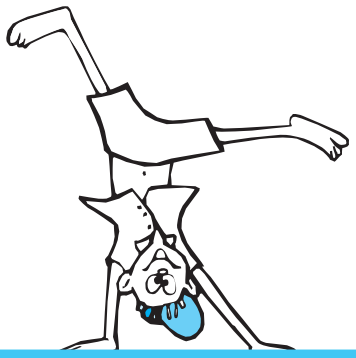


Eti, not to be left out, said " I can do it with my cap!"

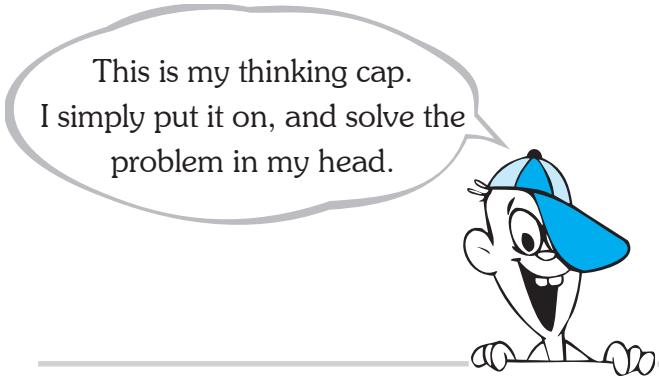
With your cap? How?

Solve this problem and show us.

Eti put his cap on his head and gave the answer.



27 + 13 = 40



How did Eti solve this problem? Do you think he imagined going up the number building?

Try to do these problems in your mind.

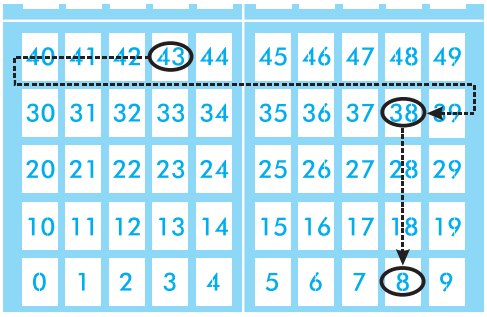
14 + 14 = _____	26 + 26 = _____	35 + 35 = _____
16 + 16 = _____	28 + 28 = _____	40 + 40 = _____
13 + 13 = _____	34 + 34 = _____	45 + 45 = _____
15 + 15 = _____	43 + 43 = _____	25 + 25 = _____
23 + 23 = _____	37 + 37 = _____	50 + 50 = _____

15 + 5 = _____	25 + 30 = _____	22 + 34 = _____
25 + 5 = _____	25 + 35 = _____	31 + 26 = _____
25 + 15 = _____	30 + 35 = _____	45 + 16 = _____
15 + 20 = _____	30 + 45 = _____	27 + 34 = _____
15 + 25 = _____	25 + 45 = _____	32 + 19 = _____

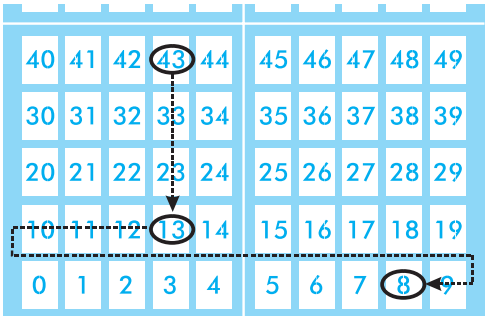
Look and figure out

Look carefully and find the connections between these different ways of doing the same problem.

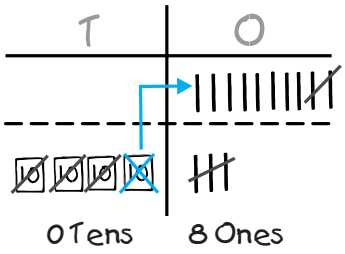
43 – 35 = 8



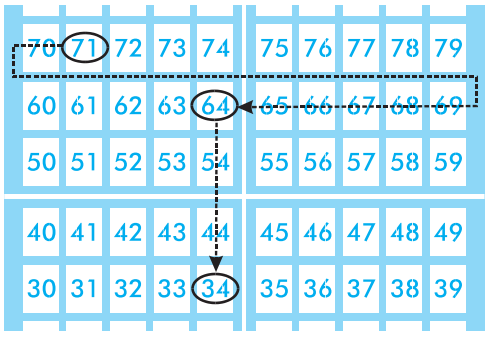
or



T	O
~~4~~ 3	~~3~~ 13
– 3	5
0	8



71 – 37 = 34



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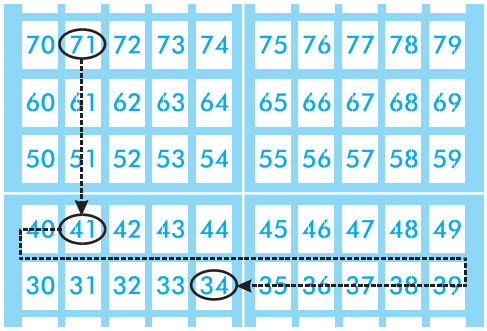
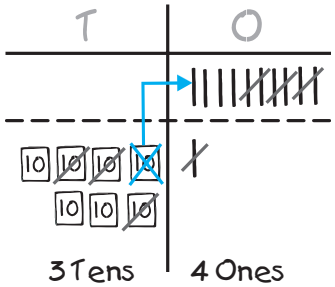
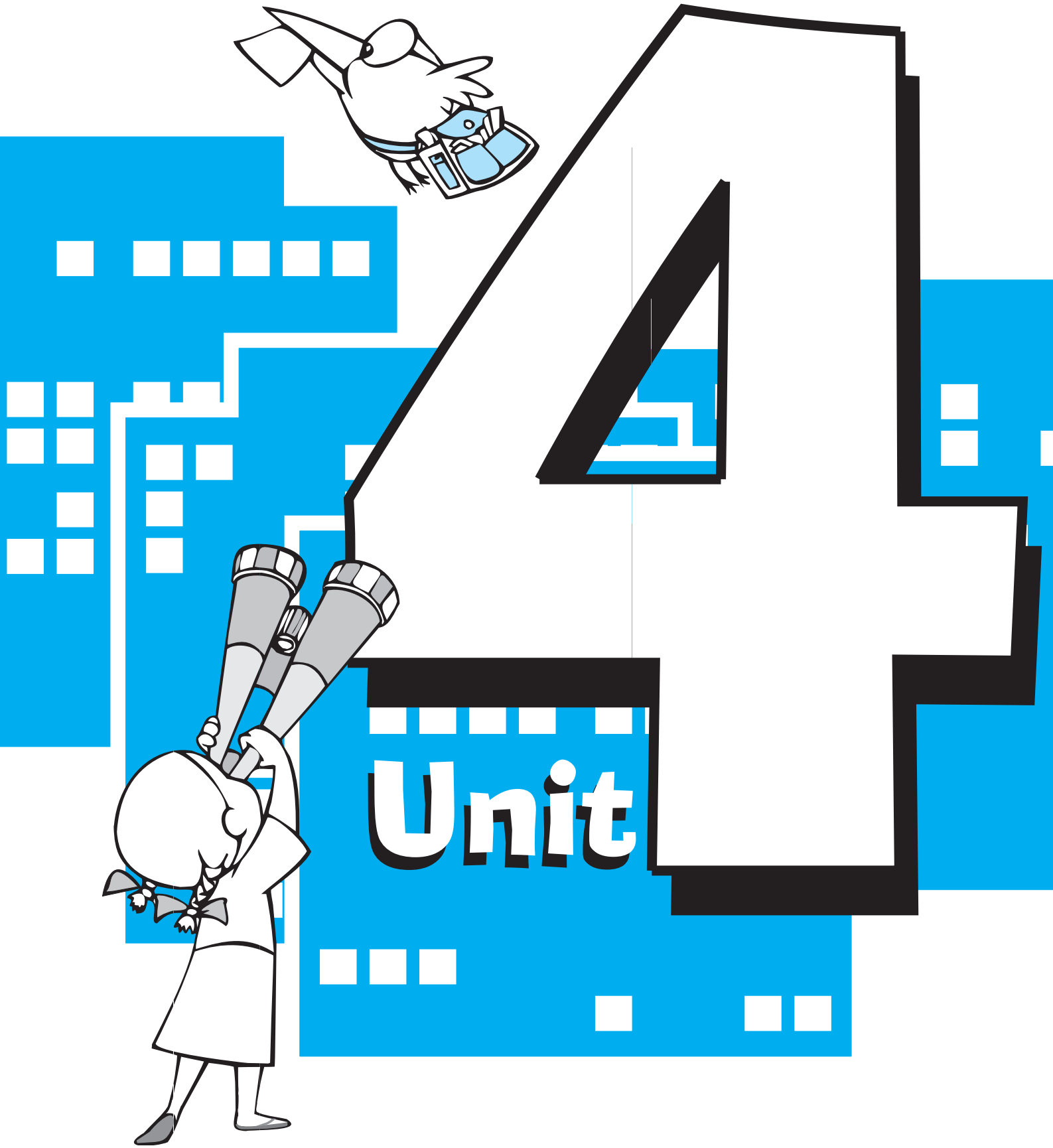


T	O
6	11
~~7~~	~~1~~
– 3	7
3	4



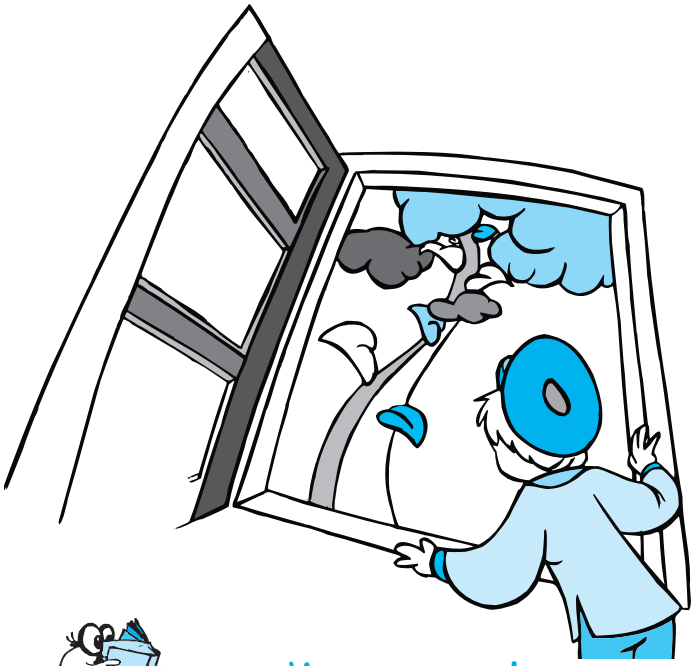
Bigger Numbers



Jack and the beanstalk

Have you heard this story before? It's about an English boy called Jack.

Jack lived with his mother. They were very poor. One day his mother asked him to sell their cow in the market so that they could buy some food. Jack sold the cow to a man in exchange for some magic beans. Jack's mother was very angry when she saw the beans. She flung the beans out of the window.

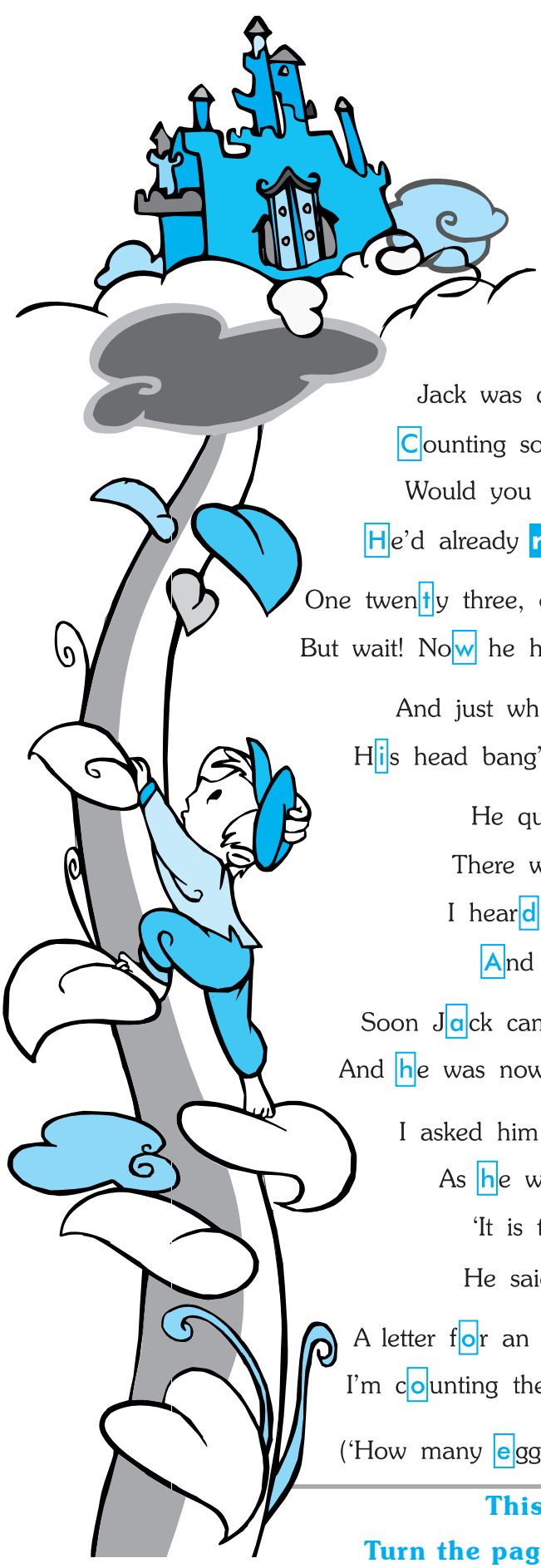


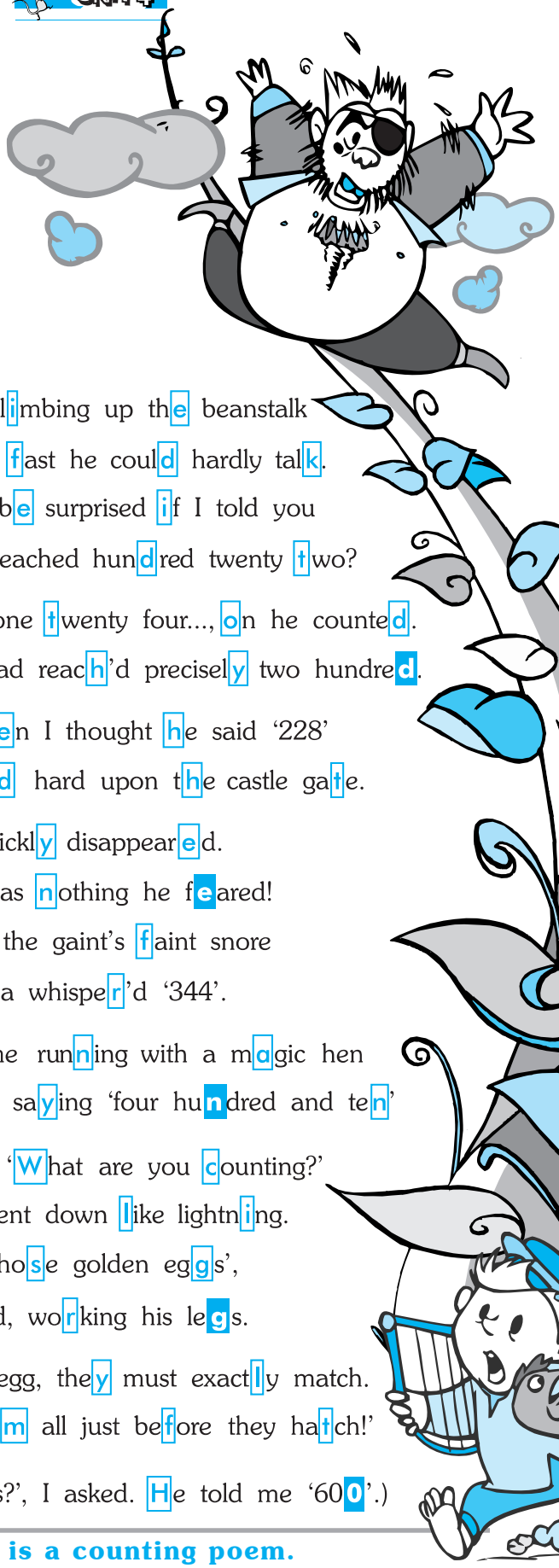
Next morning there was a giant beanstalk growing outside the window. It was so tall it went right up into the clouds. Jack climbed the beanstalk and found a giant's castle in the clouds. The giant had stolen a magic hen that laid golden eggs and a magic harp from Jack's family. Jack found these and carried them away. The giant chased Jack down the beanstalk but crashed down and died. Jack and his mother lived happily and were not poor any more.

Know these words

castle a palace with thick walls like a fort

harp a stringed musical instrument





Jack was climbing up the beanstalk
Counting so fast he could hardly talk.
Would you be surprised if I told you
He'd already reached hundred twenty two?

One twenty three, one twenty four..., on he counted.
But wait! Now he had reach'd precisely two hundred.

And just when I thought he said '228'
His head bang'd hard upon the castle gate.

He quickly disappeared.
There was nothing he feared!
I heard the gaint's faint snore
And a whisper'd '344'.

Soon Jack came running with a magic hen
And he was now saying 'four hundred and ten'

I asked him 'What are you counting?'
As he went down like lightning.
'It is those golden eggs',
He said, working his legs.

A letter for an egg, they must exactly match.
I'm counting them all just before they hatch!'

('How many eggs?', I asked. He told me '600'.)

This is a counting poem.

Turn the page to see how to count with it.

Count the letters in the first line of the poem.
(Don't count punctuation marks like: , ! ? ( ) ' ' .

Some letters are in a box. Why? What is the count when you come to a boxed letter?

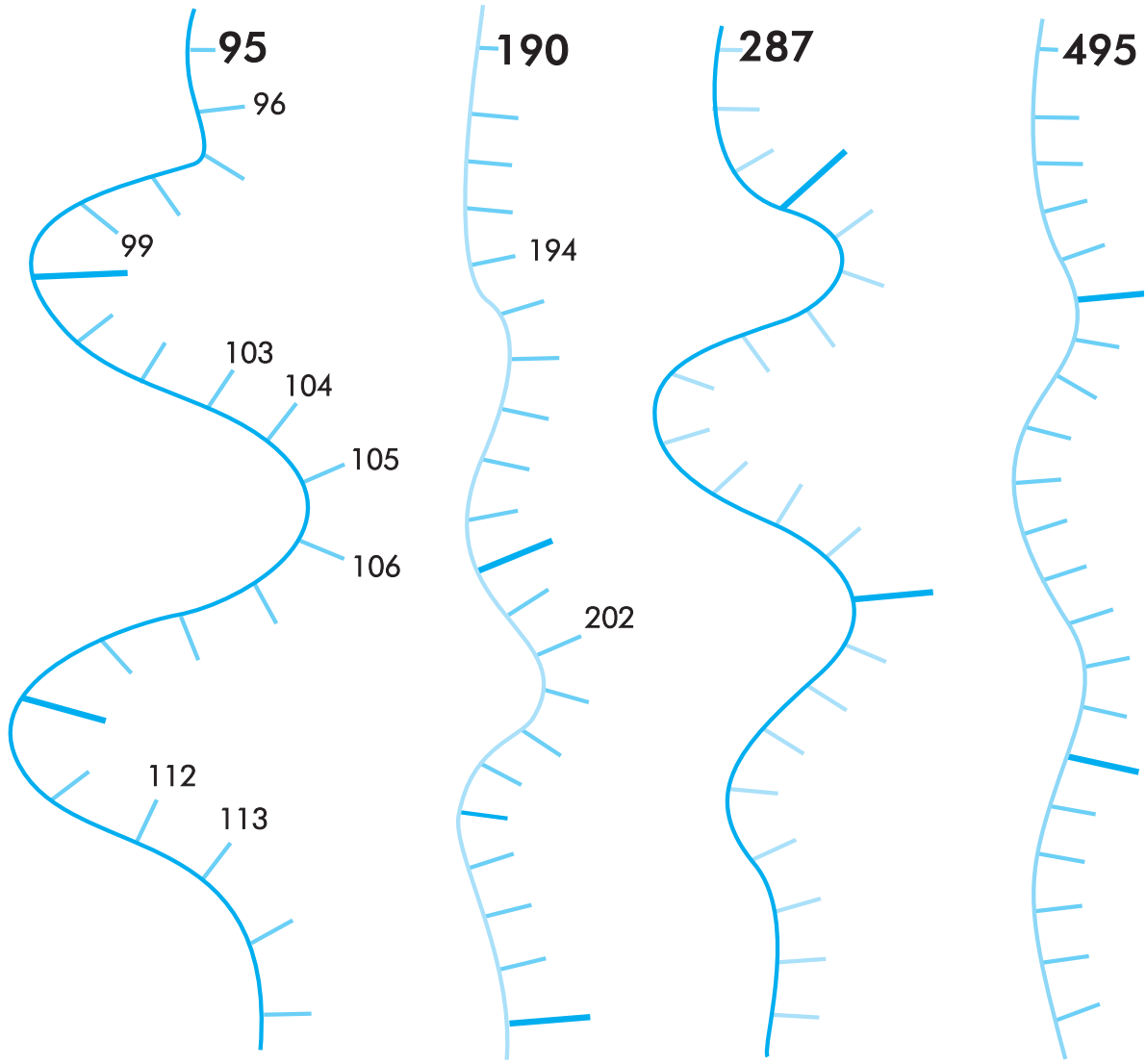
Try to use the boxed letters to count fast.

Some letters are shaded. Why?
What is the count when you come to a shaded letter?

How many letters are there in the poem?

Some of the words in the poem are numbers or number words.
Check the count when you come to these words.

Fill up the missing numbers on these number lines.



Number patterns

Continue the pattern.

70 80

102 104

93 95

75 80

235 245

100 200

50 100 150

10 110 210

25 125 225

246 256 266

Tap-clap-snap

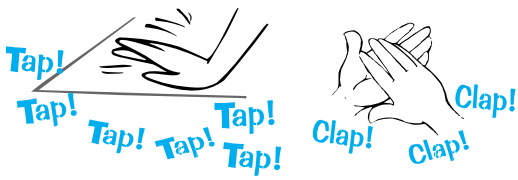
REMEMBER

A snap means 1.

A clap means 10.

A tap means 100.

How much?



Play the tap-clap-snap game in class.

Copy-writing

Use number words to practice copy-writing.

Continue these numbers:

Two hundred and thirty six

Two hundred and thirty seven

Eti needs to send this cheque by post. Help him write the amount in words.

THE RIVER BANK OF NARMADA

PAY _____ **OR BEARER**

RUPEES _____ Rs. 435/—

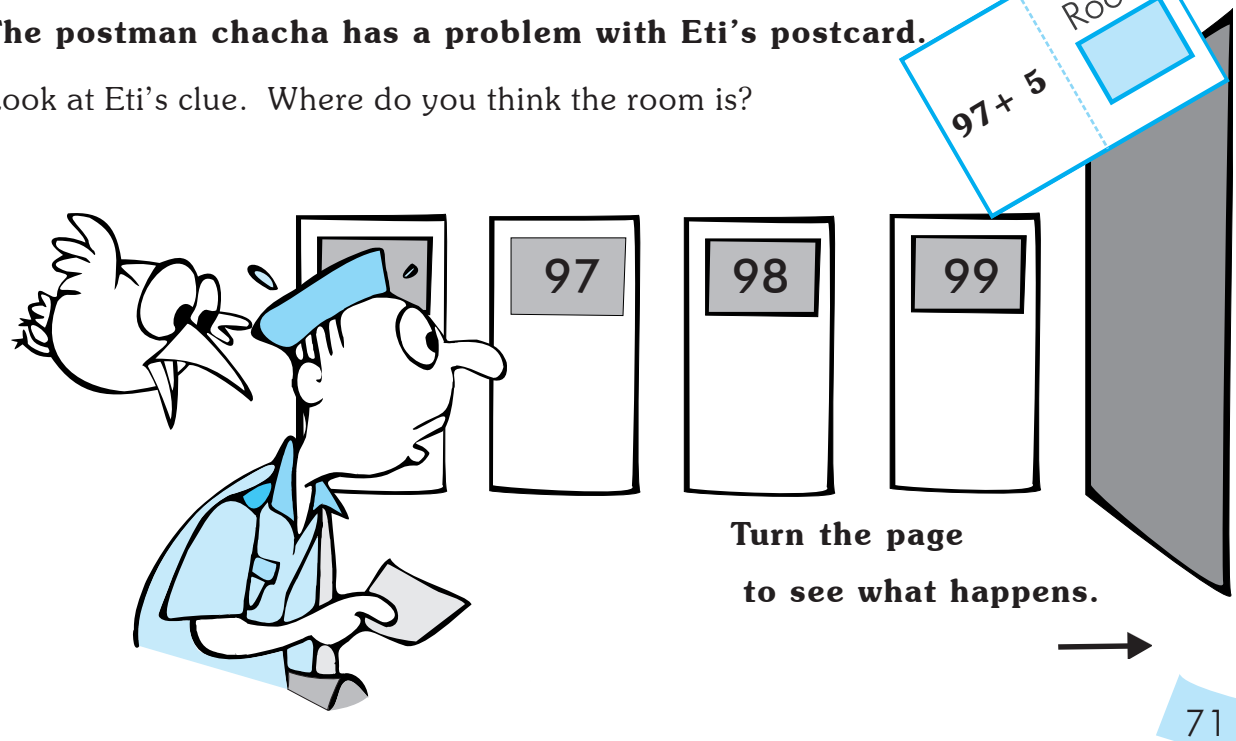
A/c No | LF | Intl

THE RIVER BANK OF NARMADA

II 888888II 333333333 I 10

The postman chacha has a problem with Eti's postcard.

Look at Eti's clue. Where do you think the room is?



Turn the page to see what happens.

The hundred building

The hundred building is another number building.

It is like the zero building but it starts from room number 100.

Look at the zero building and the hundred building and compare them.

The first room in the zero building is _____ and the last room is _____

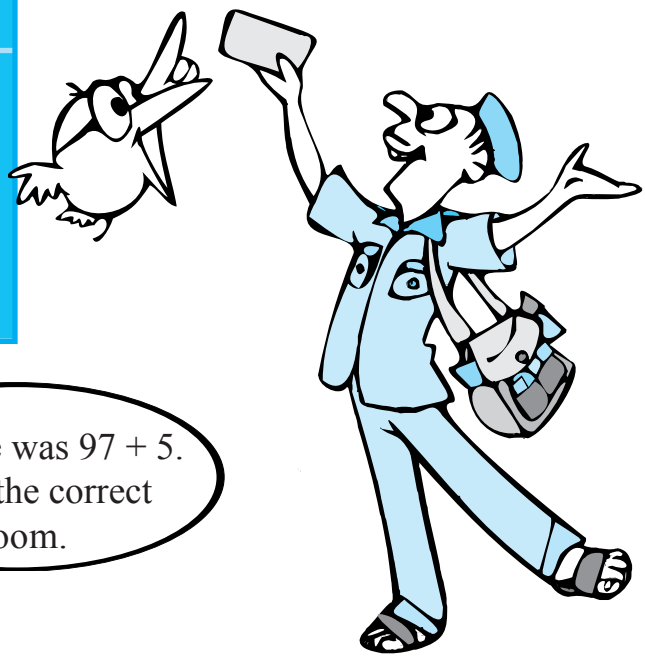
The first room in the hundred building is _____ and the last room is _____

100

190	191	192	193	194	195	196	197	198	199
180	181	182	183	184	185	186	187	188	189
170	171	172	173	174	175	176	177	178	179
160	161	162	163	164	165	166	167	168	169
150	151	152	153	154	155	156	157	158	159
140	141	142	143	144	145	146	147	148	149
130	131	132	133	134	135	136	137	138	139
120	121	122	123	124	125	126	127	128	129
110	111	112	113	114	115	116	117	118	119
100	101	102	103	104	105	106	107	108	109

ZERO

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9



Adding ones and tens

Ring the problems for which the answers are in the 100 building.

94 + 4 = 98

94 + 6 = ____

94 + 5 = ____

94 + 7 = ____

Now do the same problems in vertical addition.

H	T	O
	9	4
+		4

H	T	O
	9	4
+		5

H	T	O
	9	4
+		6

H	T	O
	9	4
+		7

Sometimes adding tens takes you to the hundred building.

Ring the problems where the answers are in the 100 building.

74 + 10 = 84

74 + 30 = ____

74 + 20 = ____

74 + 40 = ____

Now do the same additions in vertical columns.

H	T	O
	7	4
+	1	0

H	T	O
	7	4
+	2	0

H	T	O
	7	4
+	3	0

H	T	O
	7	4
+	4	0

Ring the problems where the answer takes you to the 100 building.

94 + 8 = 91 + 8 = 53 + 40 = 76 + 40 =

89 + 11 = 55 + 40 = 40 + 64 = 34 + 70 =

Subtracting ones and tens

Ring the problems for which the answers are in the zero building.

106 – 4 = 102

106 – 6 = ____

106 – 5 = ____

106 – 7 = ____

Now do the same problems in vertical subtraction.

H	T	O
1	0	6
–		4

H	T	O
1	0	6
–		5

H	T	O
1	0	6
–		6

H	T	O
1	0	6
–		7

Sometimes subtracting tens takes you to the zero building.

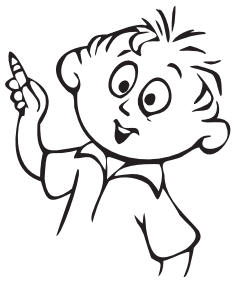
Ring the problems where the answers are in the zero building.

124 – 10 = 114

124 – 30 = ____

124 – 20 = ____

124 – 40 = ____



Do the same problems in vertical subtraction.

H	T	O
1	2	4
–	1	0

H	T	O
1	2	4
–	2	0

H	T	O
1	2	4
–	3	0

H	T	O
1	2	4
–	4	0

Ring the problems where the answer takes you to the zero building.

104 – 4 = 104 – 5 = 106 – 7 = 106 – 6 =

137 – 30 = 137 – 40 = 156 – 70 = 118 – 19 =

Ring the problems where the answers are in the 100 building.

H T O	H T O	H T O	H T O
8 4	8 4	7 4	7 4
+ 6	+ 1 6	+ 2 5	+ 2 6

H T O	H T O	H T O	H T O
5 6	4 9	9 5	6 1
+ 3 7	+ 6 7	+ 7 3	+ 8 9

When there is a carryover to the **'T' column**, you go to the **next floor.**

When there is a carryover to the **'H' column**, you go to the **next building.**

Ring the problems where the answers are in the zero building.

H T O	H T O	H T O	H T O
1 0 9	1 2 8	1 2 5	1 2 5
– 1 0	– 3 0	– 1 7	– 2 7

H T O	H T O	H T O	H T O
1 6 5	1 6 5	1 6 5	1 6 5
– 1 0	– 2 7	– 6 7	– 9 6

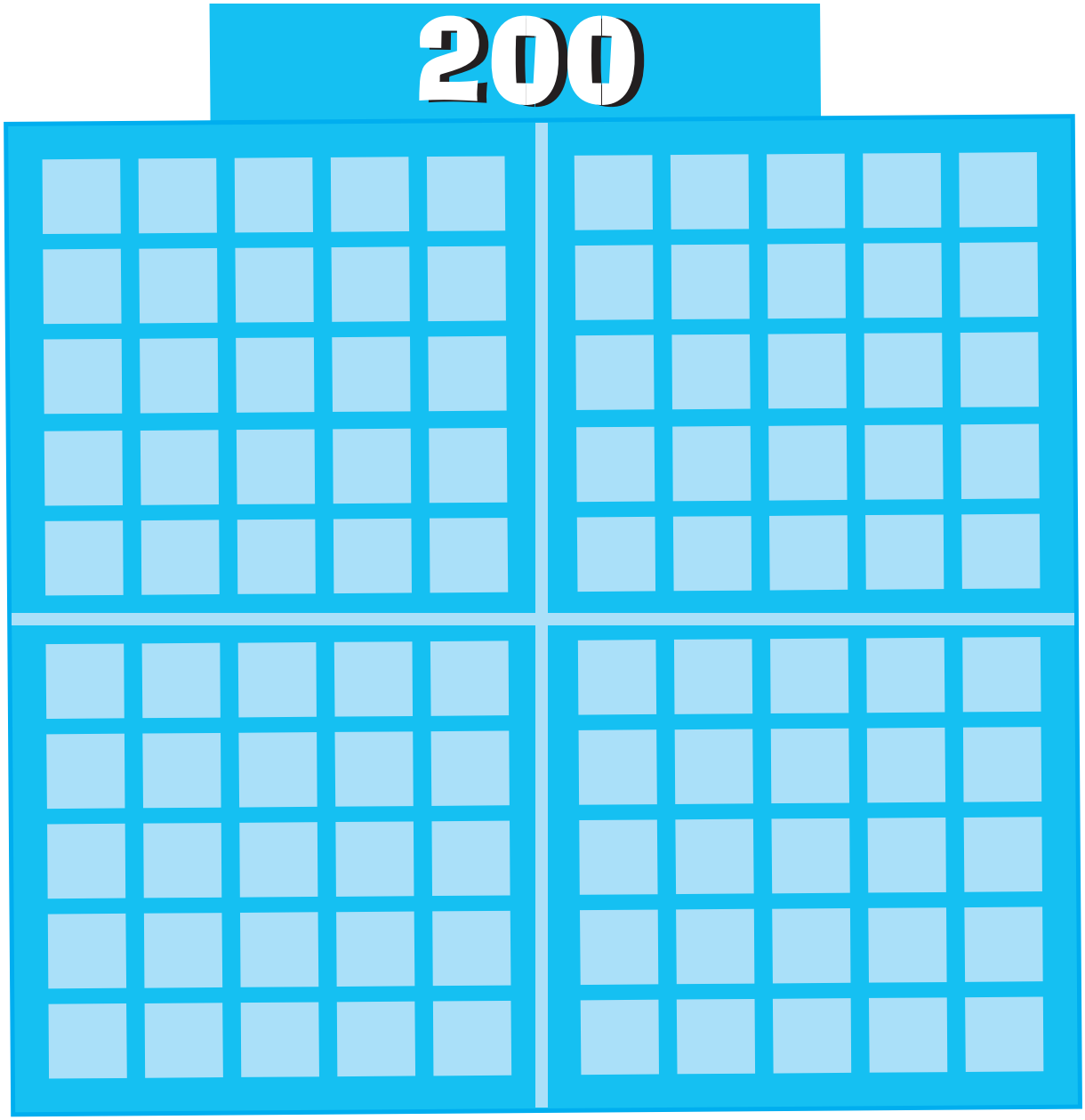
When there is a **borrow** from the **'T' column**, you go to the **floor below**.

When there is a **borrow** from the **'H' column**, you go to the **previous building**.

The 200 building

After the 100 building comes the 200 building

Write all the room numbers in the 200 building.



Shading puzzle

Shade room number 226 on the 200 number building. Now shade the answers to these problems.

226 + 1	226 – 10	226 – 8
226 + 2	226 + 10	226 + 12

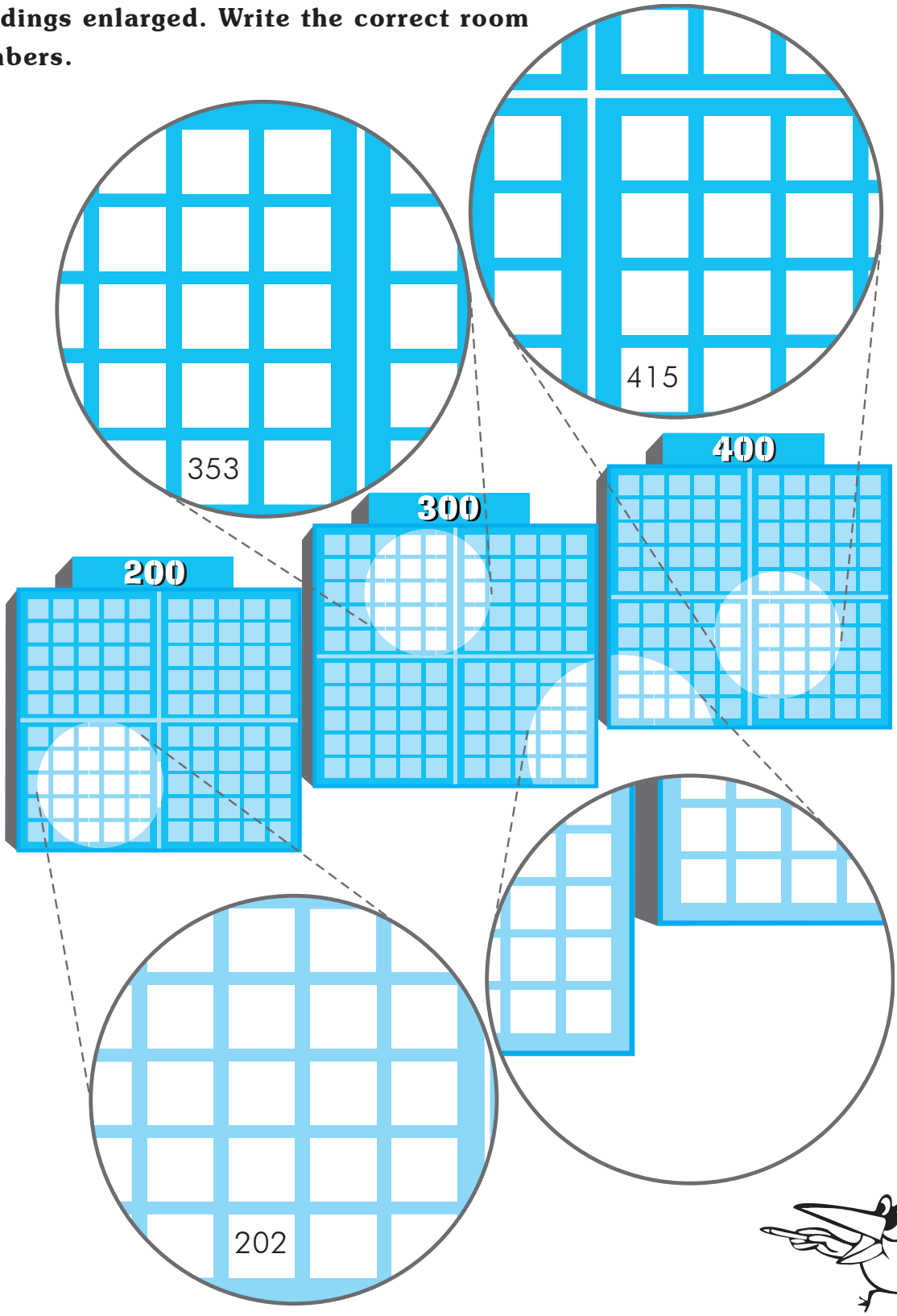
Which letter of the alphabet can you see?

Make similar puzzles for the letters 'L', 'E' and 'F'.

The 300 and 400 building

After the 200 building come the 300 and 400 buildings.

Inside the circles, you can see parts of the buildings enlarged. Write the correct room numbers.



The number colony

The number colony has ten number buildings and many, many, many rooms.

The first building is the ZERO Building.

The last building is the 900 Building.

Postman Chacha is ill today.

Our Birdie has promised to deliver all the letters for him.

2 rooms before 156 — Room

Last room on 600 building — Room

10 rooms after 540 — Room

Room after 199 — Room

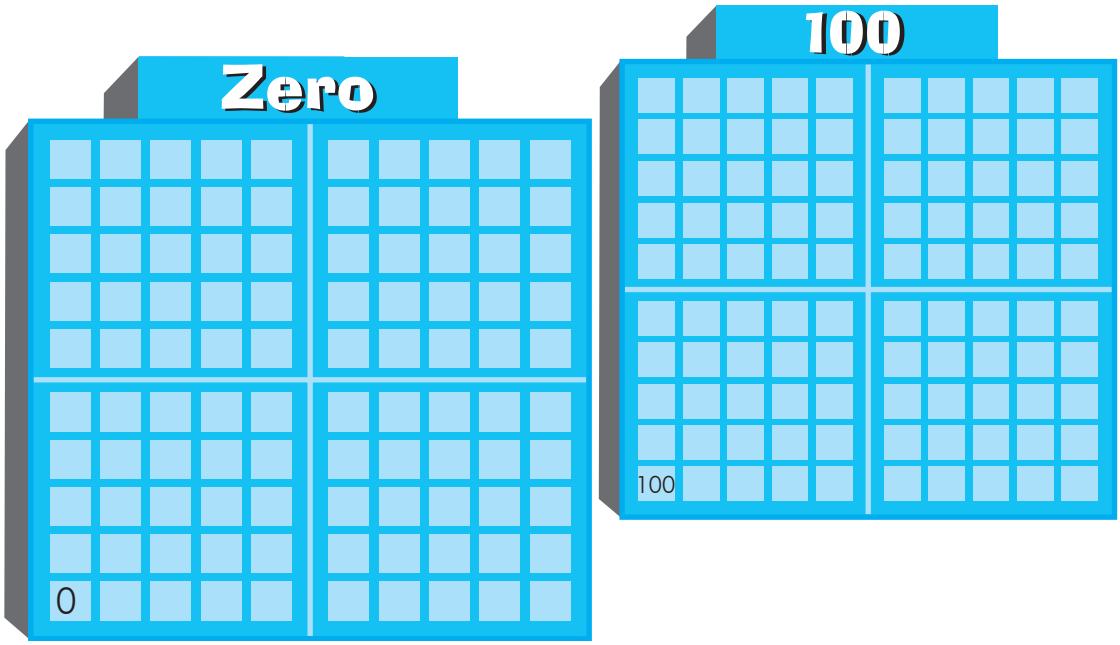
3 rooms after 397 — Room

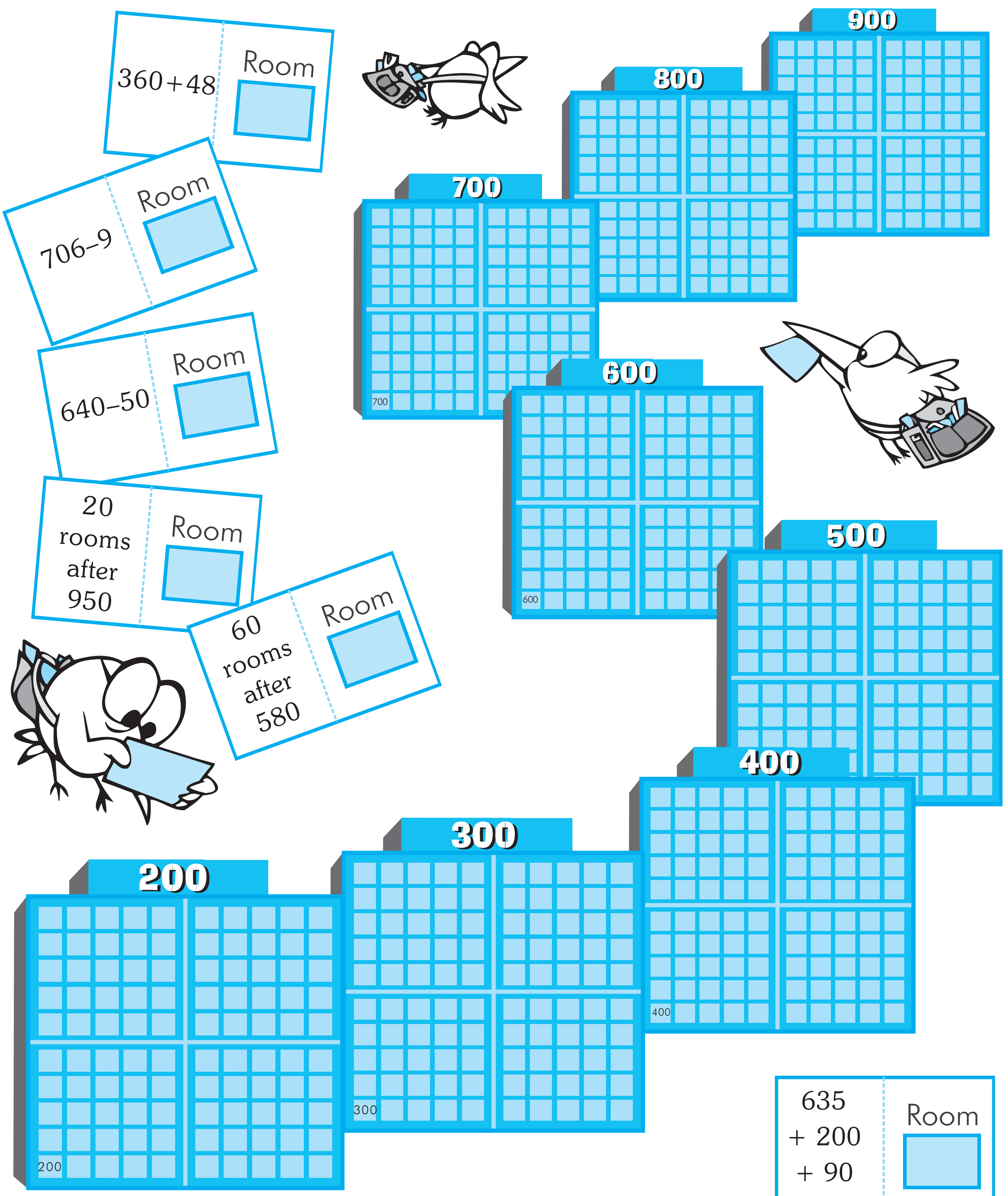
604 – 4 — Room

23 + 93 — Room

444 + 60 — Room

First write the correct room numbers on all the letters. Then find and shade the rooms in the number colony.





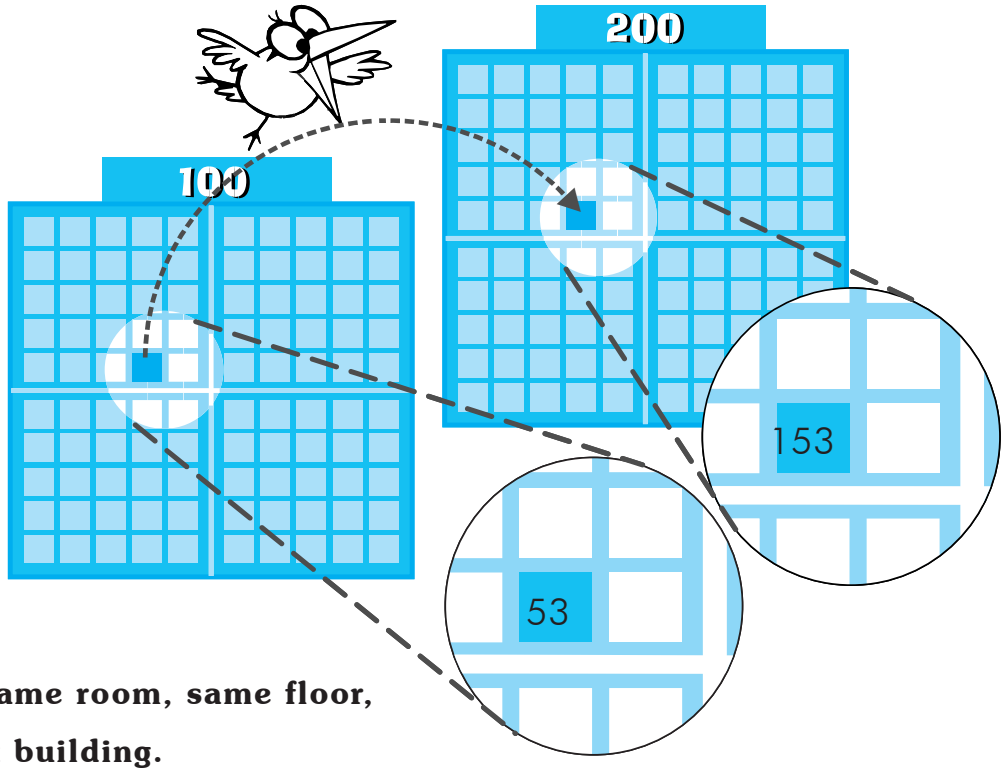
Card	
360+48	Room
706–9	Room
640–50	Room
20 rooms after 950	Room
60 rooms after 580	Room
635 + 200 + 90	Room
340 + 60 + 90	Room
710+95	Room
260 + 536	Room

In the picture which rooms in the number colony are fully hidden? Which rooms are partly hidden?

Adding hundreds

What happens when we add hundred?

Example 53 + 100 = 153.



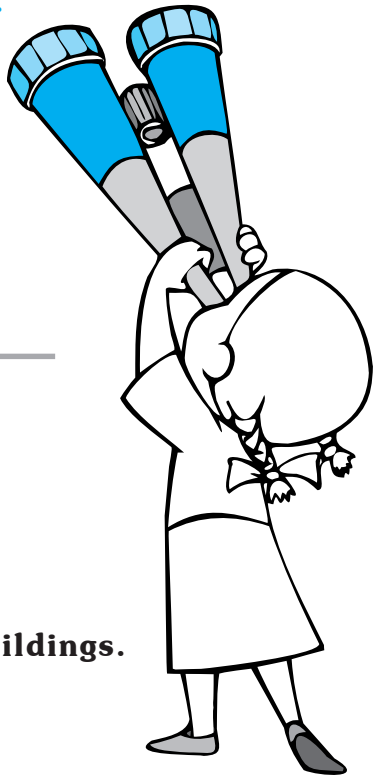
We go to the same room, same floor, but in the next building.

Adding hundred is like jumping one building forward.

Do these problems as quickly as you can.

129 + 100 = 169 + 100 = 200 + 100 =

301 + 100 = 100 + 567 = 100 + 789 =

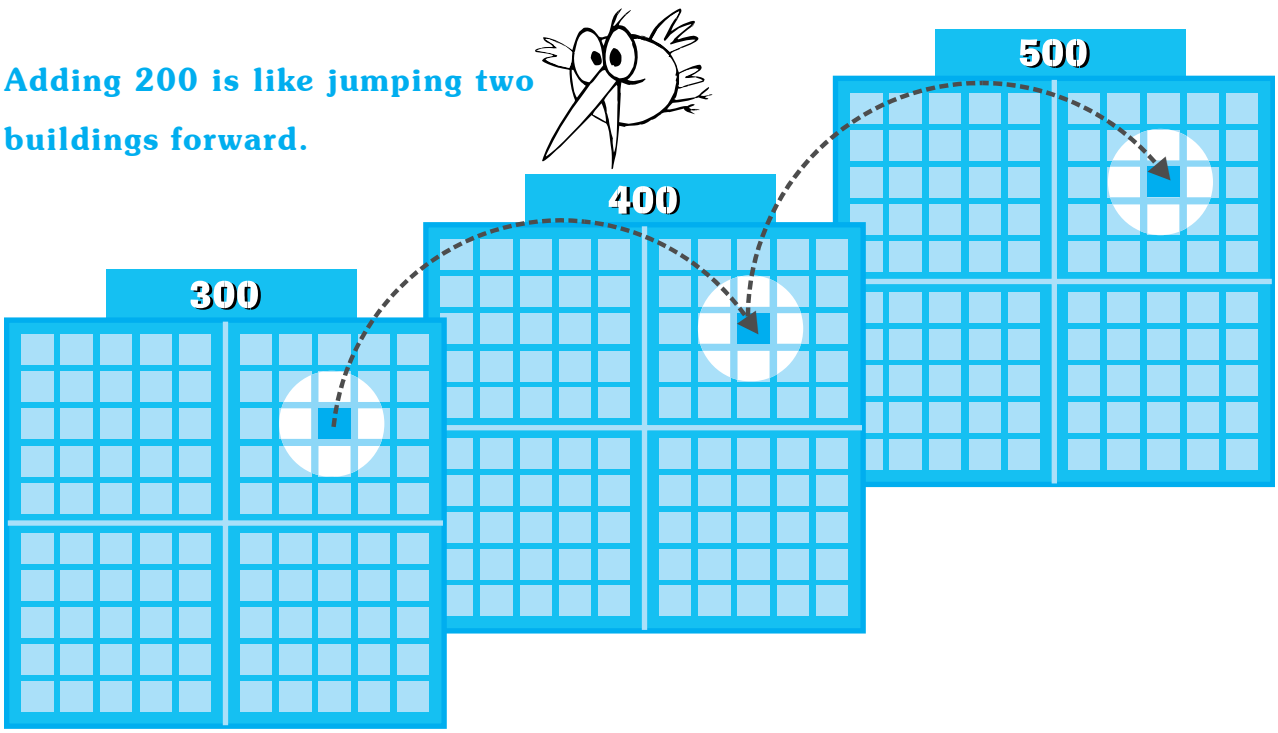


What happens when we add 200?

Example 377 + 200 = 577.

We go to the same room, same floor, but after two buildings.

Adding 200 is like jumping two buildings forward.



Do these problems as quickly as you can:

362 + 200 =	398 + 200 =	400 + 200 =	7 + 200 =
81 + 200 =	200 + 501 =	735 + 200 =	200 + 617 =

Now find the pattern for adding 300 and adding 400.

Adding 300 is like _____

Adding 400 is like _____

_____

Do these problems as quickly as you can.

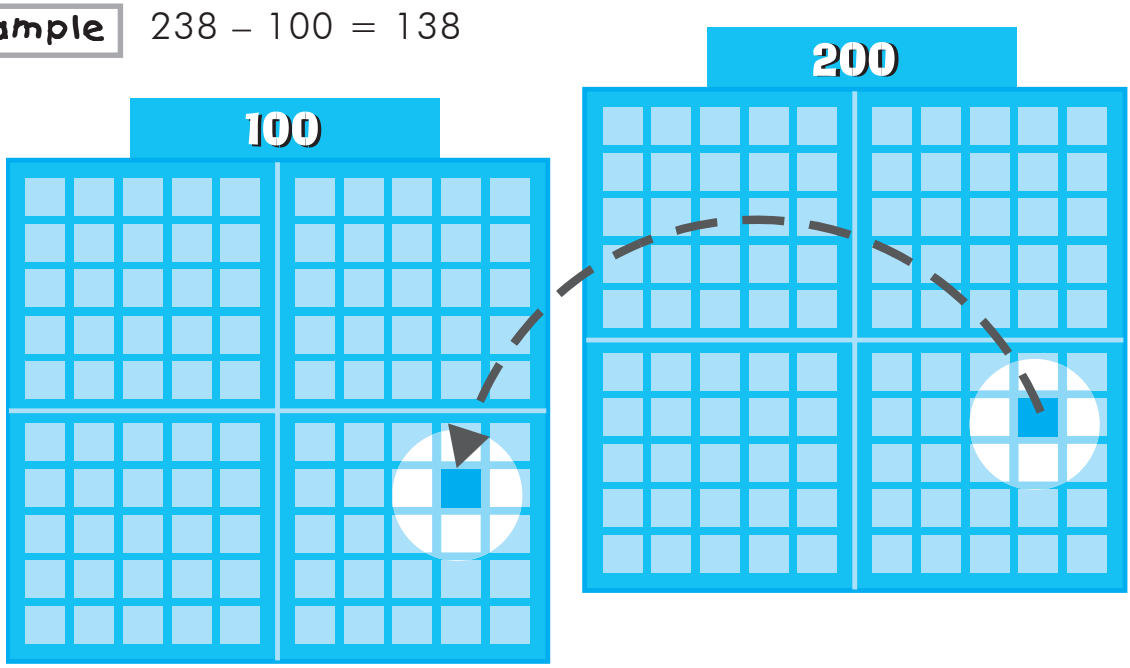
In your mind, imagine that you are jumping over buildings.

324 + 200 =	417 + 300 =	527 + 400 =
285 + 400 =	171 + 500 =	293 + 600 =
400 + 243 =	500 + 335 =	700 + 277 =
500 + 396 =	800 + 189 =	600 + 349 =

Subtracting hundreds

What happens when we subtract hundred?

Example 238 – 100 = 138



We go to the same room, same floor, but in the previous building.

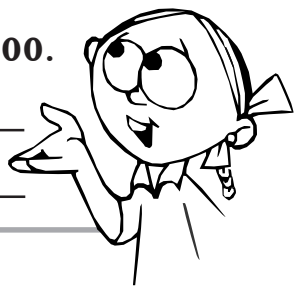
Subtracting hundred is like jumping one building backward.

Do these problems as quickly as you can.

256 – 100 = 200 – 100 = 301 – 100 =

347 – 100 = 567 – 100 = 789 – 100 =

Now find the pattern for subtracting 200 and subtracting 300.



Subtracting 200 is like _____

Subtracting 300 is like _____

Do these problems as quickly as you can.

In your mind, imagine that you are jumping over buildings.

342 – 200 = 527 – 300 = 667 – 400 =

685 – 500 = 591 – 400 = 777 – 500 =

865 – 500 = 932 – 600 = 886 – 700 =

Practice sums

H	T	O
	1	8
+	7	9	5

H	T	O
3	0	6
+	9	5

H	T	O
		3
+	7	9	7

H	T	O
4	0	5
+	4	5

H	T	O
3	7	3
–	8	9

H	T	O
4	5	0
–	3	8	5

H	T	O
3	0	6
–	1	9

H	T	O
9	0	8
–	4	1	9

H	T	O
5	0	0
–	4	7	6

H	T	O
3	4	6
–	9	5

H	T	O
5	5	1
–	4	5	8

H	T	O
7	1	1
–	1	8

H	T	O
		8
+	7	9	3

H	T	O
3	5	5
+	5	4	5

H	T	O
2	3	9
+	6	7	5

H	T	O
3	0	1
+	2	9	6

Notebook Exercise

Add:

341 and 67 | 218 and 637 | 47 and 407 | 8 and 809

Subtract:

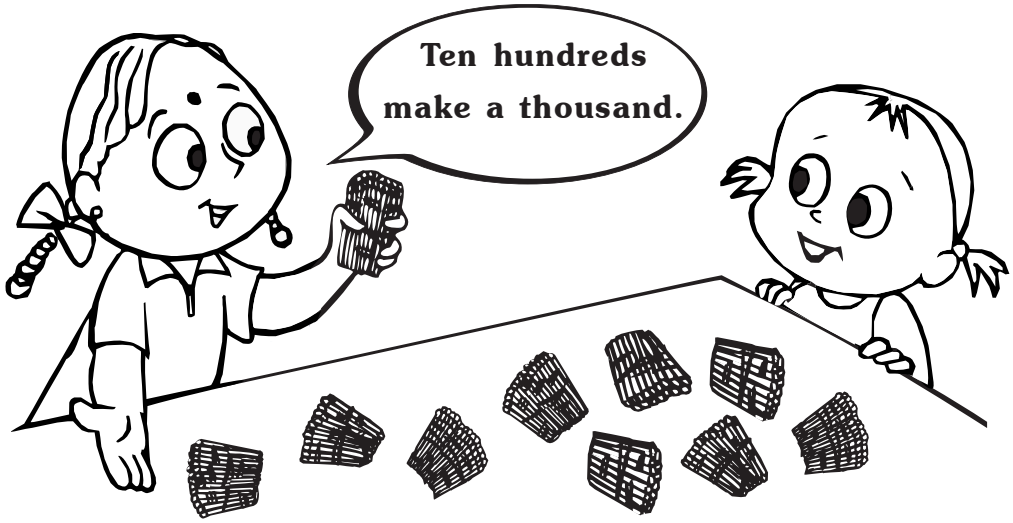
36 from 360 | 413 from 601 | 379 from 800 | 498 from 502

Classroom Game

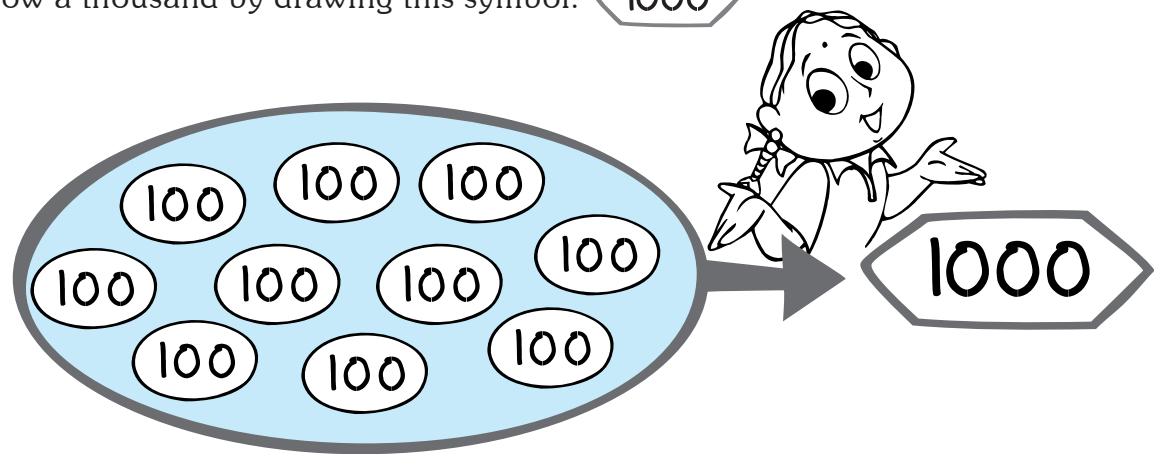
Write a number on the board. Show another number using taps, claps and snaps. Ask your friend to add the second number to the number on the board.

Thousand and beyond

Which number comes after 9? _____	9 + 1 =
Which number comes after 99? _____	99 + 1 =
Which number comes after 999?_____	999 + 1 =



We show a thousand by drawing this symbol: 1000



Cross out the phrases which do not mean a thousand.

1.	999 + 1	900 + 100	99 +100
2.	Ten hundreds	One thousand	Hundred ones
3.	Number after 999	Number before 1000	Number before 1001
4.	300 + 300 + 300	500 + 500	2000 – 1000
5.	Thousand ones	One more than 999	600 + 600

2318

Th	H	T	O
1000 1000	100 100 100	10									

3146

Th	H	T	O

2121

Th	H	T	O

4010

Th	H	T	O

4001

Th	H	T	O

4100

Th	H	T	O

Palindrome Numbers

Read these numbers forward and backward: 121, 4224

1 → 2 → 1
1 ← 2 ← 1

4 → 2 → 2 → 4
4 ← 2 ← 2 ← 4

They are the same both ways.
These are **palindrome numbers**.

Check and make sure that these are not palindrome numbers: 142, 48.

But see what happens when you reverse and add each number!

Example

Let us try 142.
Reverse 142 and add.

H	T	O
1	4	2
+ 2	4	1
3	8	3

3 → 8 → 3
3 ← 8 ← 3

383 is a **palindrome number.**

Now let us try 48.
Reverse 48 and add.

H	T	O
	4	8
+	8	4
1	3	2

132 is not a palindrome number.

So reverse 132 and add.

H	T	O
1	3	2
+ 2	3	1
3	6	3

You get a palindrome number in 2 steps by reversing and adding.

363 is a **palindrome number!**

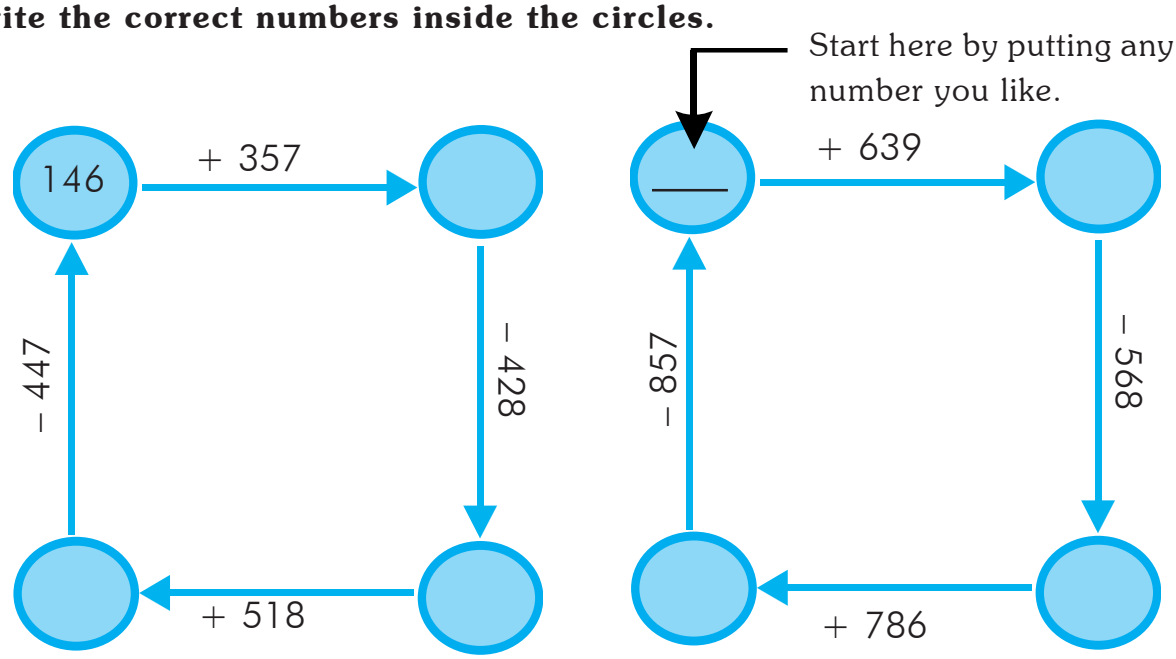
Notebook Exercise

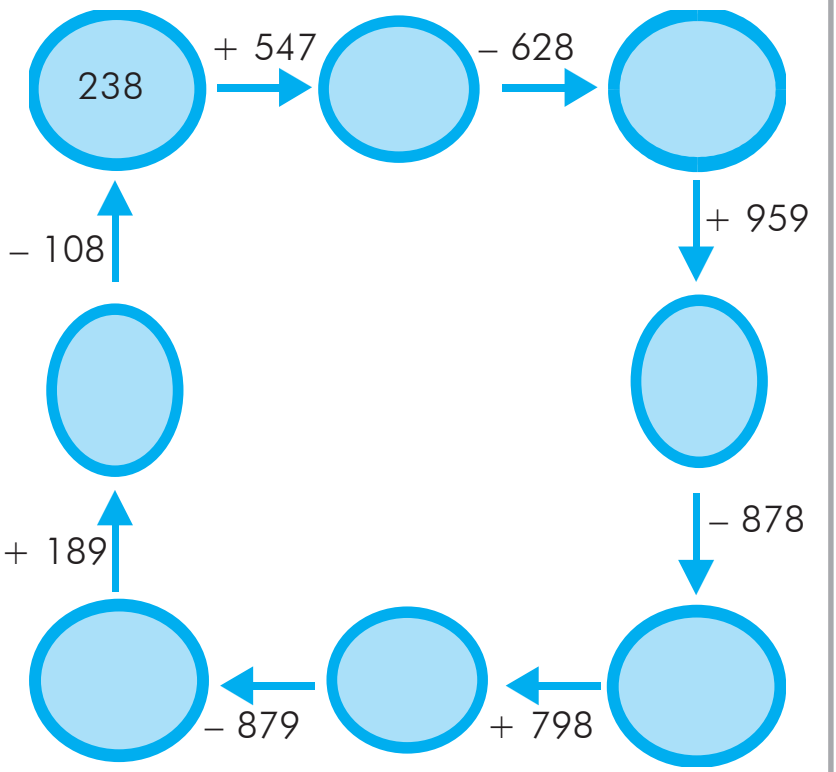
Try reversing and adding for these numbers and see how many steps you need to do to get a palindrome number: 11 18 27 39 65 78

Which is the number for which you needed to do the most steps?
How many steps did you need?

Number chakra

Write the correct numbers inside the circles.





Find the missing digits.

	H	T	O
	_	_	_
	4	5	_
+	_	_	4
	8	9	6

	Th	H	T	O
	_	_	_	_
	3	4	5	_
+	_	5	_	7
	7	_	6	5

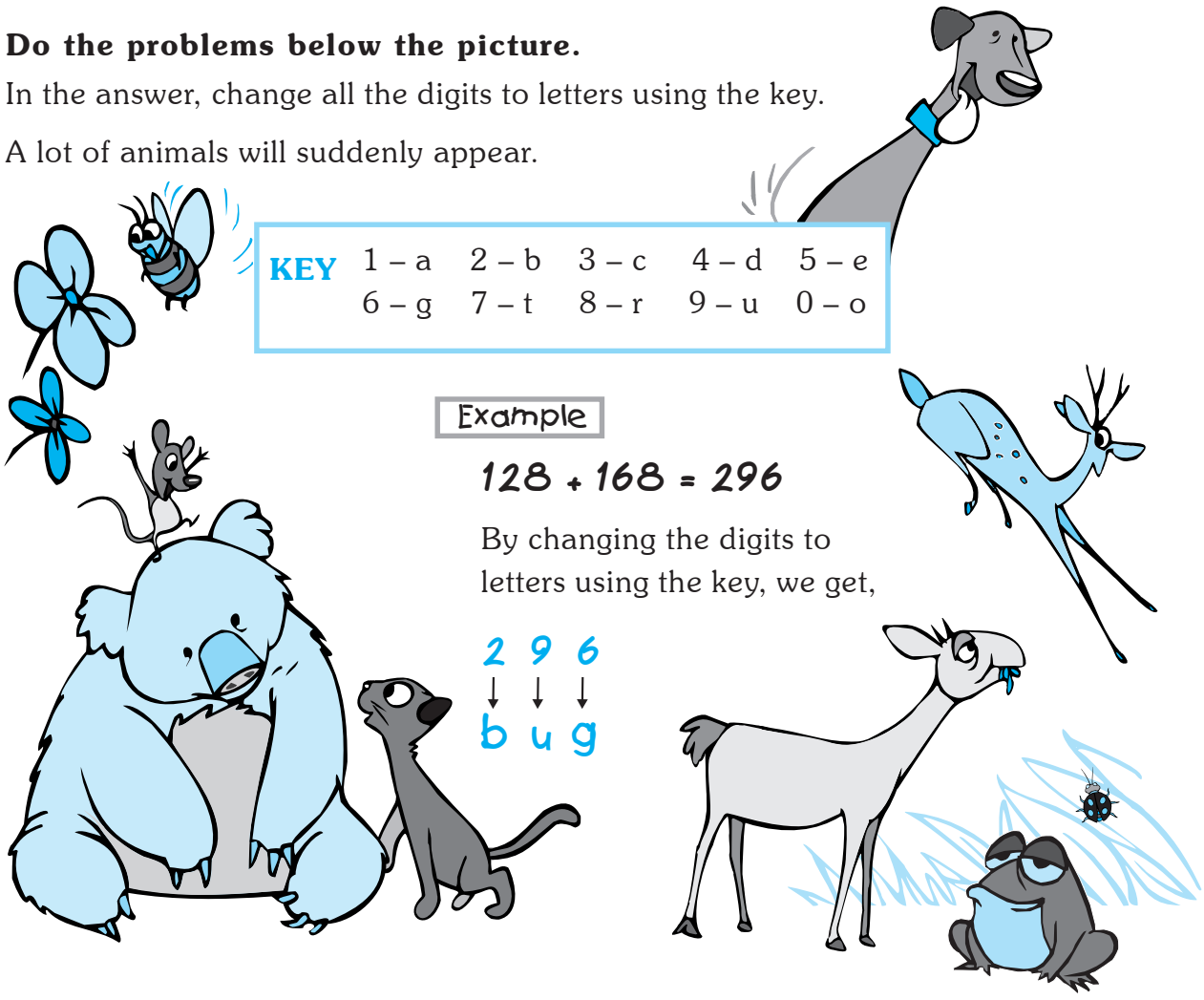
	Th	H	T	O
	_	_	_	_
	8	4	5	_
+	_	5	_	7
	1	0	_	0 0

Sum fun

Do the problems below the picture.

In the answer, change all the digits to letters using the key.

A lot of animals will suddenly appear.



KEY					
	1 – a	2 – b	3 – c	4 – d	5 – e
	6 – g	7 – t	8 – r	9 – u	0 – o

Example

128 + 168 = 296

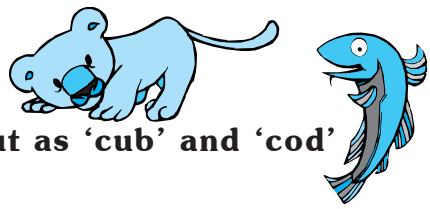
By changing the digits to letters using the key, we get,

2 9 6
↓ ↓ ↓
b u g

H T O	H T O	H T O	H T O
1 2 3	2 0 9	1 6 4	9 3 4
+ 1 3 2	+ 1 0 8	+ 2 4 2	– 1 1 7

Th H T O	Th H T O	Th H T O	Th H T O
5 2 7 9	8 6 3 7	5 8 3 9	4 6 0 0
+ 7 3 8	– 1 6 2 3	– 1 2 8 1	– 2 0 8 2

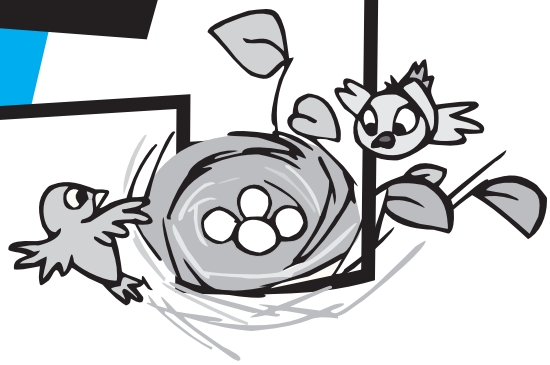
Sum more fun



Make two problems so that the answers come out as 'cub' and 'cod'

Numbers in the world

Unit 5



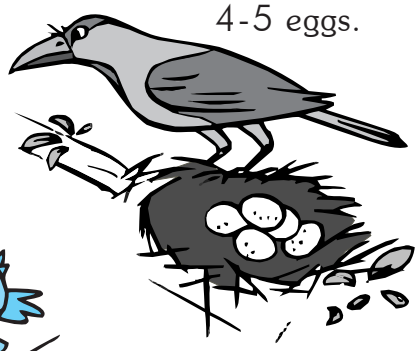
EGG CLUTCHES

Many animals lay eggs. The eggs hatch after a while and the baby animals come out.
A batch of eggs that are laid and hatched together is called a '**clutch**'. Some animals lay a small clutch with only a few eggs. Others have large clutches with many eggs.

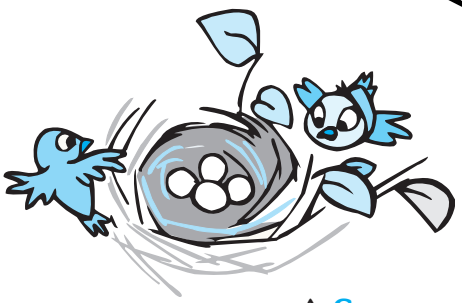
Birds

Birds make a nest to lay eggs. In the breeding season, they lay about one egg a day till they have a full batch or clutch.

A **Crow** clutch has 4-5 eggs.



The **Common White-Backed Vulture** clutch contains only one egg!

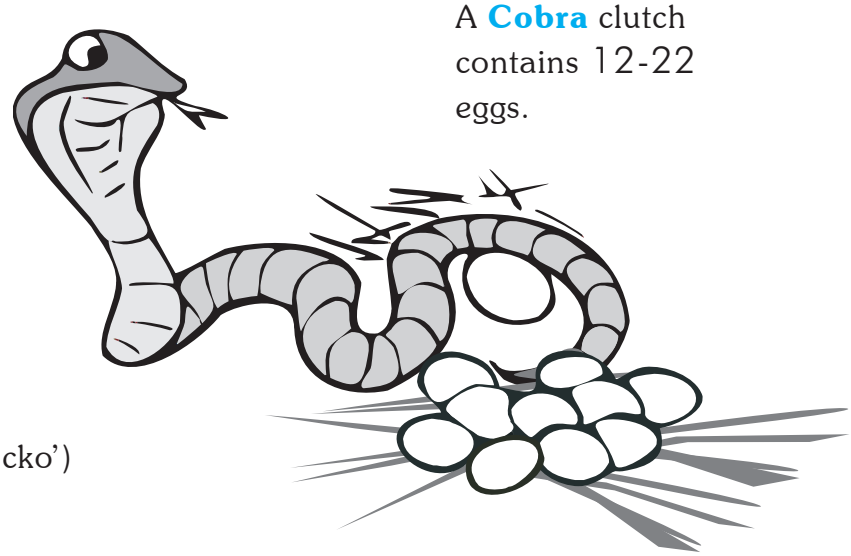


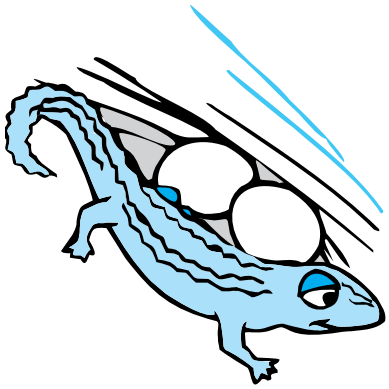
A **Sparrow** clutch has 3-5 eggs.

Reptiles

These animals are reptiles.They lay eggs too.

A **Cobra** clutch contains 12-22 eggs.



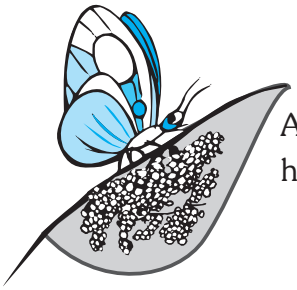


The house **Lizard** (also called 'Gecko') has two eggs in a clutch.

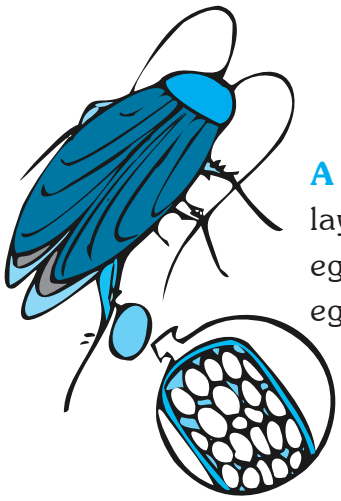
The **Common Marsh Crocodile** lays 3-40 eggs in a pitcher shaped hole in the sand.

Insects

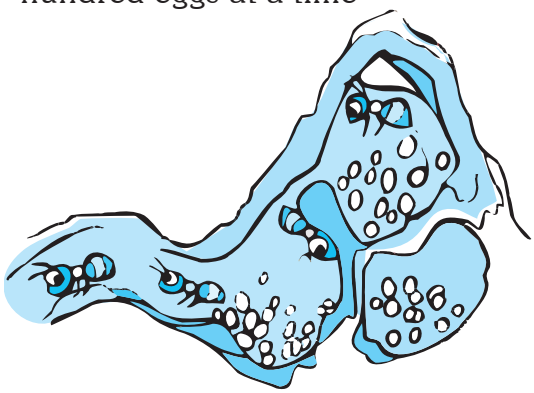
Many insects lay eggs too.
Here are some of them.



A **Butterfly** lays a few hundred eggs at a time

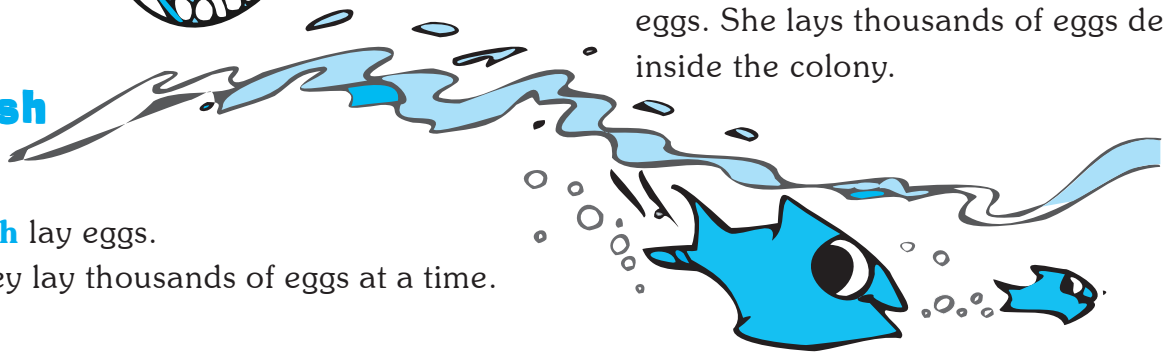


A Cockroach lays 12-28 eggs inside an egg case.



A colony of **Ants** has only one queen. The job of the queen ant is to lay eggs. She lays thousands of eggs deep inside the colony.

Fish



Fish lay eggs.
They lay thousands of eggs at a time.

Parvin found a clutch of 20 eggs. Which of the animals on this page might have laid the eggs?

Lucy found two eggs in a cupboard. Which animal do you think laid the eggs?

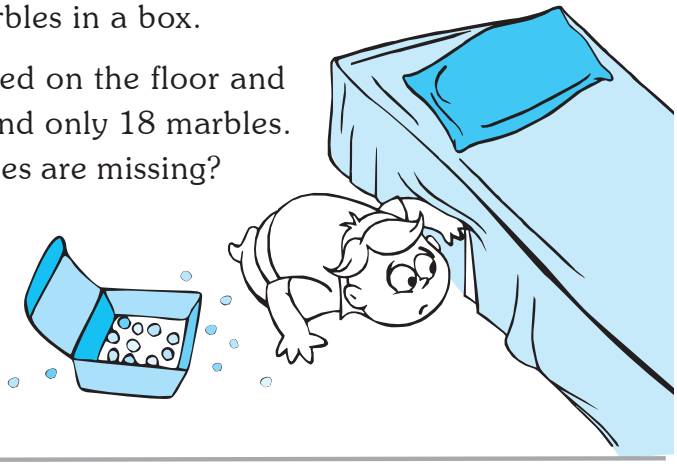
About how many lizard clutches will have the same number of eggs as a cobra clutch?

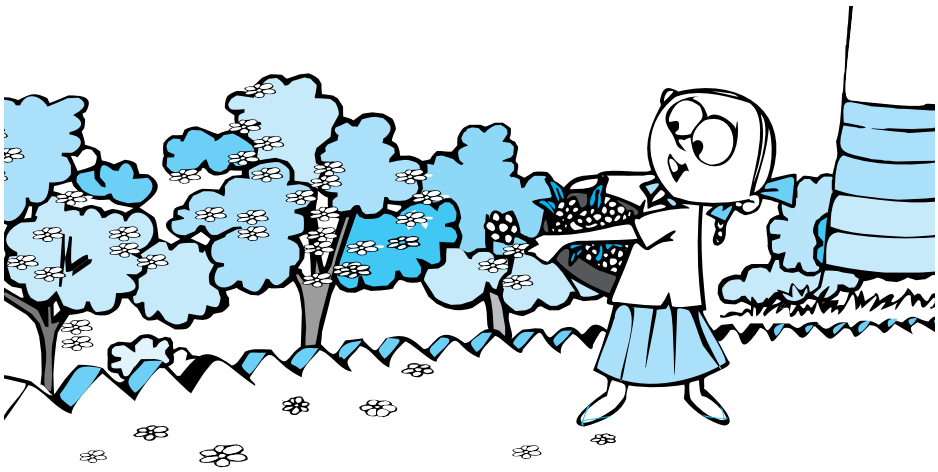
A crocodile laid 12 eggs. Baby crocodiles hatched out of only half of the eggs. Half of the baby crocodiles died. How many grew to be big crocodiles?

Number stories

Tuttu had 25 marbles in a box.

The marbles spilled on the floor and he managed to find only 18 marbles. How many marbles are missing?

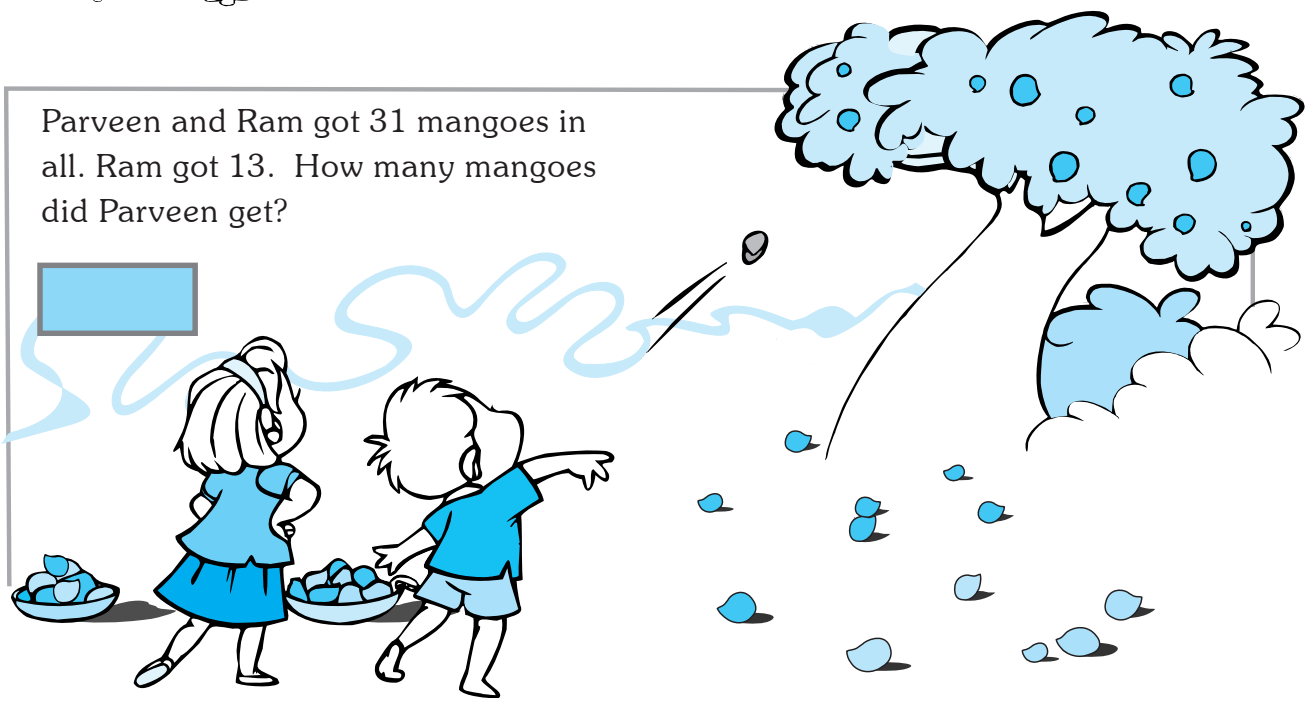




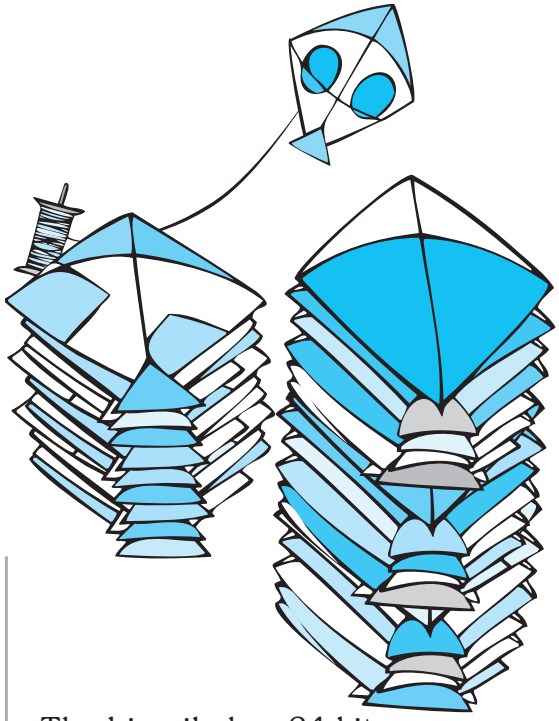
22 jasmine flowers on the bush and 8 flowers on the ground.

How many flowers altogether?

Parveen and Ram got 31 mangoes in all. Ram got 13. How many mangoes did Parveen get?

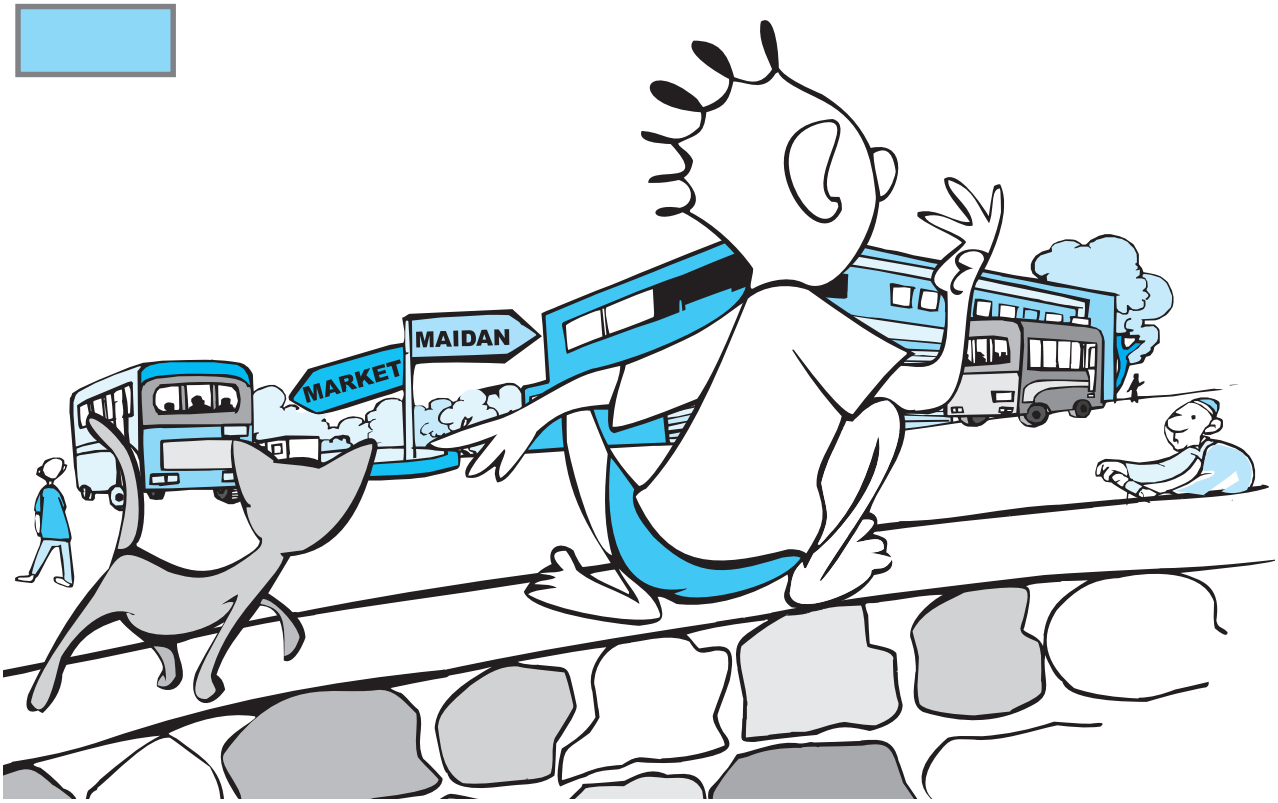


26 sardines in all.
9 on the slab.
How many sardines in the basket?



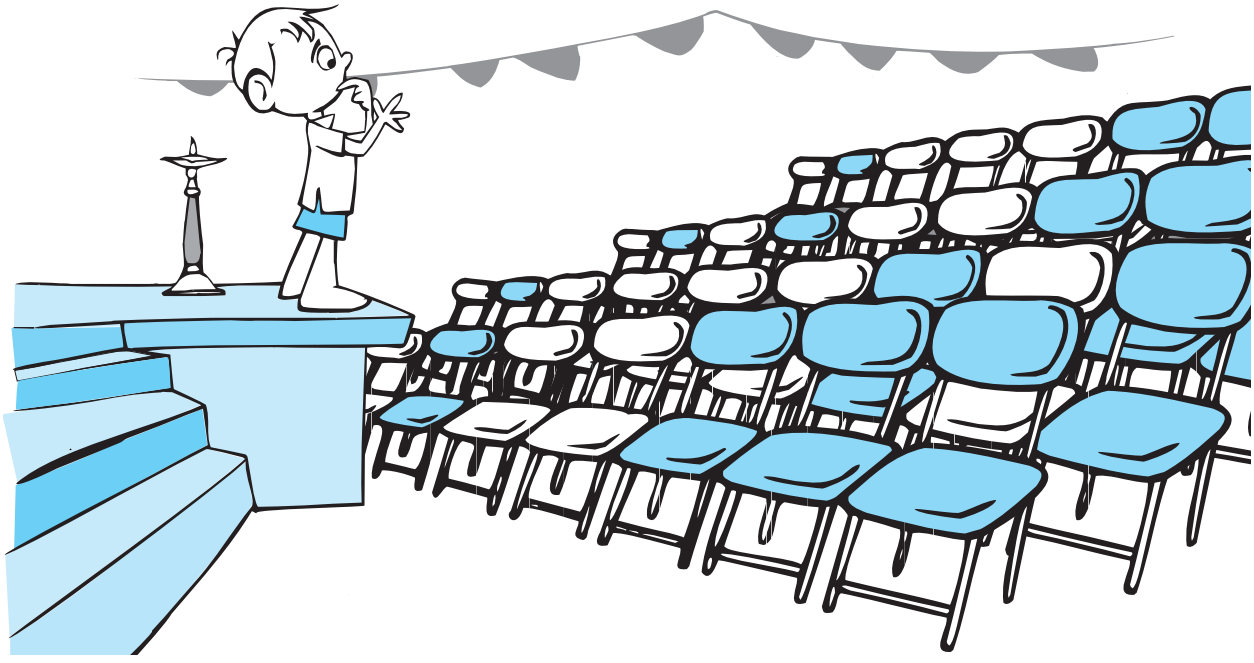
The big pile has 24 kites.
The small pile has 12 kites.
How many kites in all?

15 buses going towards the market. 17 buses going towards the maidan.
How many buses did Eti count?



The gents 'Q' had 19 people, the ladies 'Q' had 14 people.

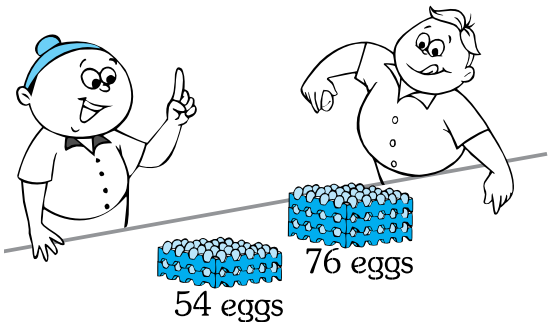
How many people were waiting to buy tickets?



Ram counted the chairs arranged for the function. There were 45 chairs in all: some coloured, some white. Then he counted only the white chairs. There were 19 white chairs. How many coloured chairs were there?

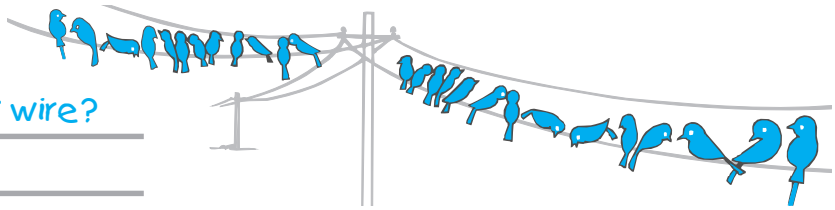
Picture stories

Look at these pictures. Answer the questions for the first picture. Make your own questions for the remaining pictures and answer them.



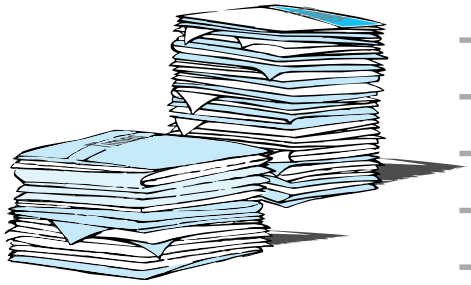
1. Who has more eggs?

2. How many eggs in all?

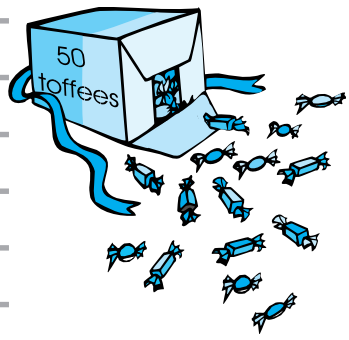


1. How many birds on the first wire?

35 Newspapers

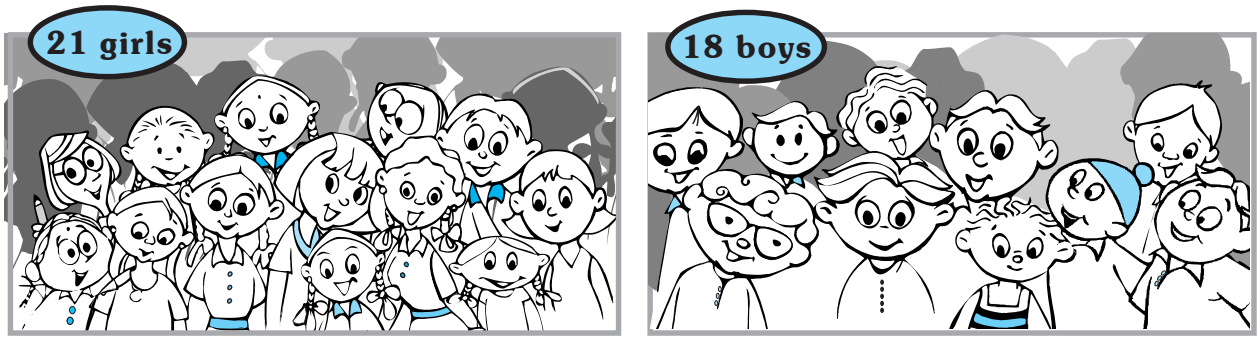


18 Newspapers



Word problems 1

Look at the picture. How many children are there in all?



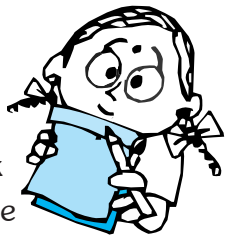
After looking at the picture Geeta wrote statements in Hindi in her notebook.

21 ladkiyan, 18 ladke,
total bachhe kitne?

She then drew a diagram

21 + 18 = ?

number of girls | number of boys | The question mark means that you have to find the total.



And found the answer

21 + 18 = 39

And wrote

There are 39 children in all.

Read this problem.

A flower pot has flowers of two colours. There are 26 white and 14 coloured flowers.

How many flowers are there in all?

Write statements in your mother tongue. (Use the English alphabet.)

Here is a diagram to show the problem.

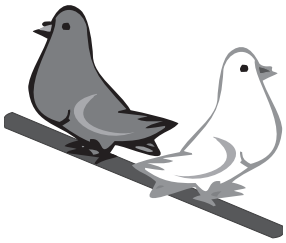
What does the number inside the first circle mean?

What does the number inside the second circle mean?

What does the question mark mean?

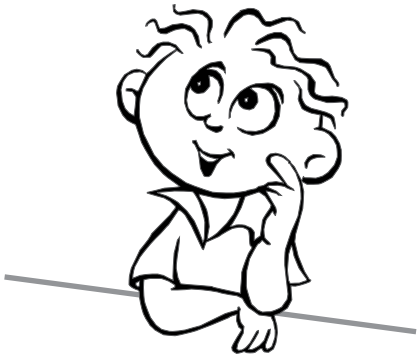
Find and write the answer to the problem.

Rohit has two kinds of pigeons: 17 white pigeons and 21 grey pigeons. How many pigeons does he have in all?



Write statements in your mother tongue.

Now show the problem using a diagram.



Find and write the answer to the problem.

Look at this diagram.

1. Make a word problem for the diagram using these words: textbooks, notebooks. Write the answer to your problem.

2. Make another word problem for the diagram using the words: half-pants, full-pants. Write the answer to your problem.

3. Make your own word problem for the diagram and write the answer.

Make your own word problem for this diagram and write the answer.

Notebook Exercise

Write statements in your mother tongue, draw diagrams and solve these problems.

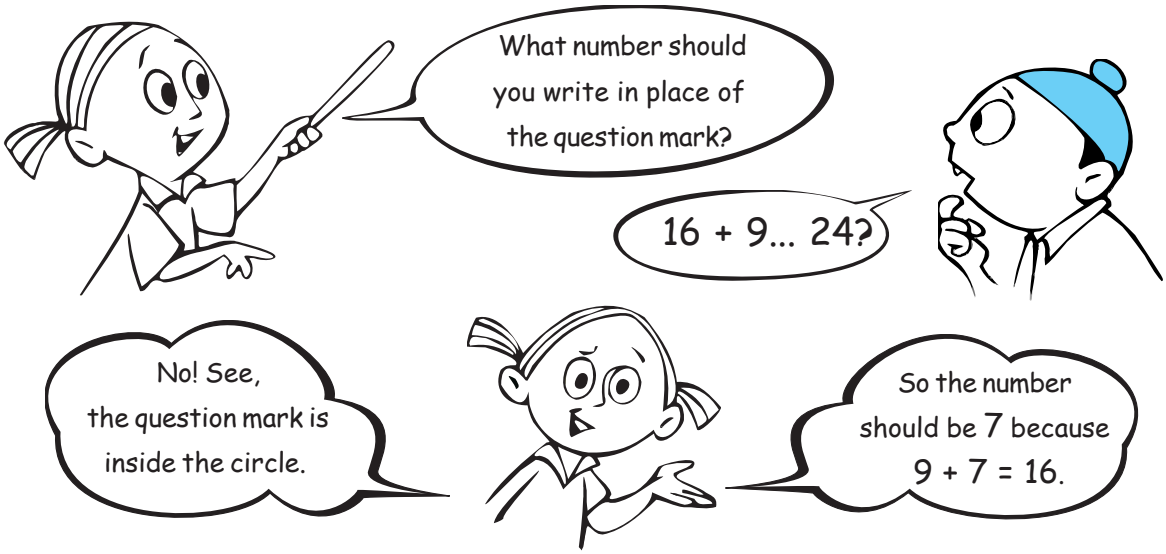
1) At the bus stop Geeta counted 9 red buses and 11 green buses. How many buses in all did she count?

2) In a small lane there were two kinds of houses. 17 houses had tiled roofs and 16 houses had RCC roofs. How many houses were in the lane?

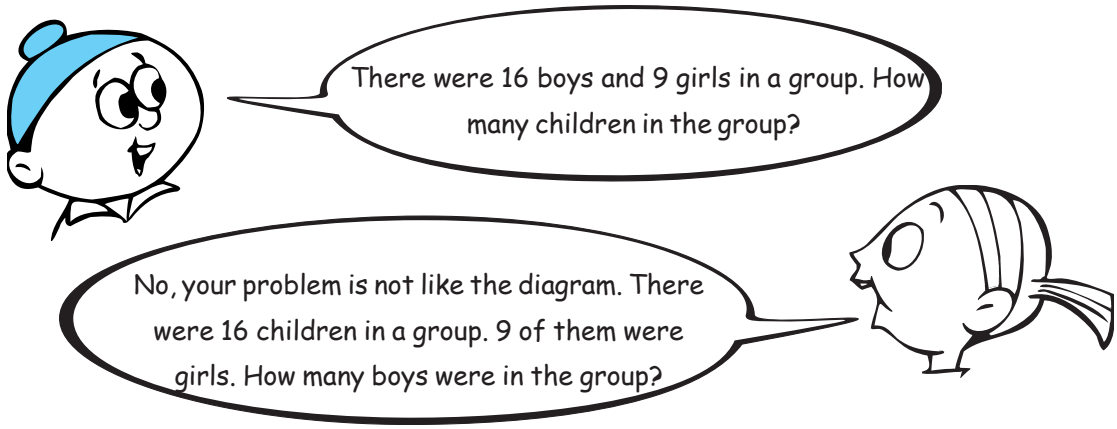
3) The balloon seller has balloons in three colours: 9 yellow balloons and 12 red balloons and 13 blue balloons. How many balloons in all does he have?

Word problems 2

Look at this diagram carefully.



Lucy and Chunindar make a word problem for the diagram.



Why do you think Lucy's problem is correct?

Write statements in your mother tongue for Lucy's problem.
(Use the English alphabet.)

What is the answer to Lucy's problem?

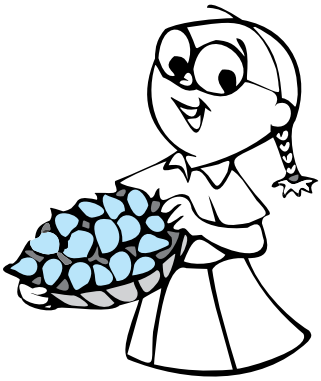
Read Lucy's and Chunindar's problems again carefully. Understand the difference between them.

Read this problem.

Rani had 15 mangoes and some guavas. She had 25 fruits (mangoes and guavas) in all. How many guavas did she have?

Write statements for the problem.

Here is a diagram to show the problem.



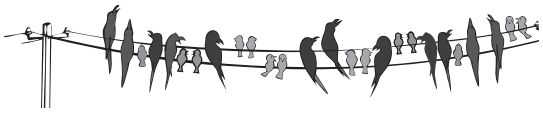
15 + ? = 25

What does the number inside the first circle mean?

What does the question mark inside the second circle mean?

What does the number after the '=' sign mean?

Find and write the answer to the problem.



There were 39 birds sitting on the wire. 23 of them were crows. The rest were sparrows. How many sparrows were sitting on the wire?

Write statements for the problem.

Now show the problem using a diagram.

Find and write the answer to the problem.

One day standing at the bus stop Lucy counted all the buses.
There were 23 buses.
9 were double decker buses and the remaining were single decker buses.

How many single decker buses were in the bus stop?

Write statements:

Now show the problem using a diagram.

Find and write the answer to the problem.

Look at this diagram.

1. Make a word problem for the diagram using these words: red pencils, blue pencils. Write the answer to your problem.

2. Make another word problem for the same diagram using the words: cricket balls, tennis balls. Write the answer to your problem.

3. Make a word problem for the diagram using your own words and write the answer.

Solve these problems. Write statements, draw diagrams and find the answer for each problem.

1. Chetan was selling newspapers. He had 23 English newspapers and 38 Marathi newspapers. How many papers did he have in all?
2. 50 children attended the scout camp. 18 were boys. How many girls attended the camp?
3. Lucy went to a bookshop. She bought a story book for Rs 65 and a puzzle book for Rs 85. How much did Lucy spend at the shop?
4. On Sunday, the circus had two shows and sold a total of 500 tickets. 193 tickets were sold for the afternoon show. How many tickets were sold for the evening show?
5. Parvin bought a kg of oil and a kg of soap for Rs 100. The cost of 1 kg of soap is Rs 37. How much does 1 kg of oil cost?
6. Dildar was riding a motorbike. The weight of the motorbike was 117 kg. Dildar's weight was 67 kg. What is the combined weight of the motorbike and Dildar?

Make your own problems for the diagrams using the words given and find the answers.

1. Duck eggs, hen eggs

57 + 76 = ?

2. Plastic kites, paper kites

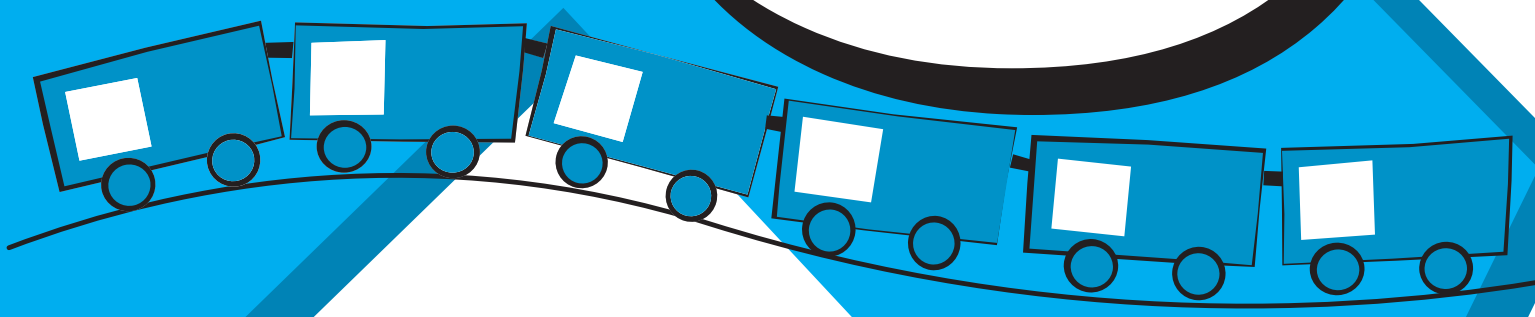
25 + ? = 75

3. Use your own words.

17 + ? = 38

Multiplication

Unit 6



Making Groups

Listen to Tikoo uncle
Clapping claps for you.

Move around in a circle
When the claps stop, so do you.

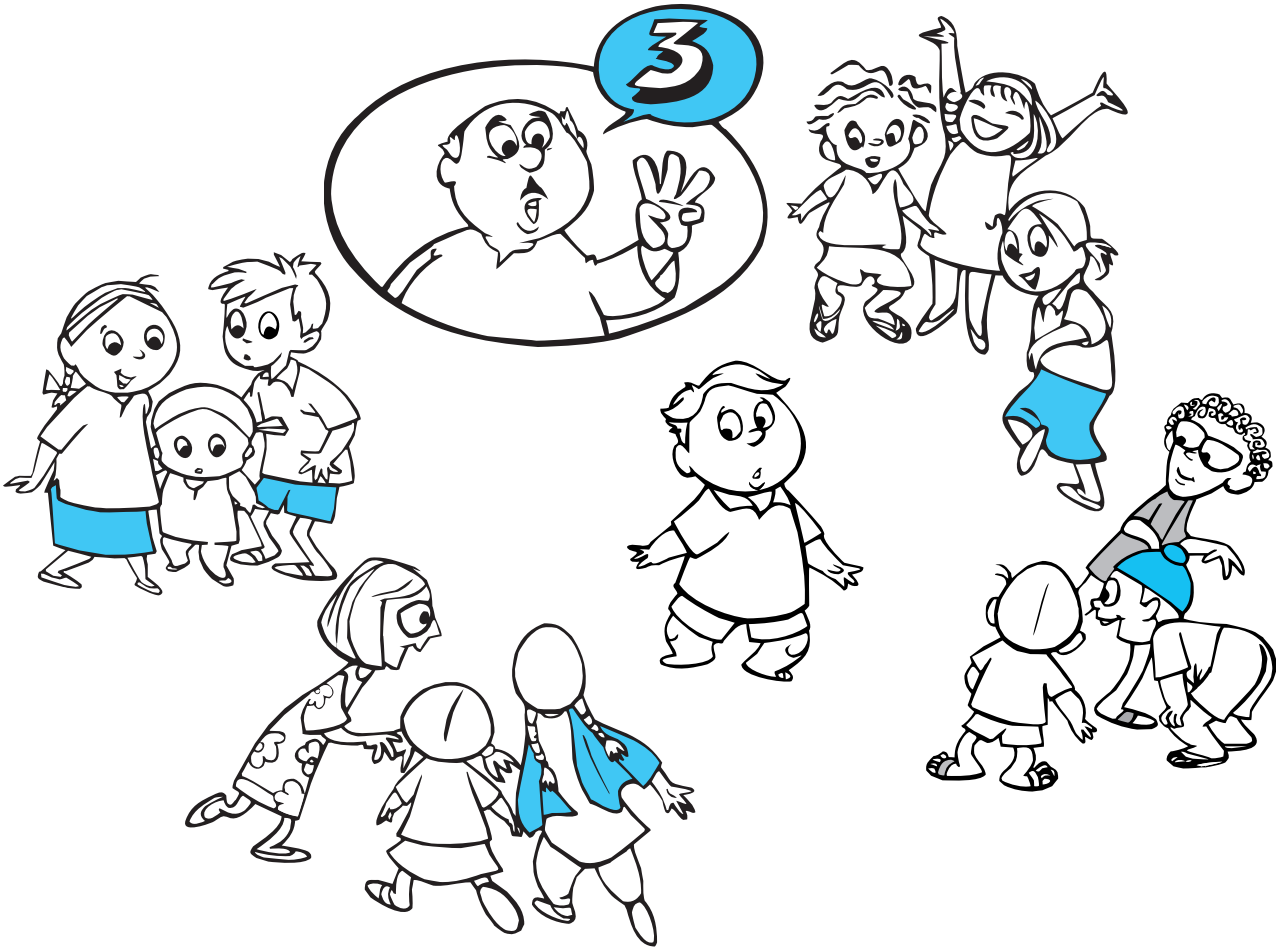
Now form groups of the number I shout
Hurry or you will be left out.

Play another round of the game,
but the number may not be the same.

Play the game in the poem.

Choose a leader. Move in a circle while the leader claps her hands. The leader stops clapping and calls out a number.

Make groups of the number she calls out.



How many children in the picture formed groups?

4 groups of 3.

3 + 3 + 3 + 3

4 times 3

4 × 3 = 12

'4 × 3' means **'4** times **3'**

Multiplication means add the same number so many times.

In this game, you must form equal groups. That is, each group must have the same number of children.

Check if the groups in the picture are all equal groups.

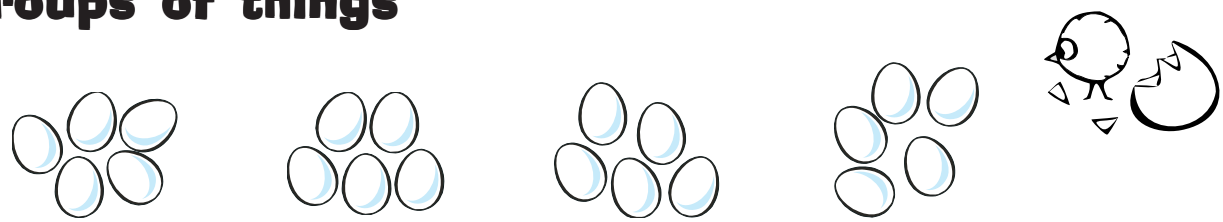
How many children **remained** outside the groups?_____

After you make equal groups, whatever remains over is the **remainder**.

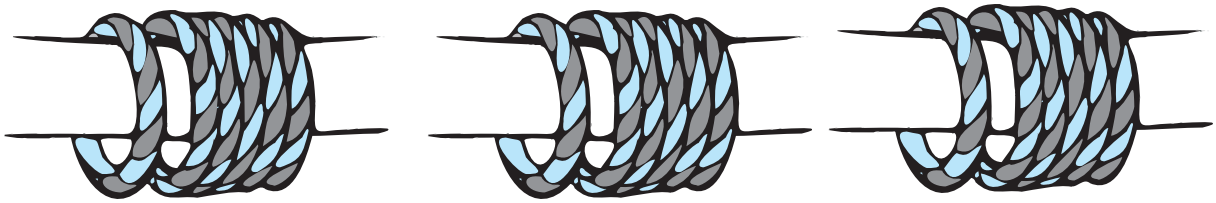
Know these words

groups, equal groups, remainder

Groups of things



4 groups of 5 eggs each.	5 + 5 + 5 + 5 = 20	4 × 5 = 20	20 eggs in all.



Fill up the table.

Draw the picture and fill up the table.

5 groups of 2 flowers each.			

Draw a picture to show the difference between these two phrases.

3 groups of 5 apples each

5 groups of 3 apples each

Notebook Exercise

Make other pairs of phrases like these. Draw pictures to show the difference.

Multiplication tables with dots

Table of 2

Three twos are six

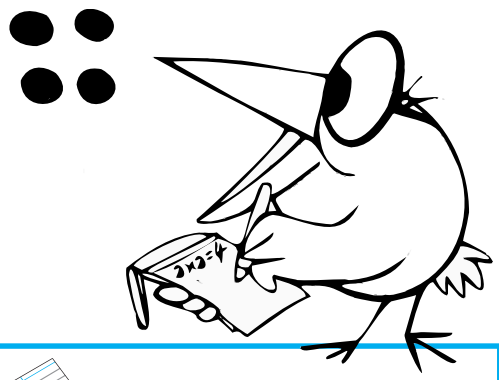
1	• •	2	1 x 2 = 2
2	• •	4	2 x 2 = 4
3	• •	6	3 x 2 = 6
4		___	4 x 2 = ___
5		___	5 x 2 = ___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___

Table of 3

1	• • •	3	1 x 3 = 3
2		6	2 x 3 = 6
3		___	___
4		___	___
5		___	___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___

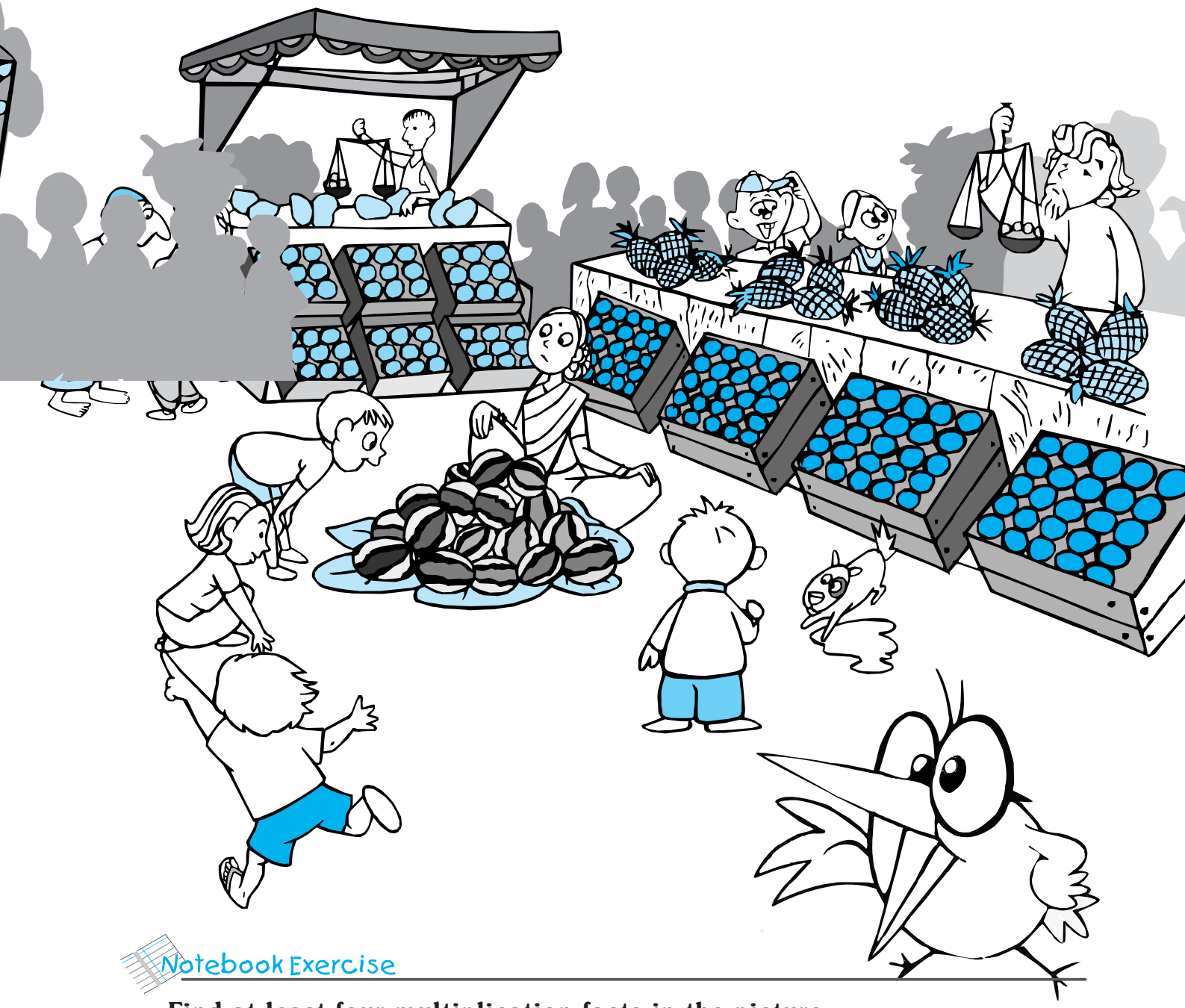
Table of 4

1	• • • •	4	1 x 4 = 4
2		8	2 x 4 = 8
3		___	___
4		___	___
5		___	___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___



Notebook Exercise

Make the tables of 5, 6, 7, 8, 9 and 10 with dots.



Notebook Exercise

Find at least four multiplication facts in the picture.

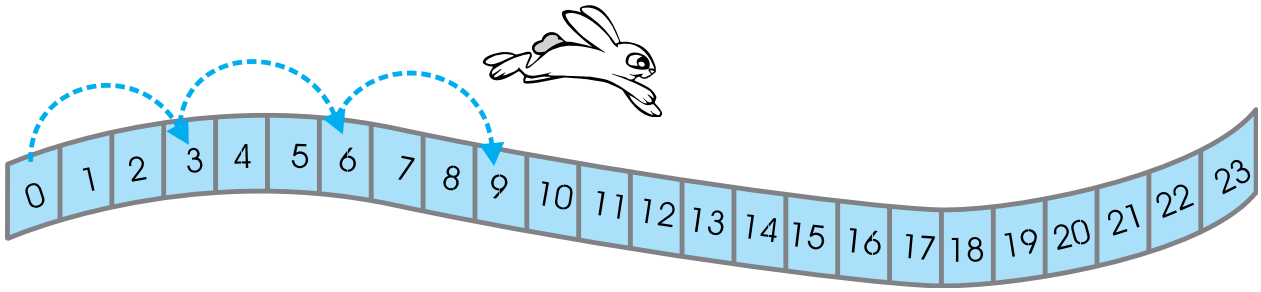
Make a table in your notebook like this.

Name of object	Multiplication fact	Write in words	Total
Pineapples on the left	$3 \times 4 = 12$	3 lots of 4 pineapples each	12 pineapples in all

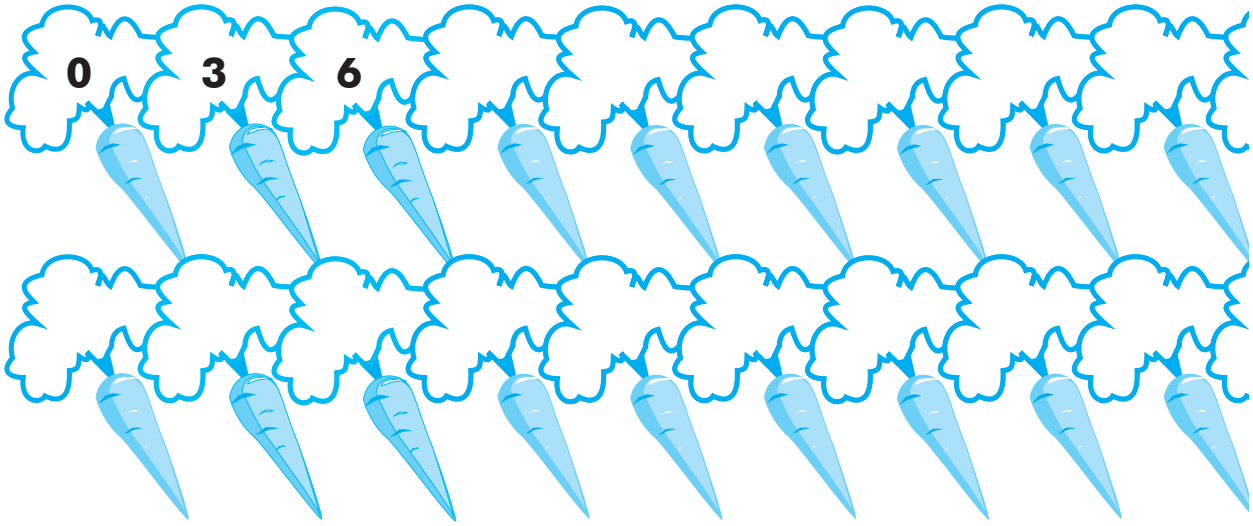
Can you find more multiplication facts?

Animal jumps

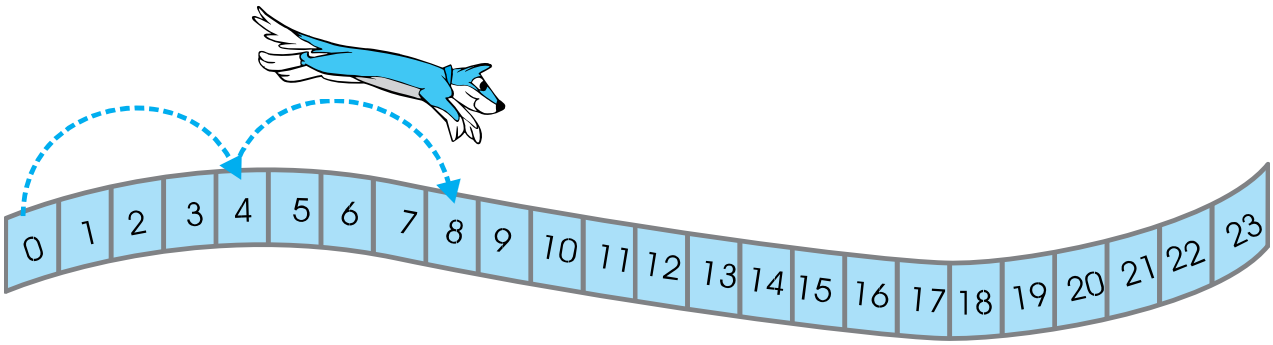
The rabbit jumps 3 steps at a time.



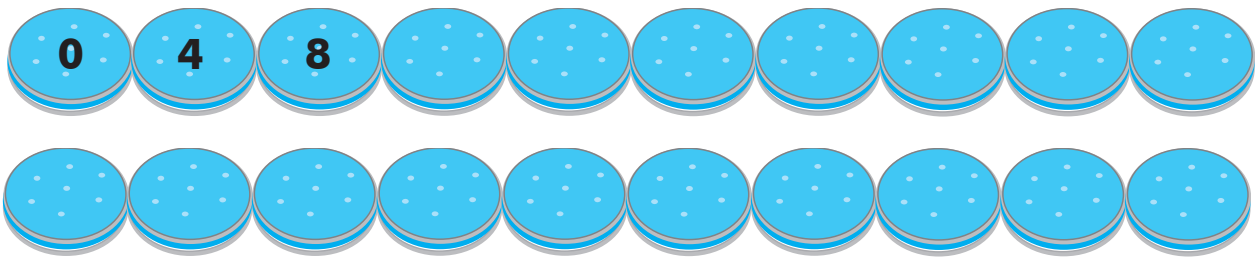
Which numbers will the rabbit touch?



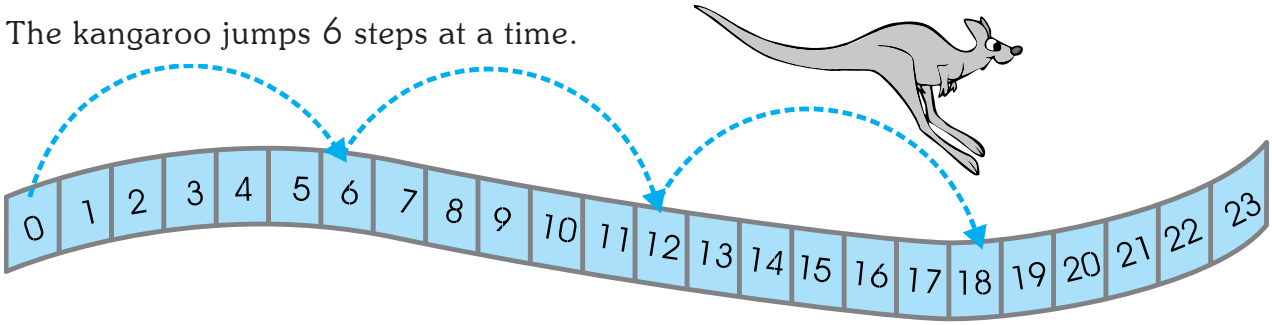
The dog jumps 4 steps at a time.



Which numbers will the dog touch?



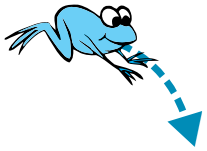
The kangaroo jumps 6 steps at a time.



Which numbers will the Kangaroo touch?

0 **6** **12**

The frog jumps 5 steps at a time.



Which numbers will the frog touch?

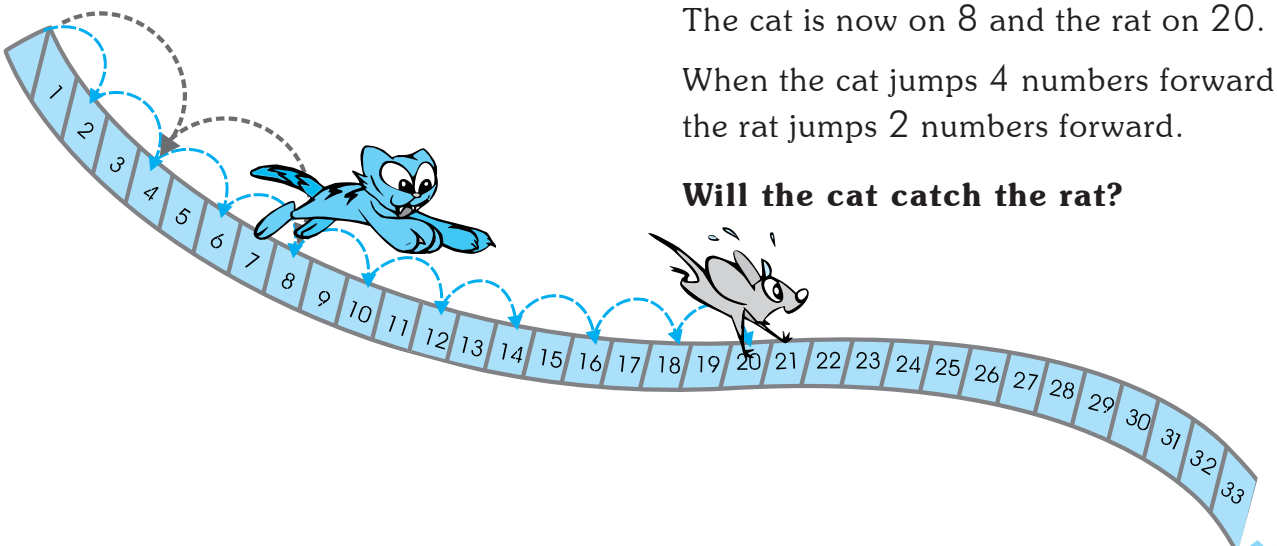
0 **5** **10**

If the cat and the rat land on the same number, the cat will catch the rat.

The cat is now on 8 and the rat on 20.

When the cat jumps 4 numbers forward, the rat jumps 2 numbers forward.

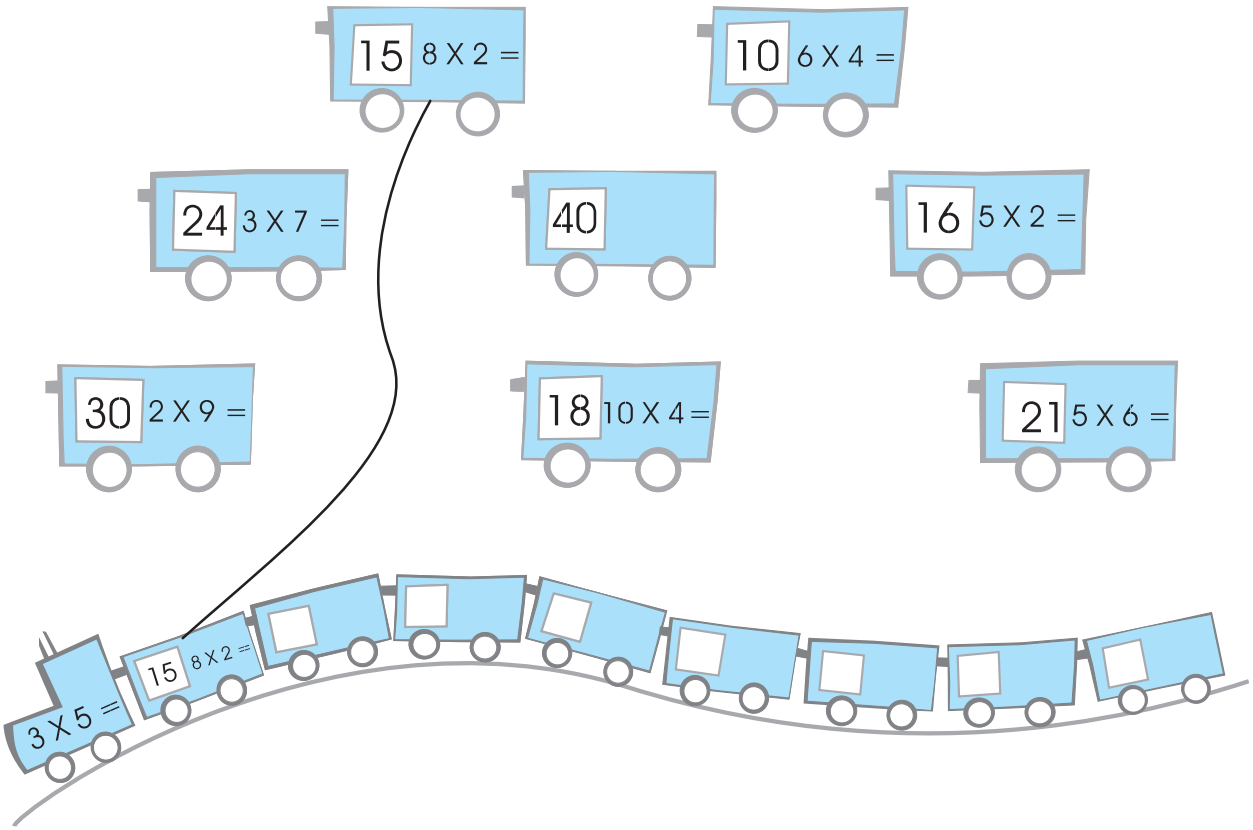
Will the cat catch the rat?



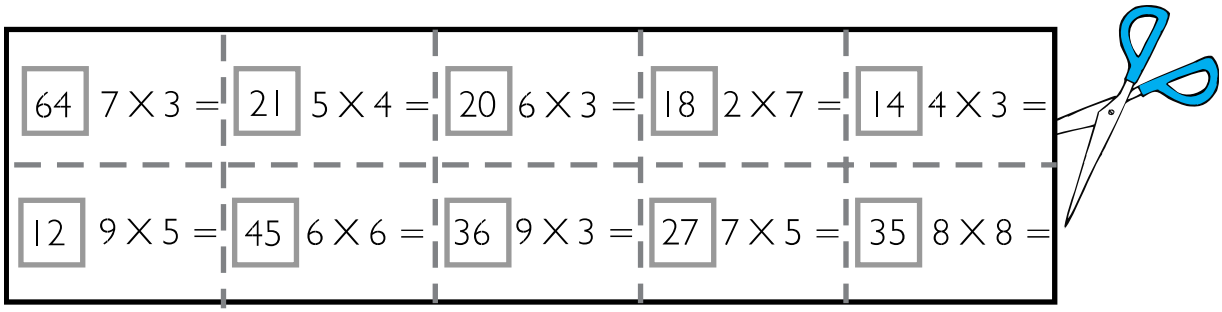
Linking the chain

Arrange the bogies of the train so that the answer to each multiplication fact appears on the bogie next in the line.

Draw lines to show where each bogie must be placed.



On a sheet of paper, copy the figure shown below. Cut and make ten cards. You can play different games with these cards. Some of these games are described on the next page.



Classroom Game

Shuffle the cards and distribute them among ten children.

Have one of the children read out the question on his card. The child who has the correct answer on her card stands up. She then reads the question on her card. Continue and complete the chain.

GAME FOR TWO

Shuffle and put the cards facing down. Keep one card facing up to start the chain. Take turns to pick up a card. If it matches put it in the chain and score a point. Otherwise put the card facing down again. Continue till the chain is complete.

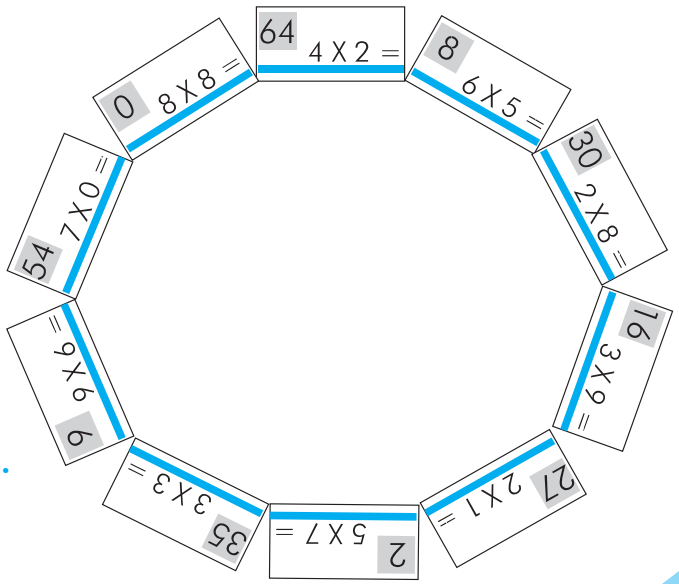
Complete the chain.

14	4 × 3 =	12	9 × 5 =	

Make your own set of chain cards.

Think, Think !

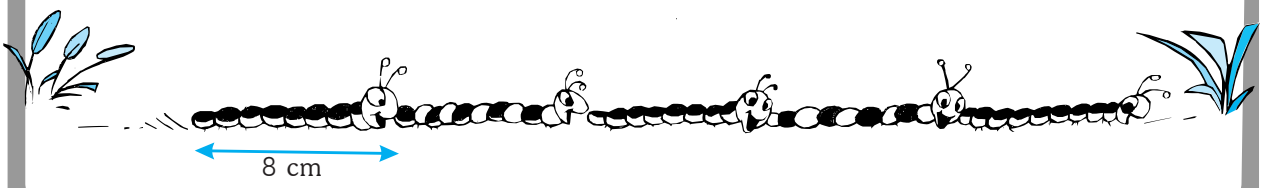
Why did Eti arrange the cards in a chain like this?



Learn the multiplication tables.
Practice recalling the tables.

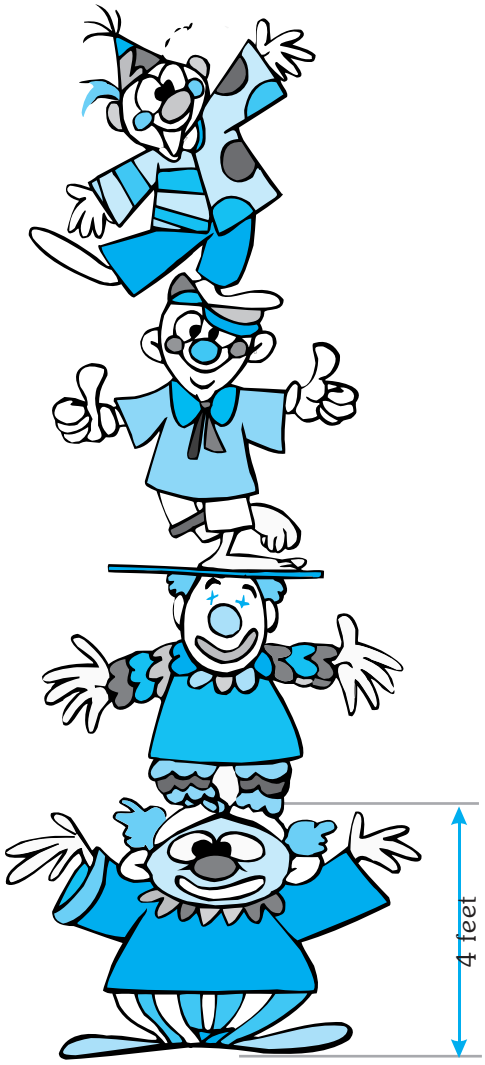
Tall stories

Each worm is 8 centimeters long. How long is the worm line?

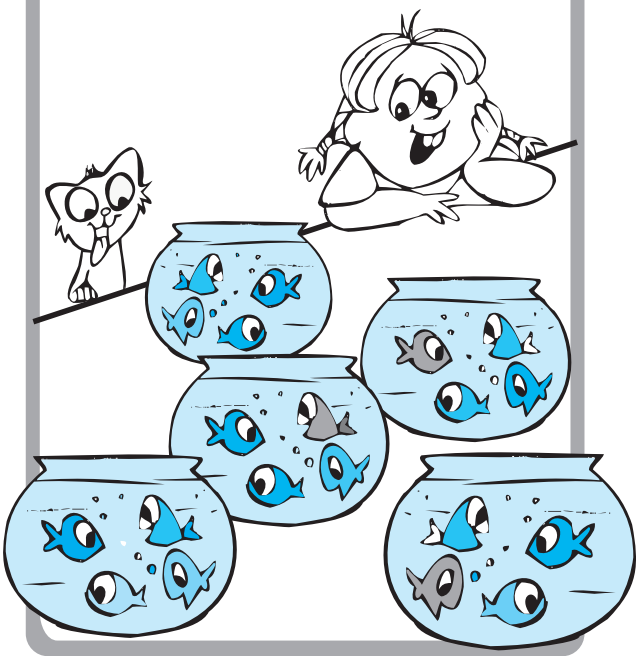


Each clown is 4 feet tall.

How tall is the pillar of clowns?



Parveen filled 5 bottles with water. In each bottle she put 4 fish. How many fish did she put in all?

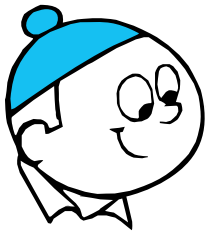


Complete the picture for each story.

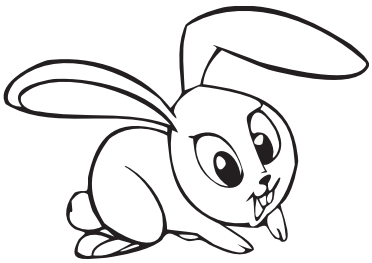
Write the multiplication fact and find the answer.

Chunindar put 5 cups on the table. In each cup he put 3 marbles.

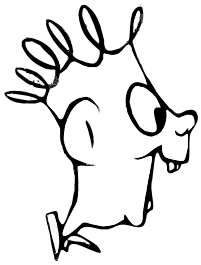
How many marbles did he put in all?



The rabbit ate 4 carrots on Sunday, 4 carrots on Monday,
4 carrots every day for the whole week.
How many carrots did he eat that week?



Eti counted 9 cars lined up on the road.
Each car had two people sitting inside.
How many people altogether?



Notebook Exercise

Complete the multiplication facts.

Make your own stories for each fact.

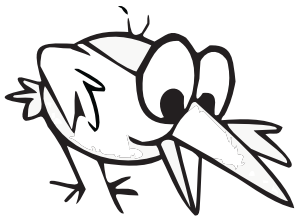
$7 \times 7 =$ $8 \times 5 =$ $9 \times 8 =$

The 10×10 dot grid

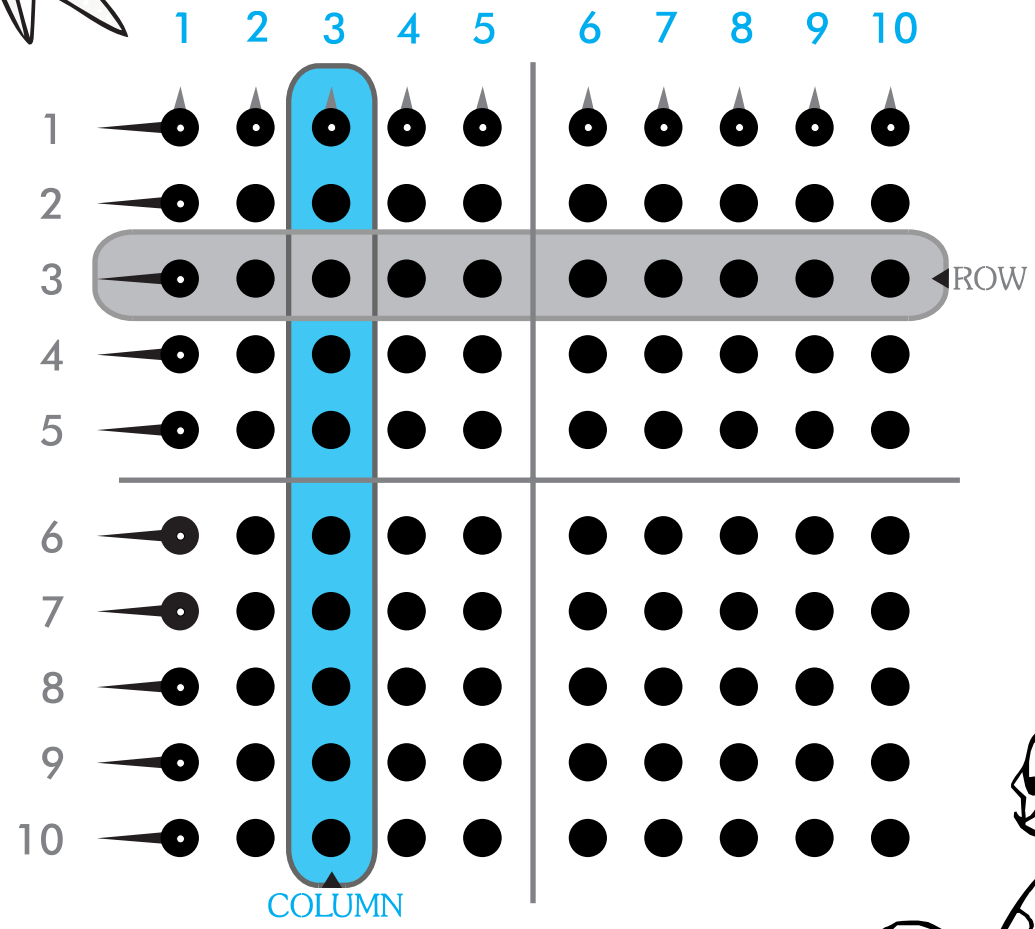
The 10 ×10 dot grid has many dots arranged in a square pattern.

Guess how many dots there are._____

The dots are arranged in rows and columns. Rows are horizontal and columns are vertical.



Each row and each column has a leader. The row leaders have long noses. The column leaders have short noses.



How many rows are there in the dot grid?

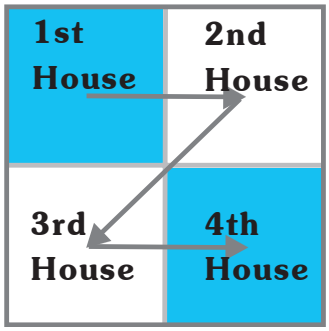
How many columns are there in the dot grid?

Circle the dot which is both a row leader and a column leader.

Make a 10 × 10 dot grid in your notebook.

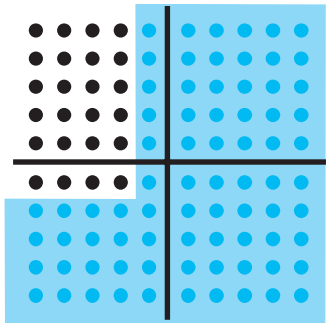
The 10 × 10 dot grid has four houses.
The houses are numbered in a 'Z' pattern.

Guess how many dots there are in each house.



How many rows and how many columns are shown?

Count the rows by counting the row leaders.
Count the columns by counting the column leaders.



_____ rows and _____ columns contain _____ dots.

Multiplication fact: 6 × 4 = 24

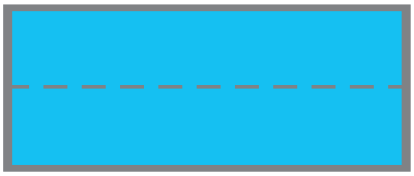
Classroom Activity

You can show different multiplication facts by using an L-mask to cover the dot grid.

How to make an L-mask:

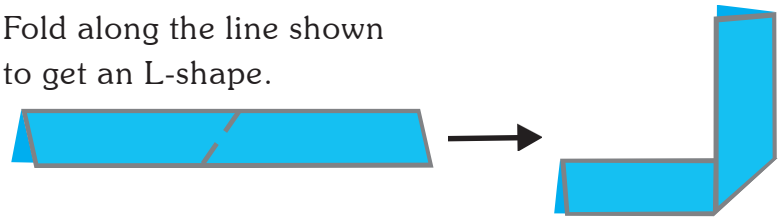
1 Tear out a page from on old magazine or notebook.

Fold the paper in half along its length.



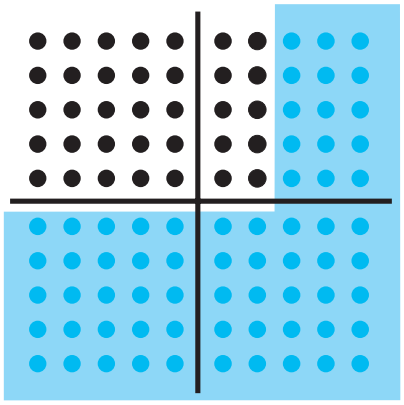
2 Fold it once more.

3 Fold along the line shown to get an L-shape.

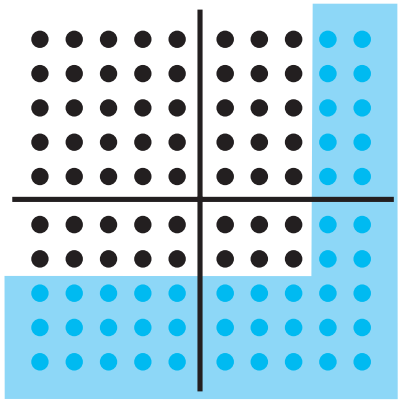


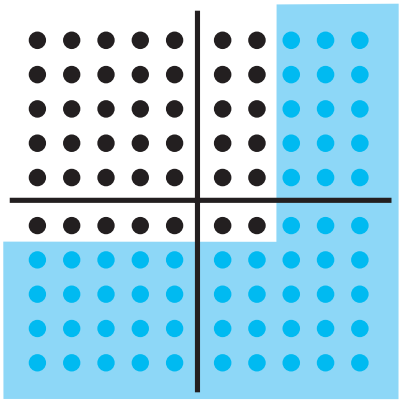
Make sure your 'L' is straight and not bent.

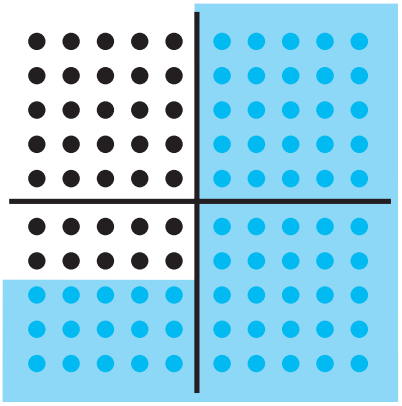
Write the multiplication facts shown on the dot grid.

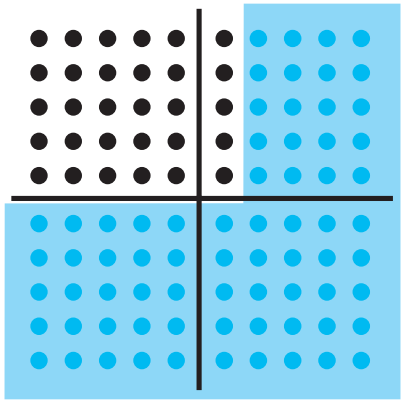


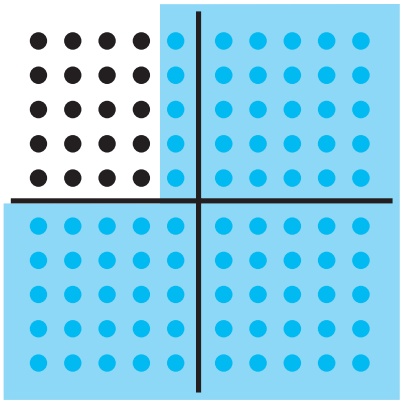
5×7

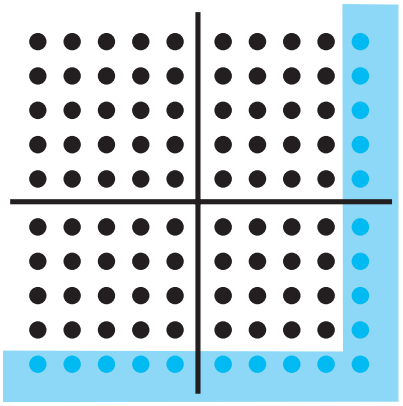


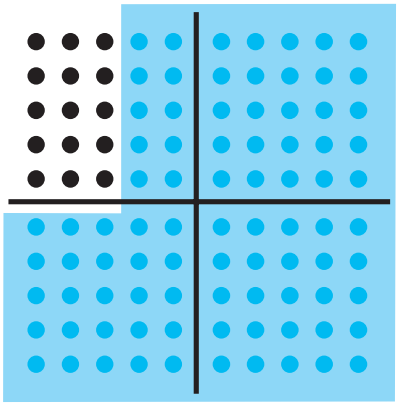


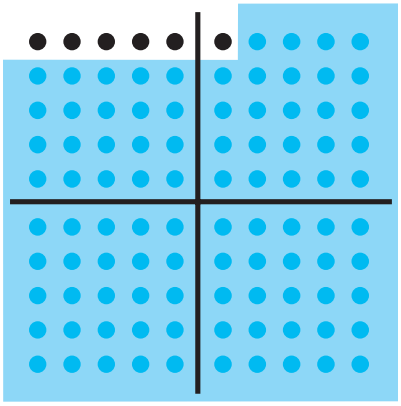




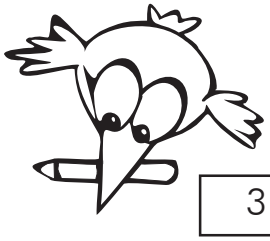




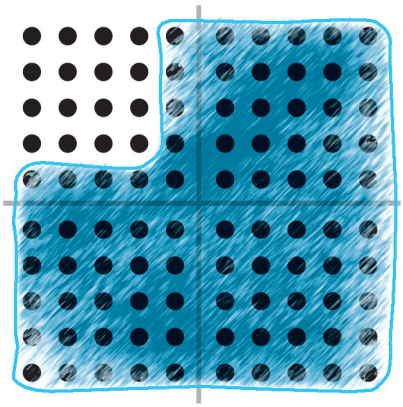




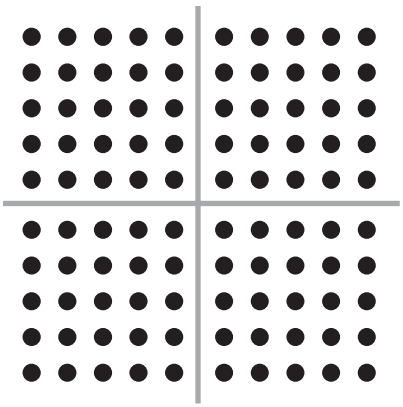
Show the multiplication fact on the dot grid.



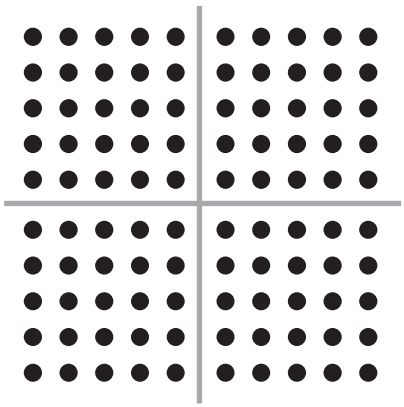
4 × 4



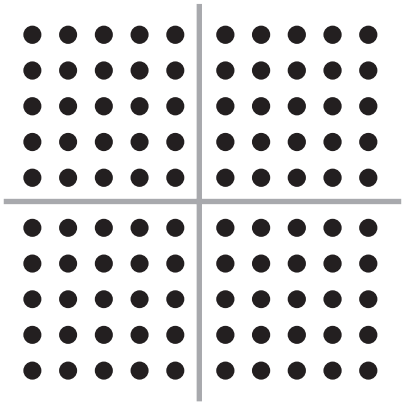
5 × 7



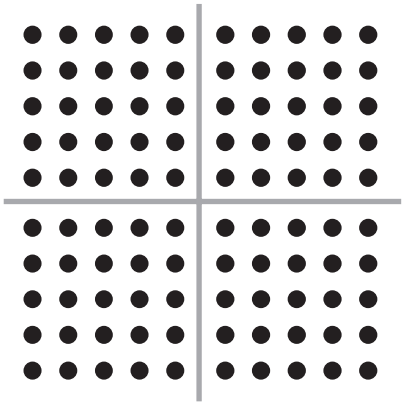
3 × 6



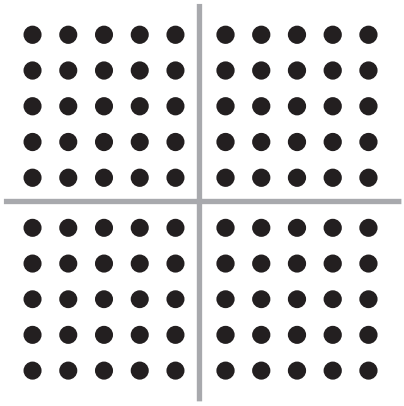
6 × 6



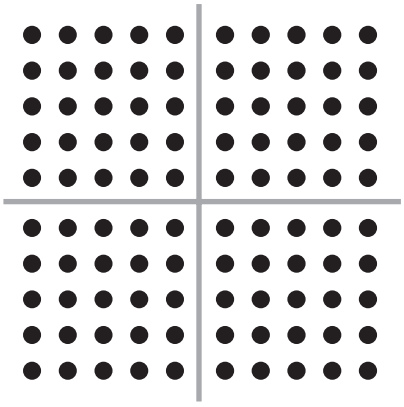
6 × 8



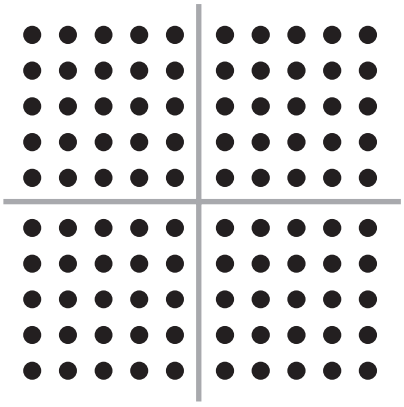
8 × 9



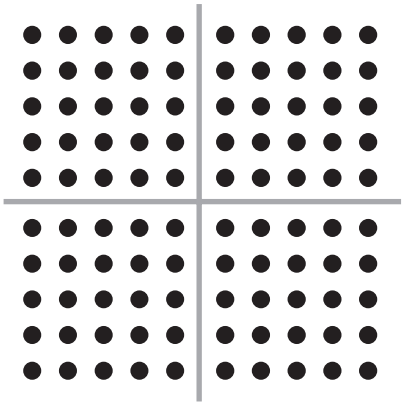
7 × 7



9 × 2

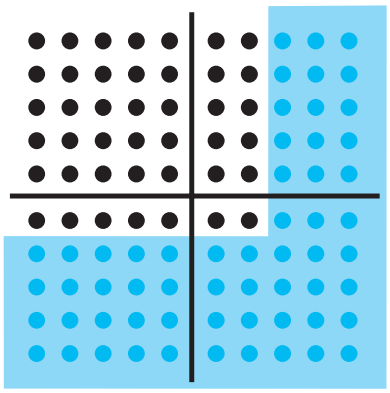


3 × 8

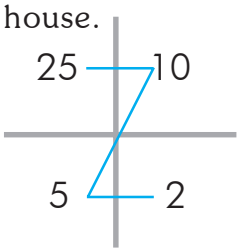


Write the multiplication fact shown and multiply on the dot grid.

6×7



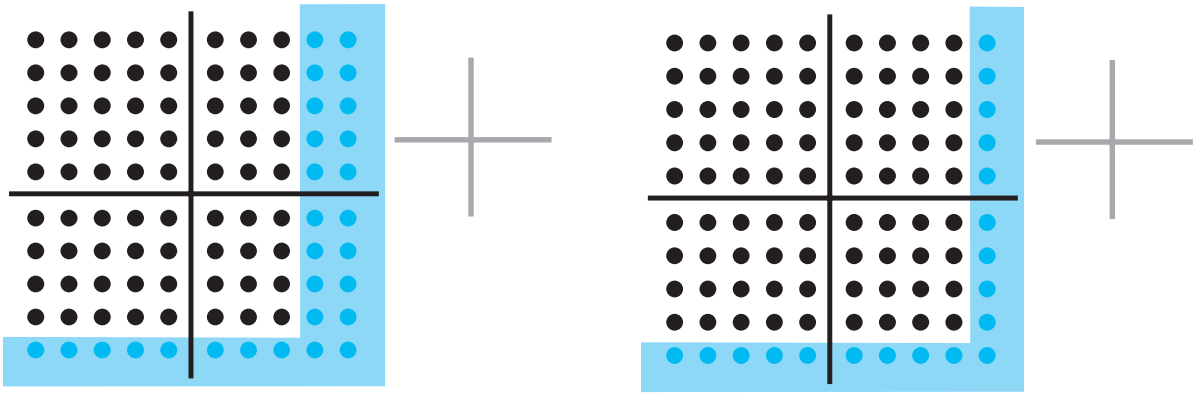
Write the number of dots in each house.

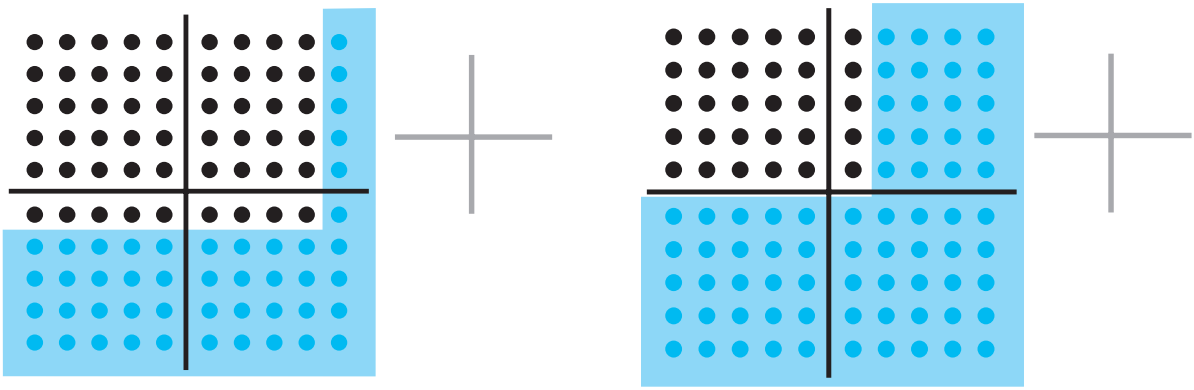


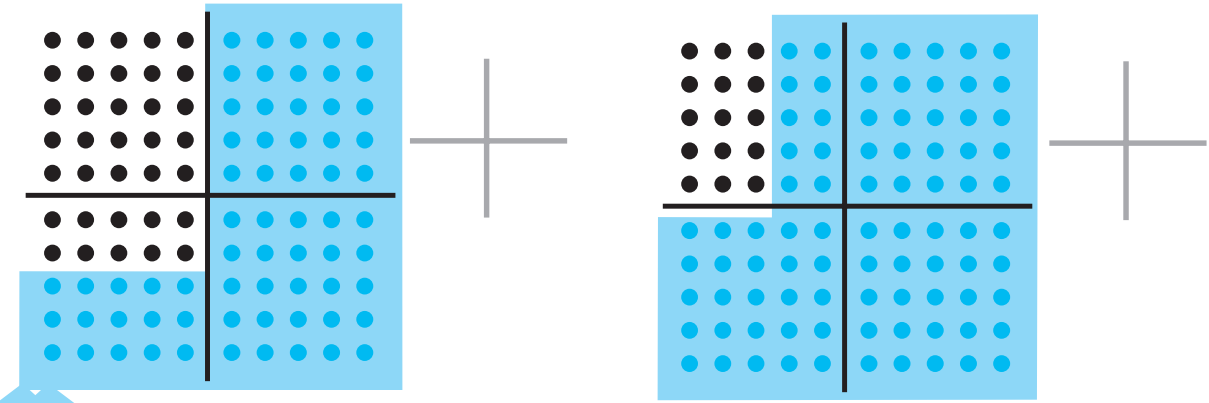
Add all the numbers.

$25 + 10 + 5 + 2 = 42$

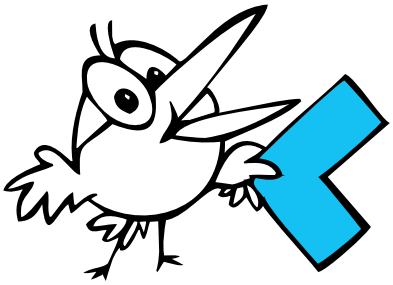
$6 \times 7 = 42$





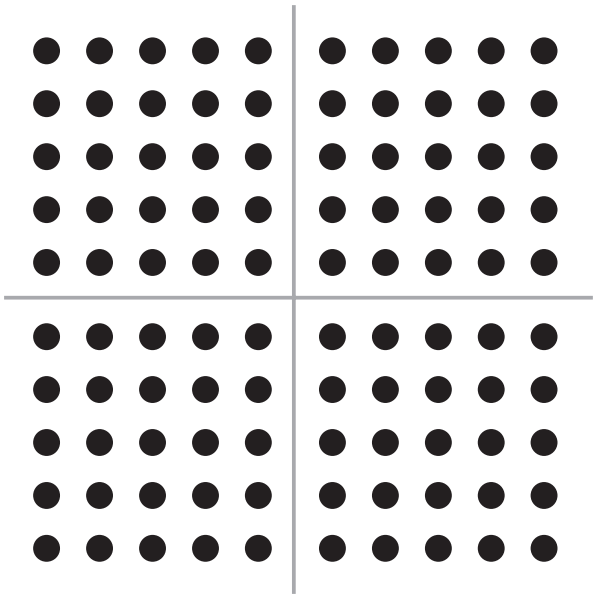


Multiply on the dot grid.



Use the L-mask to cover the dot grid for each problem.

Or you can draw lines with a pencil and then rub them out.



6 × 6

6 × 7

6 × 8

5 × 9

8 × 9

3 × 7

8 × 4

5 × 7

8 × 2

7 × 9

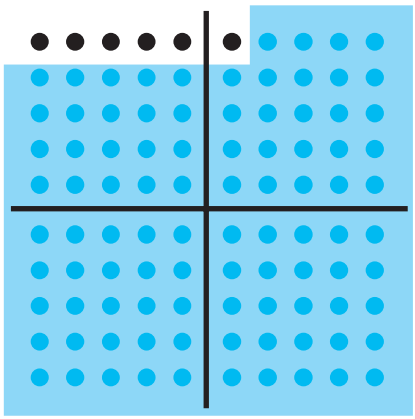
Multiplying by one and zero

Multiply on the dot grid using the L-mask or by drawing lines.

$6 \times 1 =$ $1 \times 6 =$

$8 \times 1 =$ $1 \times 3 =$

$10 \times 1 =$ $1 \times 7 =$



Multiply:

$11 \times 1 =$ $1 \times 44 =$

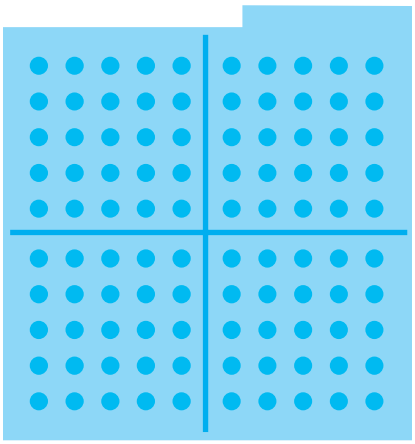
$28 \times 1 =$ $1 \times 75 =$

$1 \times 100 =$ $1 \times 1000 =$

Now try and multiply 0×3 on the dot grid.

What happens? Can you see any dots?

$0 \times 3 = 0$

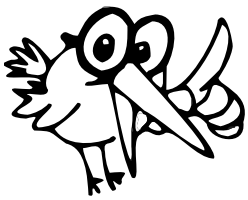


Multiply:

$0 \times 5 =$ $0 \times 23 =$

$7 \times 0 =$ $0 \times 75 =$

$10 \times 0 =$ $254 \times 0 =$



Any number multiplied by one gives the same number.

Any number multiplied by zero gives zero.

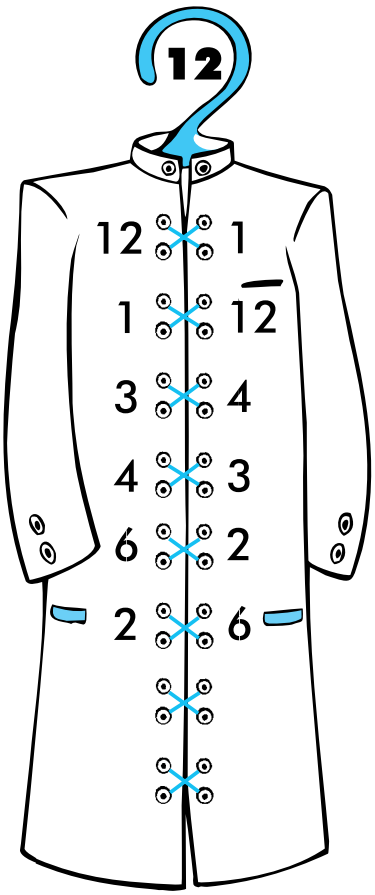
Notebook Exercise

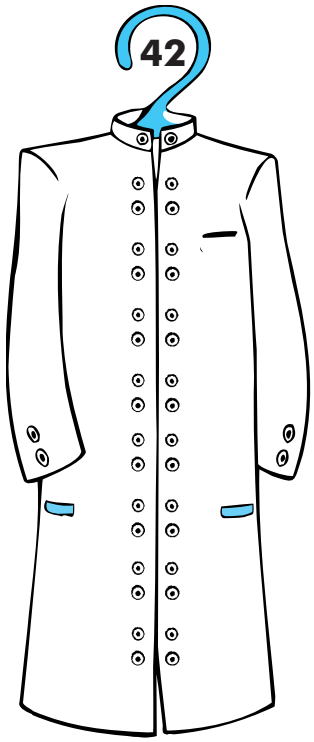
Multiply

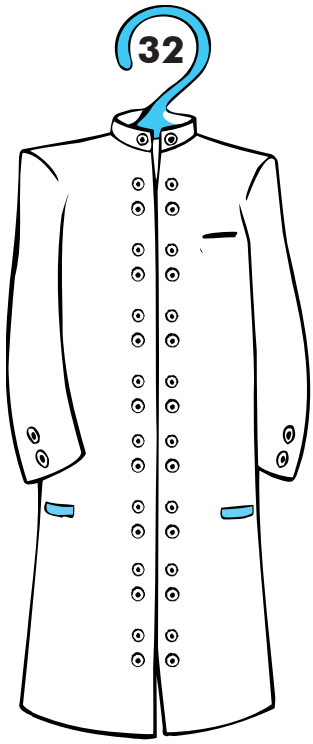
$98 \times 1 =$	$1 \times 371 =$	$0 \times 24 =$	$11 \times 1 =$
$0 \times 16 =$	$100 \times 0 =$	$1 \times 0 =$	$0 \times 0 =$

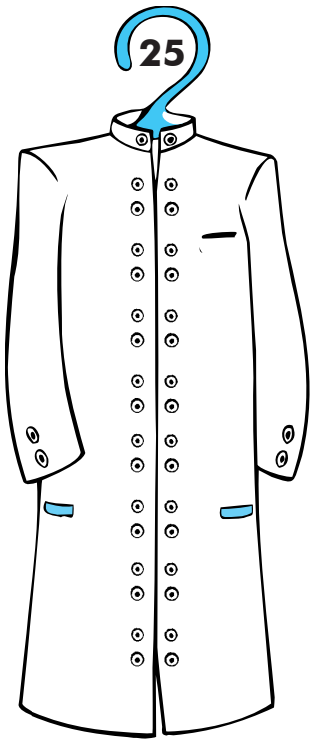
Multiplication facts

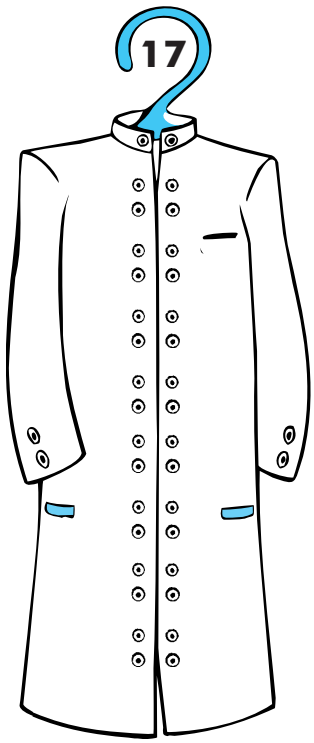
Write down the multiplication facts for these numbers.











A **factor** of a number appears in the multiplication fact for that number.

For example, for the number 12, 3×4 is a multiplication fact. So 3 and 4 are factors of 12.

You can find all the factors of 12 by finding all the multiplication facts for 12: 1, 2, 3, 4, 6 and 12.

Notebook Exercise

Find at least 2 factors for these numbers: 16, 15, 10, 9, 25, 17

Find all the factors of these numbers: 10, 14, 19, 18, 24, 36

The multiplication chart race

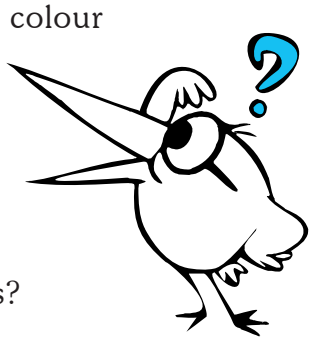
Fill each square on the chart by multiplying the row number and the column number.

Fill up the multiplication chart as quickly as you can.

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

On the multiplication chart shade all the even numbers with one colour and the odd numbers with a different colour.

How many odd numbers are there in the chart? ___



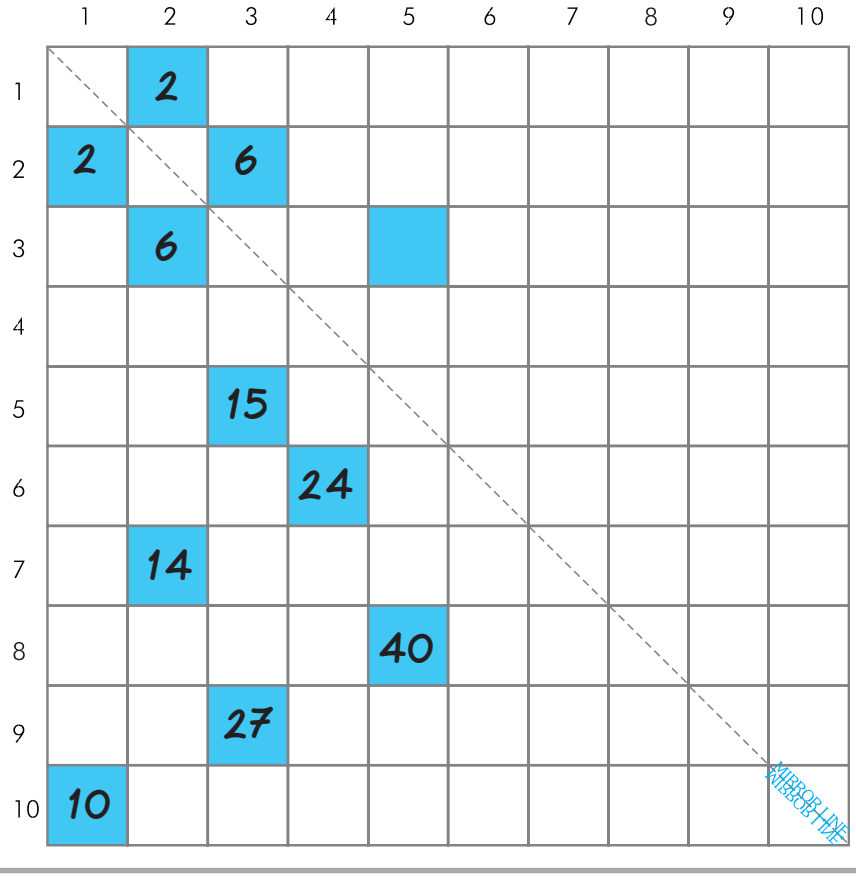
Think, Think!

Why do you get so many even numbers and so few odd numbers?

Mirror patterns

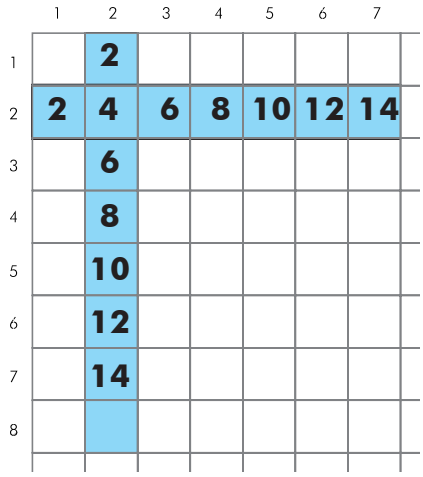
Some squares on the multiplication chart are shaded. Shade the squares which are their reflections about the mirror line. (Three reflected squares are already shaded.)

Fill the correct number in the shaded squares.



Think, think!

Why do the mirror images of the squares contain the same number?
Fill some more numbers on the chart and find their mirror images.
Which numbers on the chart don't have a mirror image?



The numbers which appear in the 2nd row are the same as the numbers which appear in the 2nd column.

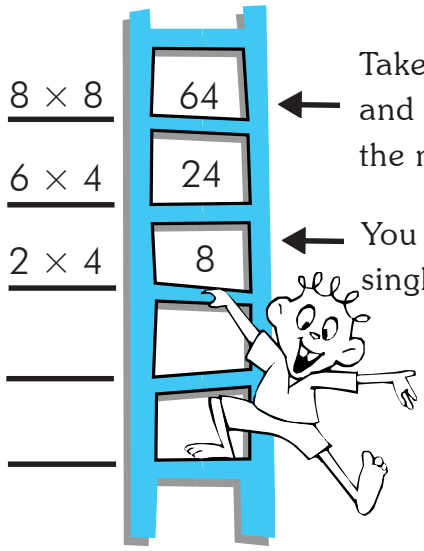
Think why this happens.

Is this true for the 3rd row and the 3rd column?
Is this true for other rows and columns?

Multiplication ladders

Go down the multiplication ladder!

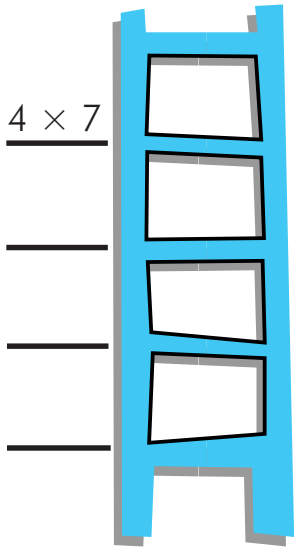
Start with a multiplication fact.

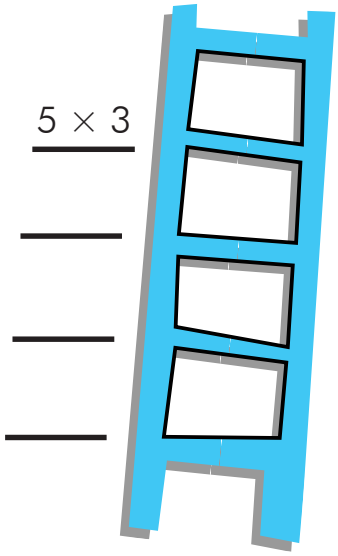


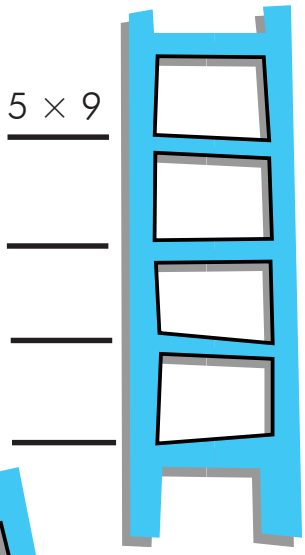
Take the digits in 64 and multiply them in the next step.

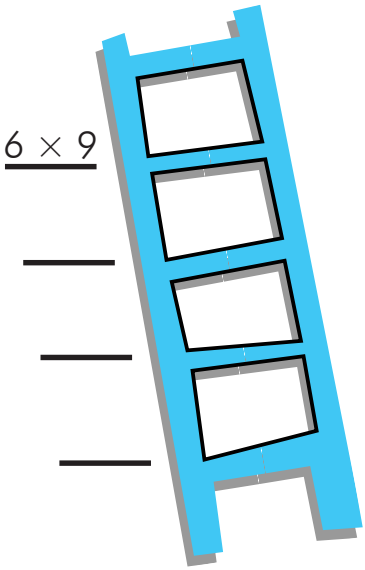
You have come to a single digit. So stop!

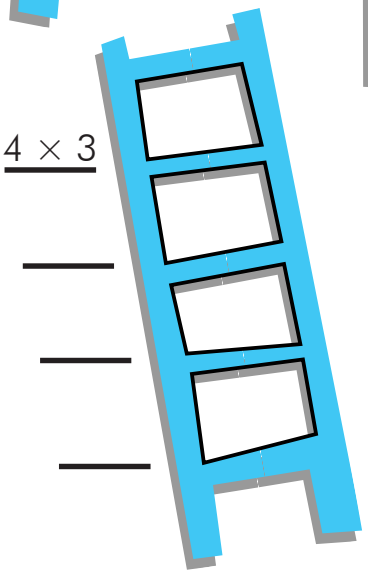
You went down three steps of the ladder.











Find a multiplication fact which gives four steps on the multiplication ladder.

Asking why

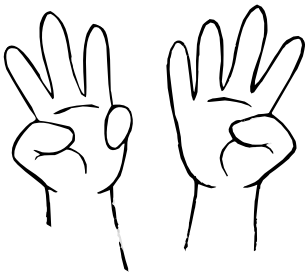
Add

4 + 3 = ____ 12 + 7 = ____

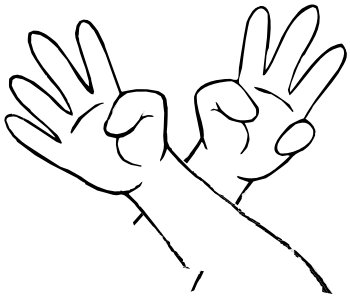
3 + 4 = ____ 7 + 12 = ____

Why do you get the same answer when you turn the numbers around?

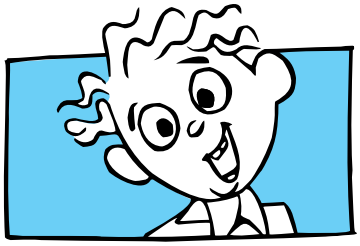
Javed explained it like this.



3 + 4

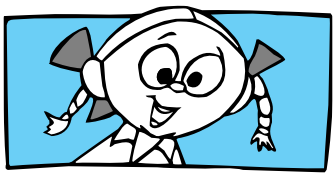


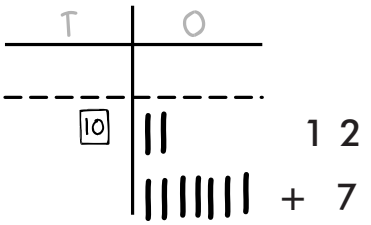
4 + 3

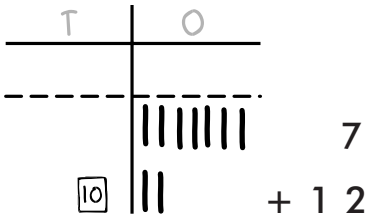


Both are the same.

Rani explained it by drawing matchsticks.







Both are the same!

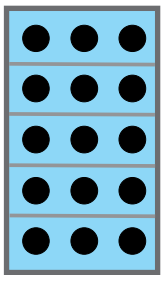
Multiply

5 × 3 = ____ 6 × 4 = ____

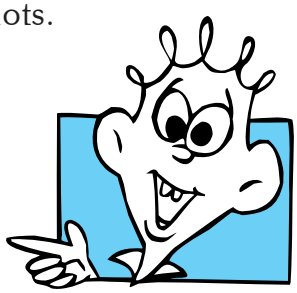
3 × 5 = ____ 4 × 6 = ____

Why do you get the same answer when you turn the numbers around?

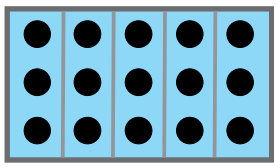
Eti explained it by drawing dots.



5 × 3

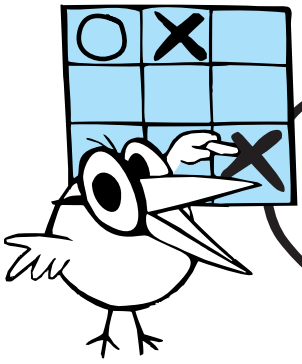


There are 15 dots.
Both are the same!



3 × 5

Tic tac times



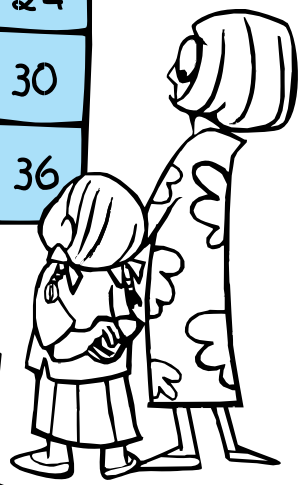
This game is like tic-tac-toe (or dots and crosses).

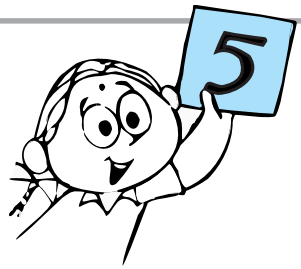
The winner tries to get three squares or numbers in a line.
You can get a number by choosing a factor and multiplying it with your opponent's factor.

Numberboard

30	20	24
24	16	30
20	25	36

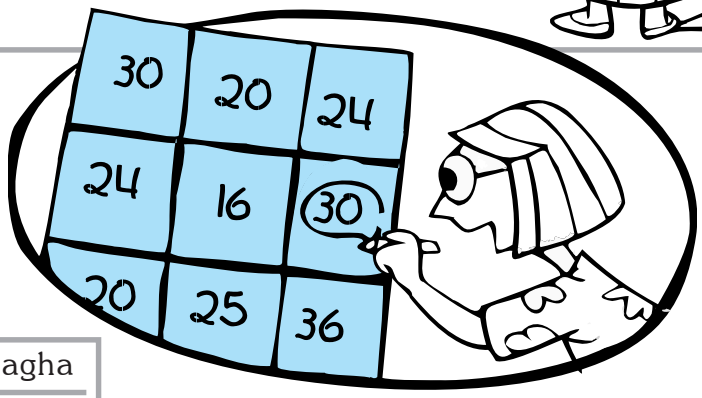
Play with these factors:



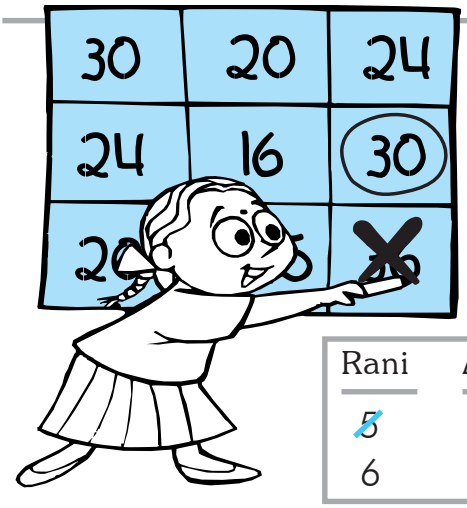


Rani chooses the factor 5 to start the game.

Rani	Anagha
5	6

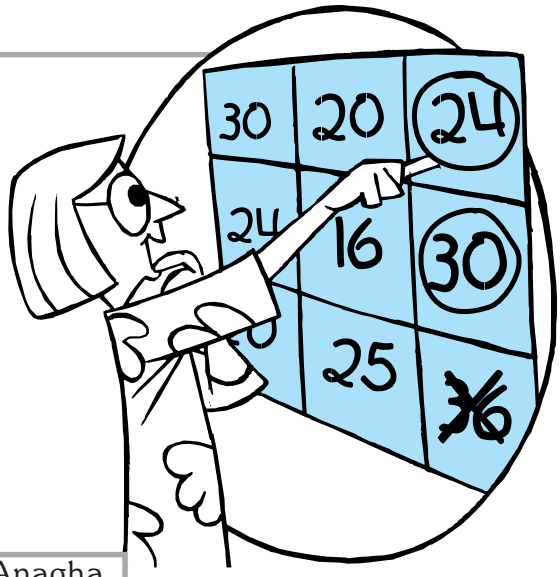


Anagha chooses 6. So she gets 30 (5 × 6).



Rani	Anagha
~~5~~ 6	6

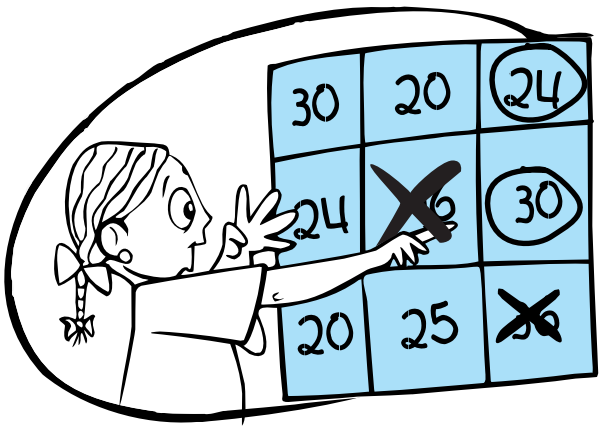
Rani now chooses 6.
So she gets 36 (6 × 6).



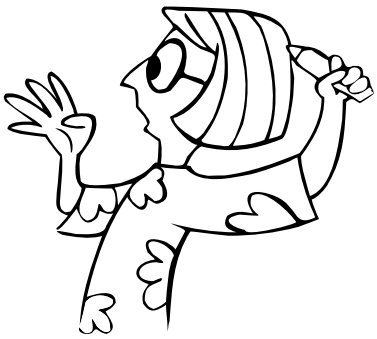
Rani	Anagha
~~5~~ 6	~~6~~ 4

Anagha chooses 4.
She gets 24 (6 × 4).

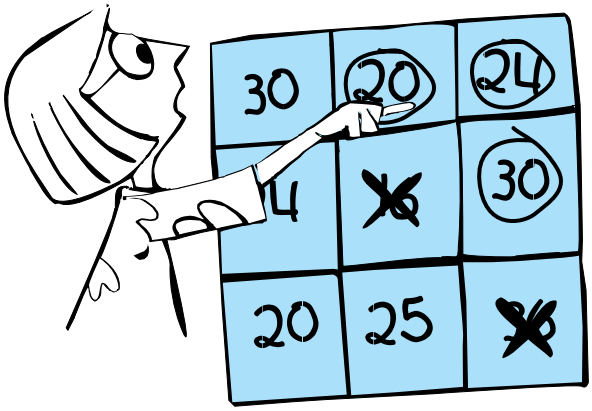
Rani	Anagha
~~5~~	~~6~~
~~6~~	4
4	



Rani chooses 4 and gets 16.

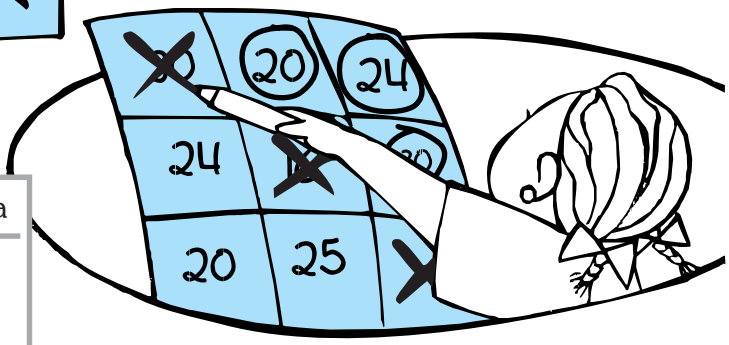


Anagha cannot choose 4 again because $4 \times 4 = 16$ is not free.



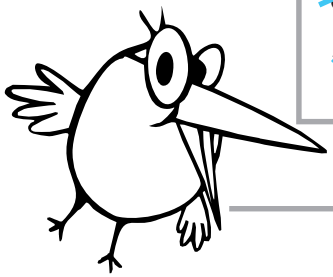
So she chooses 5. She gets 20.

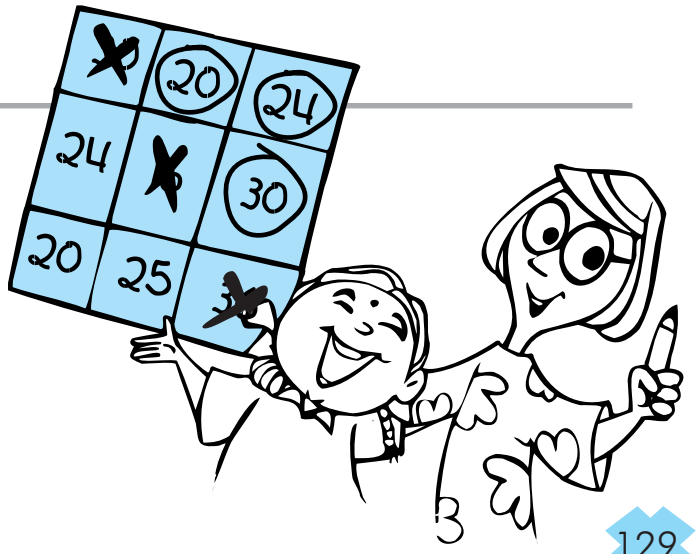
Rani	Anagha
~~5~~	~~6~~
~~6~~	~~4~~
4	5



Rani	Anagha
~~5~~	~~6~~
~~6~~	~~4~~
~~4~~	5
6	

Rani chooses 6 and wins!





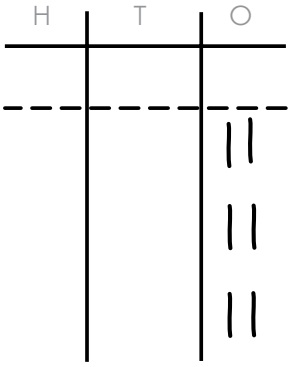
You must choose a factor so that you can put a circle or a cross on an empty square.

The game can end in a draw or can even hang! (When a player cannot choose a factor to get a number which is free.)

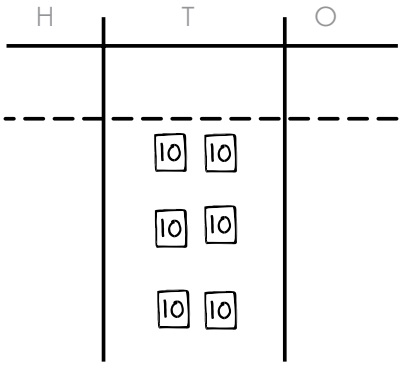
Multiplying tens and hundreds

Look carefully and understand the connection between multiplying ones, tens and hundreds.

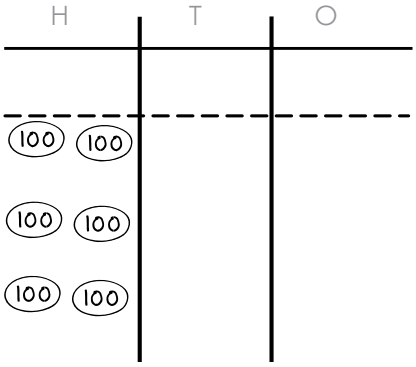
$3 \times 2 = 6$



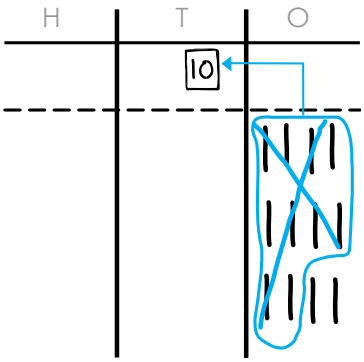
$3 \times 20 = 60$



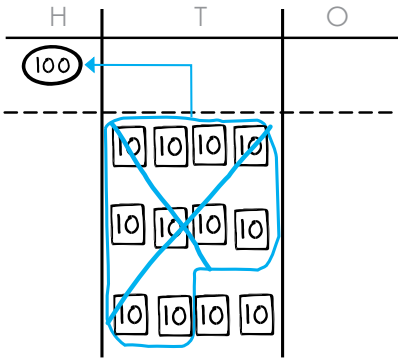
$3 \times 200 = 600$



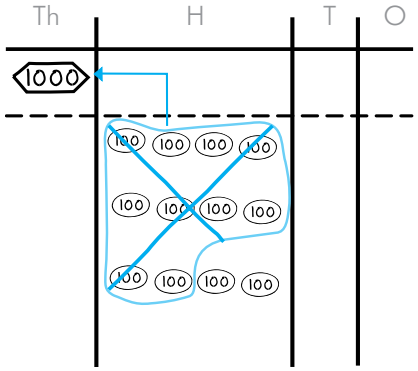
$3 \times 4 = 12$



$3 \times 40 = 120$



$3 \times 400 = 1200$



Multiply

$3 \times 3 =$	$2 \times 4 =$	$4 \times 3 =$	$6 \times 4 =$
$3 \times 30 =$	$2 \times 40 =$	$4 \times 30 =$	$6 \times 40 =$
$3 \times 300 =$	$2 \times 400 =$	$4 \times 300 =$	$6 \times 400 =$
$5 \times 7 =$	$5 \times 6 =$	$3 \times 7 =$	$4 \times 7 =$
$5 \times 70 =$	$50 \times 6 =$	$3 \times 70 =$	$40 \times 7 =$
$5 \times 700 =$	$500 \times 6 =$	$3 \times 700 =$	$400 \times 7 =$

Learn these patterns

$5 \times 10 =$	$3 \times 20 =$	$4 \times 70 =$	$4 \times 100 =$
$10 \times 6 =$	$5 \times 30 =$	$90 \times 4 =$	$100 \times 3 =$
$7 \times 10 =$	$40 \times 6 =$	$40 \times 9 =$	$6 \times 100 =$
$0 \times 10 =$	$8 \times 50 =$	$8 \times 40 =$	$100 \times 8 =$
$10 \times 8 =$	$9 \times 20 =$	$40 \times 8 =$	$9 \times 100 =$
$9 \times 10 =$	$0 \times 40 =$	$70 \times 9 =$	$10 \times 100 =$
$10 \times 10 =$	$8 \times 60 =$	$70 \times 10 =$	$100 \times 0 =$

T O 4 × 6 2 4	T O 4 0 × 6	H T O 4 0 0 × 6
T O 5 × 7	T O 5 0 × 7	H T O 5 0 0 × 7
T O 8 × 6	T O 8 0 × 6	H T O 8 0 0 × 6

$4 \times 300 =$

$200 \times 3 =$

$2 \times 800 =$

$700 \times 0 =$

$4 \times 600 =$

$5 \times 500 =$

$600 \times 7 =$

$8 \times 400 =$

$700 \times 8 =$

$9 \times 500 =$

$10 \times 500 =$

Multiplying two-digit numbers

32 × 3

Split 32 into 30 and 2.

30 and 2

× 3

90 and 6 = 96

32 × 3 = 96

36 × 4

30 and 6

× 4

120 and 24 = 144

36 × 4 = 144

Multiply

43 × 2

37 × 5

63 × 5

54 × 6

Notebook Exercise

Multiply

39 × 8 54 × 6 49 × 7 23 × 9 78 × 9

Multiplying three-digit numbers

134 × 2

Split 134 into 100 and 30 and 4.

100 and 30 and 4

× 2

200 and 60 and 8 = 268

134 × 2 = 268

Multiply

321 × 3

---

346 × 4

300 and 40 and 6

× 4

1200 and 160 and 24 = 1384

1200
+ 160
+ 24
1384

346 × 4 = 1384

Multiply

456 × 3

265 × 4

Multiplication – the short method

example

23 × 3

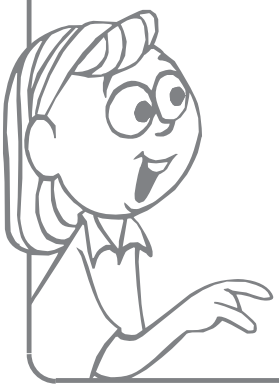
Space for carry over

T	O
2	3
×	3
	9

3 × 3 Ones = 9 ones

T	O
2	3
×	3
6	9

3 × 2 Tens = 6 Tens



23 × 3 = 69

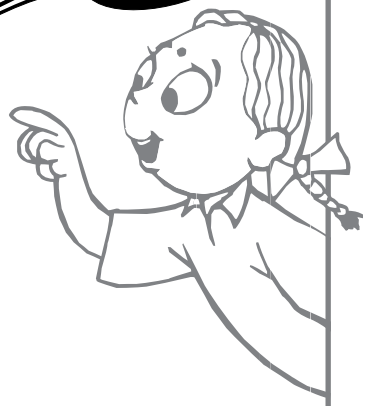
example

36 × 4

Space for carry over

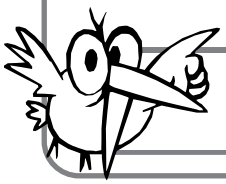
H	T	O
	2	
	3	6
×		4
		4

4 × 6 Ones = 2 tens and 4 Ones



H	T	O
	2	
	3	6
×		4
1	4	4

4 × 3 tens = 12 tens.
Add the carryover.
→ 14 tens



Add the 'carry over' 2 after multiplying 4 × 3 tens, not before.

36 × 4 = 144

Multiply by both the long and the short method.

34 × 2

47 × 4

342 × 2

254 × 3

Multiply only by the short method.

T	O
3	4
×	2

T	O
3	5
×	2

T	O
5	3
×	2

T	O
4	6
×	3

T	O
6	4
×	4

T	O
5	6
×	5

T	O
9	8
×	5

T	O
6	7
×	6

T	O
7	7
×	8

T	O
8	7
×	9

H	T	O
2	1	3
×		3

H	T	O
3	4	2
×		2

H	T	O
1	0	4
×		2

H	T	O
4	0	3
×		3

H	T	O
3	1	5
×		2

H	T	O
3	1	0
×		4

H	T	O
4	3	5
×		3

H	T	O
3	6	8
×		2

H	T	O
1	3	4
×		4

H	T	O
1	3	4
×		5

H	T	O
3	4	5
×		4

H	T	O
4	6	2
×		6

H	T	O
5	6	9
×		5

H	T	O
6	7	6
×		7

H	T	O
8	3	6
×		8

Learn these patterns

$10 \times 20 =$	$30 \times 20 =$	$20 \times 90 =$	$10 \times 300 =$
$10 \times 40 =$	$30 \times 30 =$	$50 \times 50 =$	$10 \times 600 =$
$60 \times 10 =$	$40 \times 20 =$	$50 \times 80 =$	$400 \times 10 =$
$30 \times 10 =$	$60 \times 40 =$	$70 \times 60 =$	$100 \times 10 =$
$10 \times 10 =$	$50 \times 30 =$	$80 \times 60 =$	$700 \times 10 =$
$70 \times 10 =$	$30 \times 70 =$	$90 \times 60 =$	$10 \times 400 =$
$10 \times 80 =$	$40 \times 60 =$	$70 \times 90 =$	$800 \times 10 =$
$90 \times 10 =$	$80 \times 40 =$	$90 \times 90 =$	$10 \times 500 =$
$100 \times 10 =$	$90 \times 30 =$	$90 \times 100 =$	$10 \times 1000 =$

$400 \times 20 =$	$2 \times 1000 =$	$8 \times 1000 =$	$5 \times 5000 =$
$200 \times 30 =$	$1000 \times 1 =$	$1000 \times 9 =$	$7 \times 4000 =$
$500 \times 20 =$	$0 \times 1000 =$	$10 \times 1000 =$	$2000 \times 9 =$
$40 \times 800 =$	$1000 \times 0 =$	$2 \times 4000 =$	$9000 \times 4 =$
$500 \times 30 =$	$1000 \times 3 =$	$3000 \times 3 =$	$4000 \times 9 =$
$500 \times 60 =$	$1000 \times 5 =$	$2000 \times 1 =$	$6000 \times 7 =$
$700 \times 30 =$	$4 \times 1000 =$	$0 \times 4000 =$	$8 \times 8000 =$
$50 \times 700 =$	$6 \times 1000 =$	5000×0	$9 \times 5000 =$
$80 \times 600 =$	$1000 \times 7 =$	$6000 \times 3 =$	$10 \times 5000 =$

Notebook Exercise

Multiply by splitting into hundreds, tens and ones.

24 × 5	36 × 7	243 × 5	619 × 3
558 × 6	376× 8	459 × 7	736 × 9

Do these multiplication problems also by the short method.

Write down the multiplication facts for these numbers:

36, 27, 18, 16, 23, 44

Find all the factors of 10, 20, 32, 42, 28, 23.

Strike out the numbers which are not factors of 18.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Strike out the numbers which are not factors of 24.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

Multiply on the dot grid.

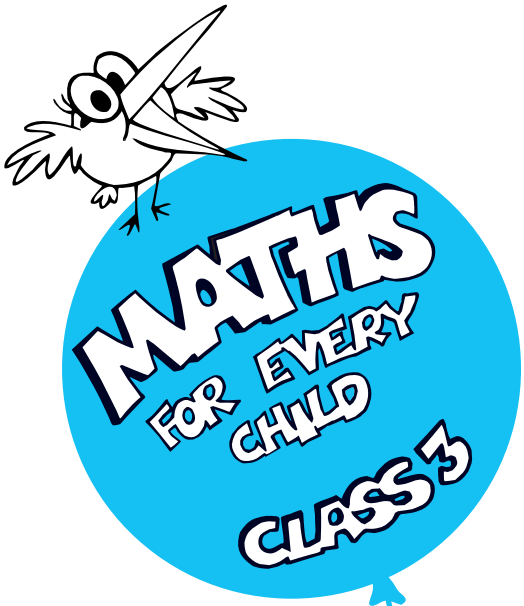
6 × 5 3 × 8 5 × 9 7 × 7 8 × 6 9 × 8.

Learn these multiplication facts.

5 × 5 =	4 × 4 =	6 × 6 =	3 × 3 =
9 × 9 =	8 × 8 =	7 × 7 =	10 × 10 =

Write a story problem for each of these multiplication facts.

6 × 5 = 3 × 7 = 5 × 4 = 8 × 7 =

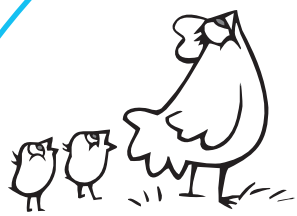


PART A

Text-cum-workbook

Author

K. Subramaniam



Homi Bhabha Curriculum for Primary Mathematics

Pilot Version

Homi Bhabha Centre for Science Education

Tata Institute of Fundamental Research, V. N. Purav Marg, Mankhurd, Mumbai 400 088

Maths for Every Child

Text-cum-workbook

Class III

Pilot Edition, 2001 Reprinted, 2006, 2011

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Published by

Homi Bhabha Centre for Science Education
Tata Institute of Fundamental Research
V.N. Purav Marg, Mankhurd. Mumbai 400 088

Printed at

Sai Printers, Gala No. 50, Bharat Bazar,
Gandhi Nagar, Worli, Mumbai 400 018

General preface

Not a day passes in our country when somebody somewhere has not criticized our system of education, particularly our school education. A great many ills and inadequacies of the system probably flow from extraneous causes and need socio-political initiatives that go beyond mere reforms in the school curriculum. Some problems however arise directly from the curriculum – text books, teaching and evaluation practices. We need to keep these problems in view and to continually devise new curricula to overcome them.

Curricular reform efforts and innovations are not new to our country. Nearly every decade, there have been initiatives by the Central and State government agencies to effect changes in curricula. Several independent school networks and voluntary groups have brought out their own textbooks and related materials. There is no doubt that significant progress has been made by the country in better conceptualization of the school curriculum at primary, middle and secondary levels. The paradigms of school curriculum in India have steadily evolved and become more relevant and modern. Unfortunately, the over-all deterioration of the system due to extraneous factors has tended to obscure these gains. Also, and most important for our purpose here, there is a large gap between the generally agreed objectives of the curriculum and their actual translation into textbooks and teaching practices.

Homi Bhabha Curriculum is basically an attempt to close this gap as much as possible. It is not conceived to be a revolutionary curriculum. The broad aims of the curriculum are much the same as those articulated in countless reports and articles of different education departments and agencies. The idea is not to produce a fanciful, 'museum-piece' curriculum that nobody would adopt, but to attempt to discover a sound and wholesome curriculum that is practical to implement in our school system. 'Practical' is, however, not to be regarded as a euphemism for the status quo. As the users will find out, the alternative textbooks of the Homi Bhabha Curriculum are full of radical unconventional ideas that we believe are both urgent, necessary and, given enough efforts, feasible. But rather than describe here what we believe to be these innovative aspects, we leave the users, students and teachers, to find and experience them. In the simplest and most favourable situations, devising a curriculum and translating it into books, laboratories and teacher manuals is a daunting task. In the complex parameters and constraints that govern our country's educational system, the task is formidable. Only time will tell if and to what extent the Homi Bhabha Curriculum is an effort in the right direction.

Arvind Kumar

Note to teachers and parents

As you skim through the pages of Maths for Every Child, you will notice some differences from other textbooks. We have tried to make the book attractive in appearance and interesting to children. However, the most important differences are not in the appearance.

Our aim is to move away from an emphasis on merely knowing procedures to an emphasis on reasoning and understanding. In addition to the learning of facts and procedures, we have laid stress on the connections between concepts and procedures, on finding patterns and on mental arithmetic skills. In many places, we have provided the child with enough concrete experience that will form a strong foundation for further mathematical learning. While doing all this we have retained the positive elements of the traditional approach: systematic organization of topics, careful sequencing and plenty of practice.

If children do not develop a strong sense of the two and three-digit numbers and their operations, it can become a handicap later on. To build a strong number sense, children need plenty of opportunity to play with two and three-digit numbers, to explore patterns and connections and to carry out simple addition and subtraction mentally. Units 1, 3 and 4 give them this opportunity. Unit 5 introduces a systematic approach to word problems using key diagrams, which will be developed further in class IV and V.

In Unit 2, it is important that students get an opportunity to work individually at adding and subtracting with actual matchstick bundles and sticks, at least at home if not at school. This helps children understand the basis for the 'carry' and 'borrow' procedures. The 'games for two', spread through different units, are also intended for playing outside the classroom, possibly at home. The measurement units (9-13) are all activity based and much will be lost if these activities are omitted. To make it easier for the student to carry and use the text-cum-workbook, we have bound it in two parts - Part A (Units 1 to 7) and Part B (Units 8 to 14).

The text-cum-workbook has been designed to be teacher friendly and easy to implement in the classroom. The material in the book has been developed through a process of continuous classroom trials with the participation of able teachers. However we realize that the needs of different kinds of classrooms vary. To take care of such needs we have provided additional help in a separate teachers' book.

We hope that this book takes us part of the way towards an educational culture where mathematics is no longer a source of fear and mystery. Do write and tell us how successful we have been in our endeavour. We would appreciate your feedback about how you used the books and your suggestions.

K. Subramaniam

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Acknowledgement

Porus Lakdawala, my colleague, produced the initial drafts of the first few units. His contribution to the overall approach and framework of the curriculum has been fundamental.

Venola Fernando shouldered both the teaching and the organizational responsibilities of the trial programs. I thank her for her steady support and all-round contributions to the design of the curriculum.

Sumant Rao, Anagha Deshpande and Chetan Sharma, together with the team of Animagic Special Effects, not only produced the beautiful layout and illustrations but also greatly enhanced the quality of the book through their design and content suggestions. The book owes a great deal to their efforts.

I thank my colleagues at HBCSE for their support, feedback and encouragement through the long gestation period of the books. Arvind Kumar, Centre Director, HBCSE, initiated the Homi Bhabha Curriculum project and supported the work on these books at all stages. H.C. Pradhan, co-ordinator, Mathematics Curriculum, helped shape the framework underlying the books besides providing detailed criticism and feedback. Chitra Natarajan, Jayashree Ramadas, G. Nagarjuna and Arun Mavlankar shared their insights and criticisms and helped to make significant improvements in the content and presentation.

Adarsh Gupta helped me learn something about the fine art of teaching. I am indebted to her and to Hemakshi Selani for handling the bulk of the teaching in the vacation trial programs and for their contributions to the design of the learning material.

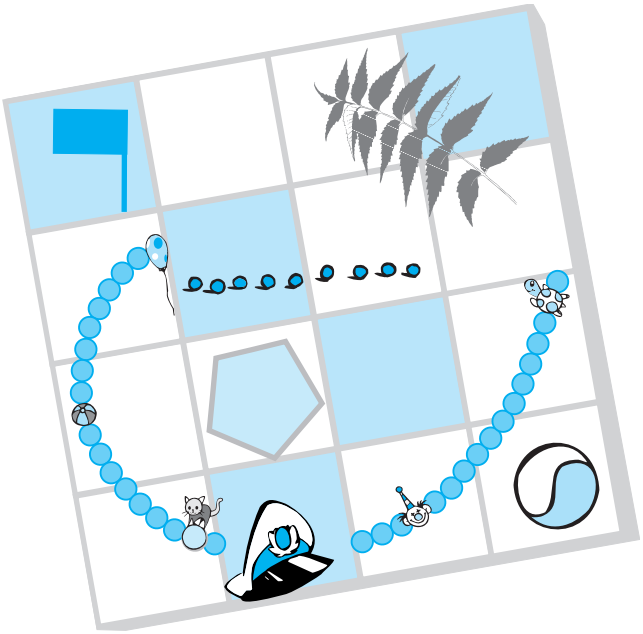
I thank the principals and teachers of the following schools in Mumbai for permission to try the curriculum material in their classrooms: Atomic Energy Central Schools no. 3 and no. 5, Children's Aid Society, Deonar Pada Municipal School, and Nutan Vidya Mandir.

I also thank U. Subbaraju of Timbaktu School, Andhra Pradesh, and Nilesh Nimkar of Grammangal for help with trials with the children of their schools and for valuable feedback and suggestions.

I thank P. R. Fadnavis of HBCSE and his team for providing administrative support. Gajanan Mestry and N. S. Thigale gave prompt help in the production of drafts.

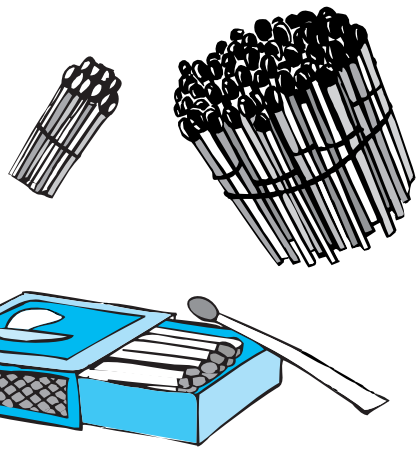
Leena and Chaitanya gave unflinching support and made many criticisms and suggestions.

K. Subramaniam

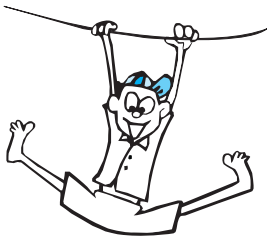


UNIT 1
Number Warm-up

UNIT 2
Matchstick Maths

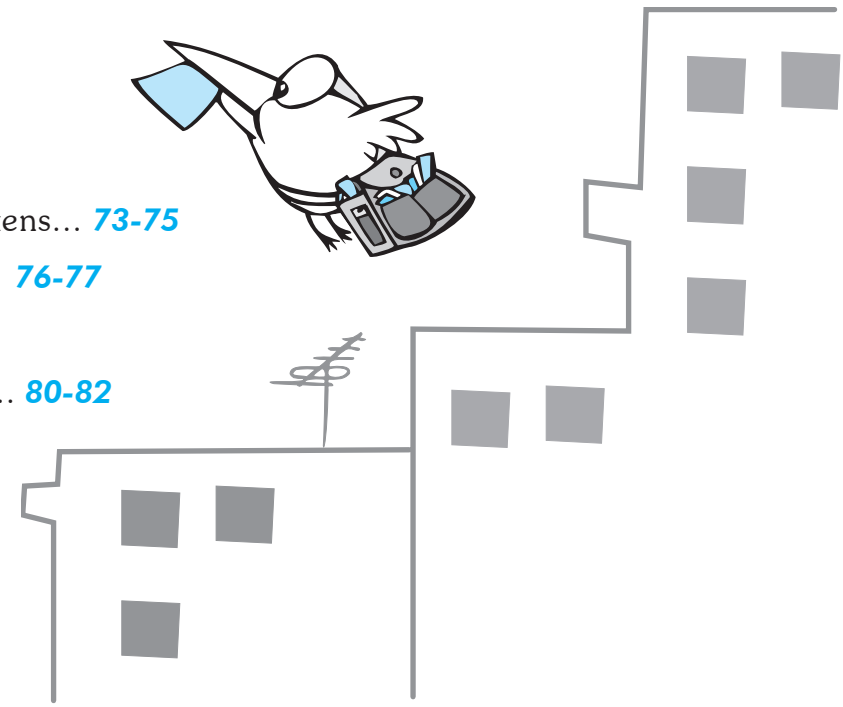


UNIT 3
Number Building



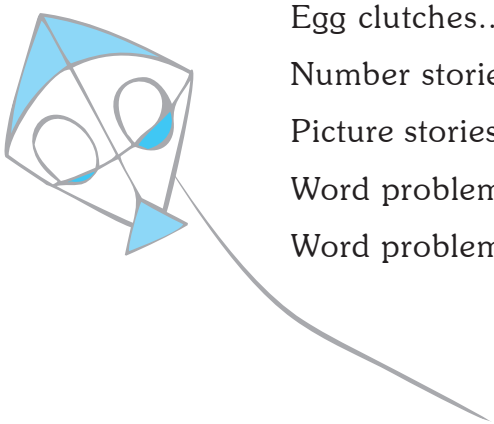
UNIT 4

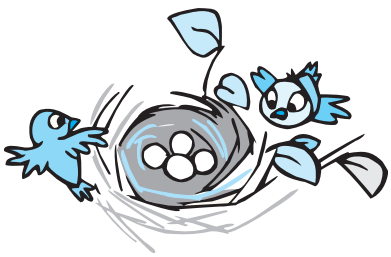
Bigger Numbers



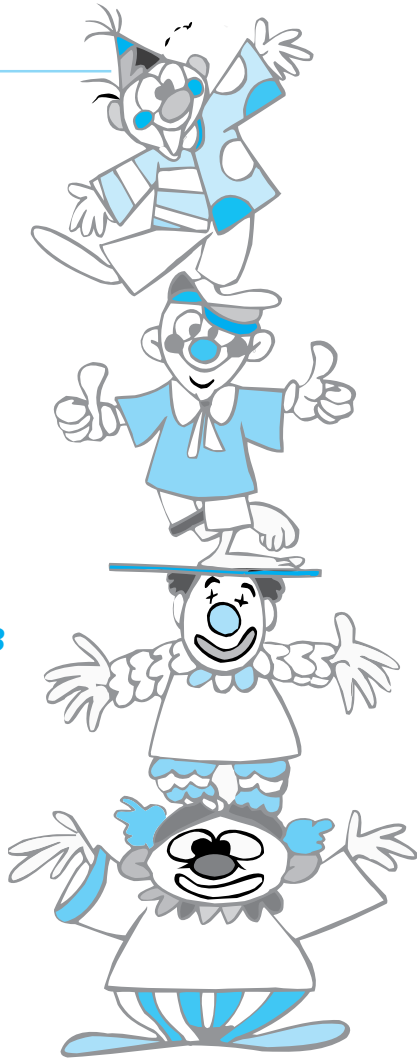
UNIT 5

Numbers in the World

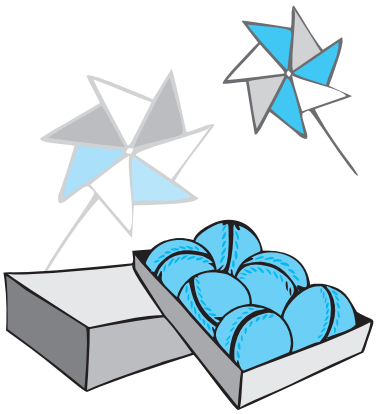




UNIT 6
Multiplication

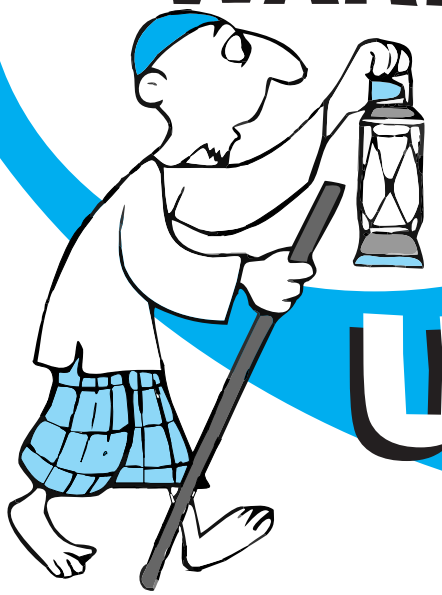


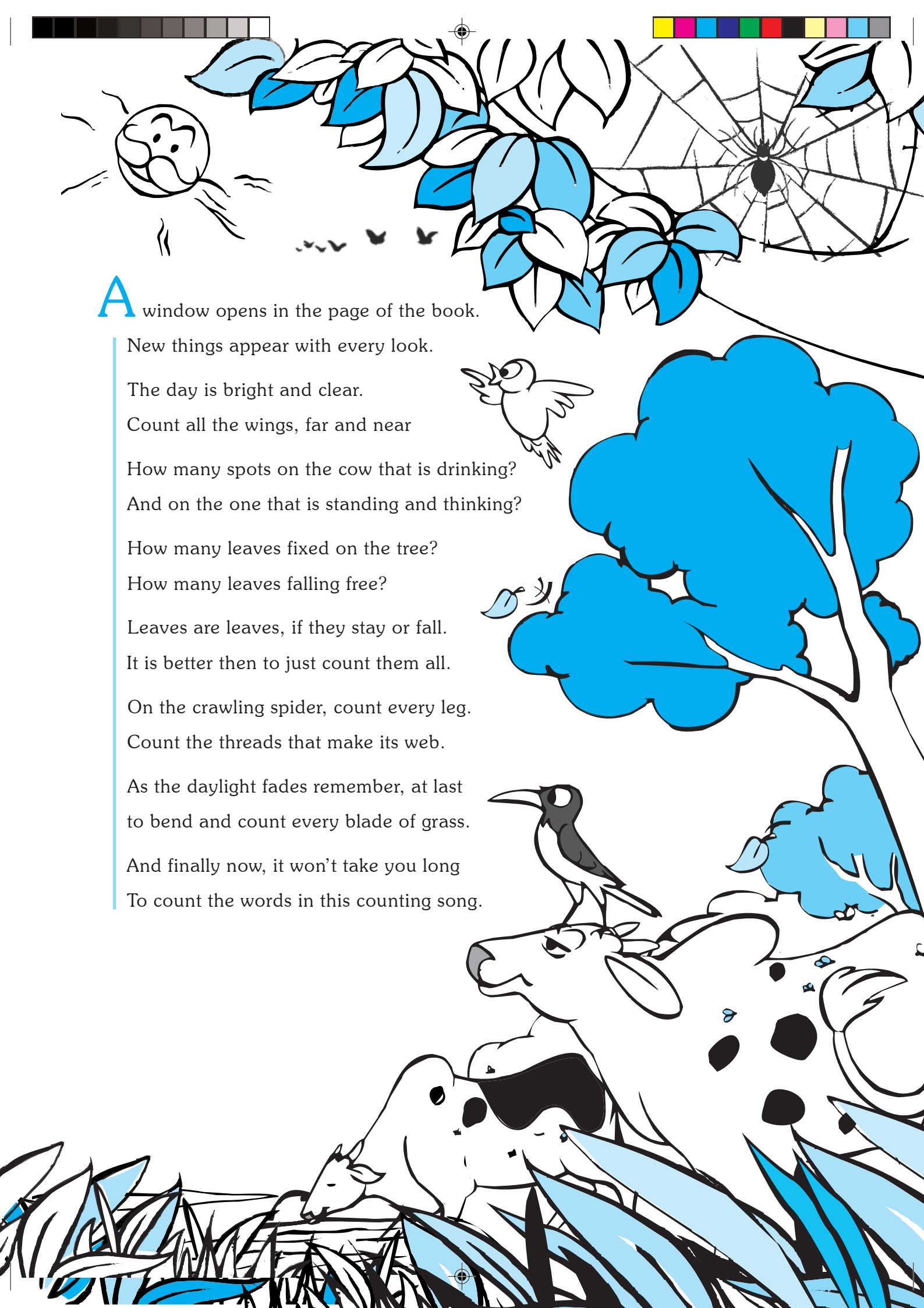
UNIT 7
Division



Unit 1

NUMBER WARM-UP





A window opens in the page of the book.
New things appear with every look.

The day is bright and clear.
Count all the wings, far and near

How many spots on the cow that is drinking?
And on the one that is standing and thinking?

How many leaves fixed on the tree?
How many leaves falling free?

Leaves are leaves, if they stay or fall.
It is better then to just count them all.

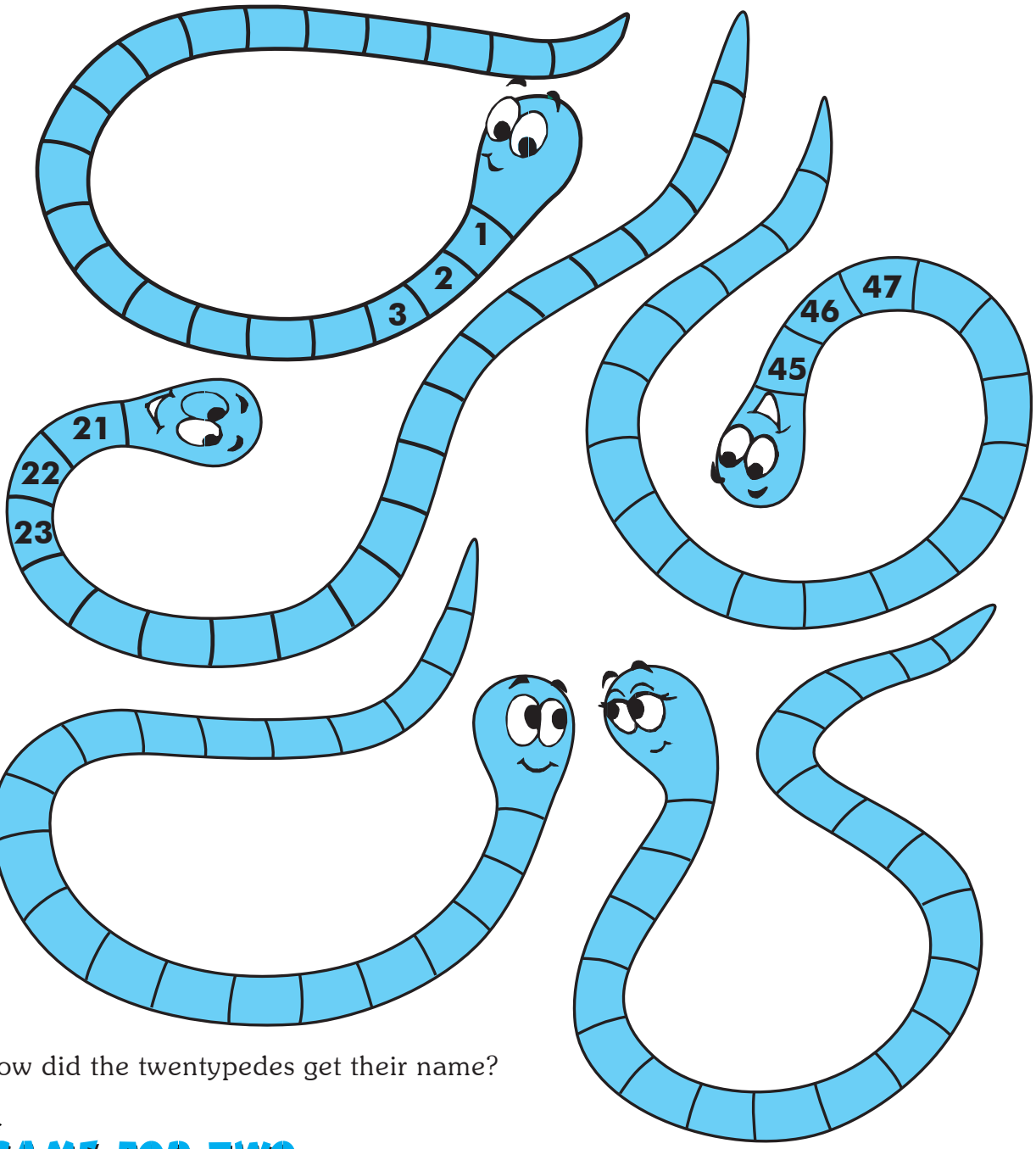
On the crawling spider, count every leg.
Count the threads that make its web.

As the daylight fades remember, at last
to bend and count every blade of grass.

And finally now, it won't take you long
To count the words in this counting song.

Meet the twentypedes

Write the numbers on each twentypede. Start with any number you like for the last two twentypedes.



How did the twentypedes get their name?

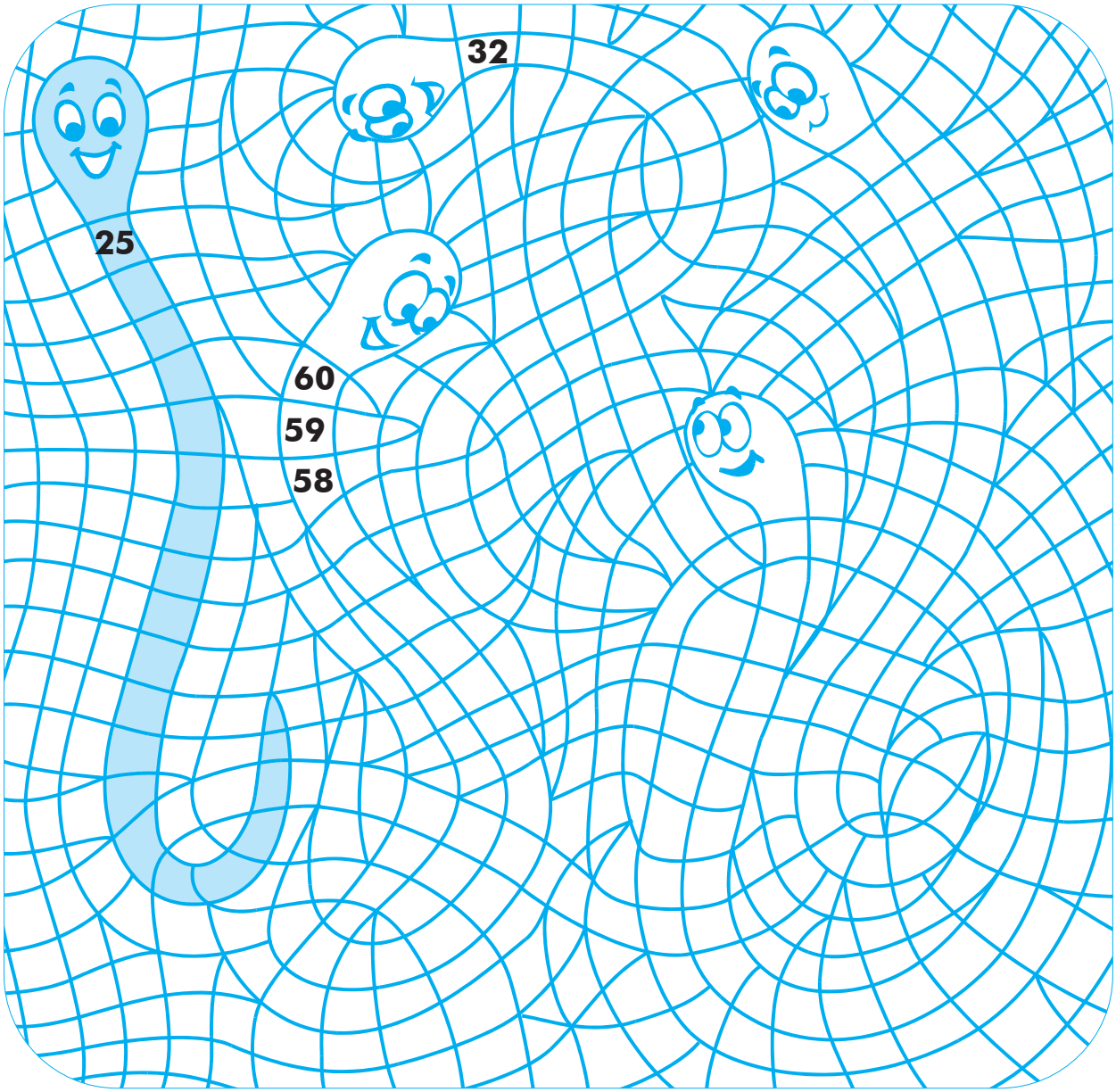
GAME FOR TWO

Counting games :

Count as fast as you can from 50 to 100.
As you count ask your friend to draw faces like this.

How many faces did he draw?

Now write the numbers in reverse order on each twentypede.



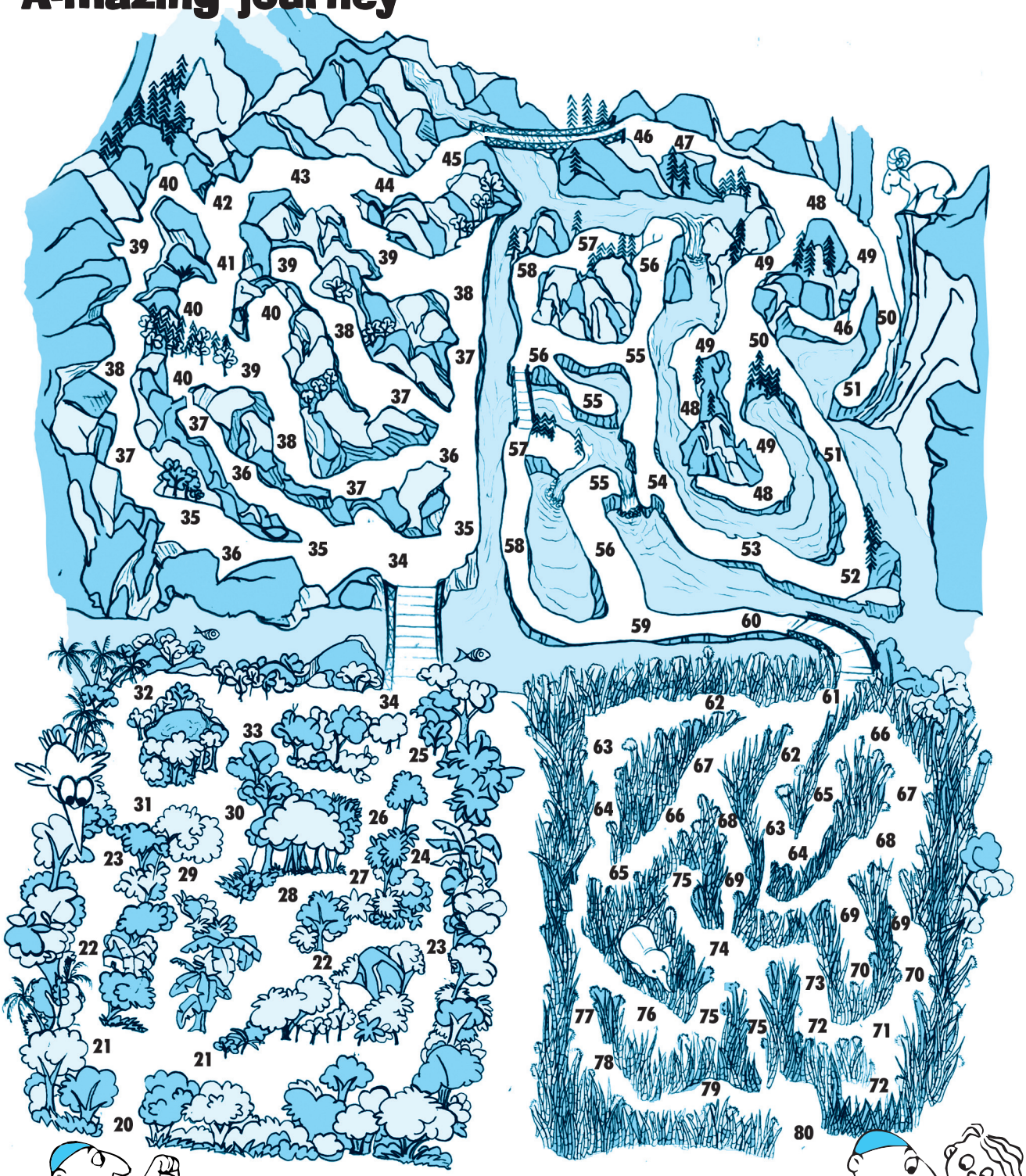
GAME FOR TWO

Counting games :

Count backwards from 20 to1 while your friend draws faces.

Try counting backwards from 30 to 20 and from 50 to 20.

A-mazing journey



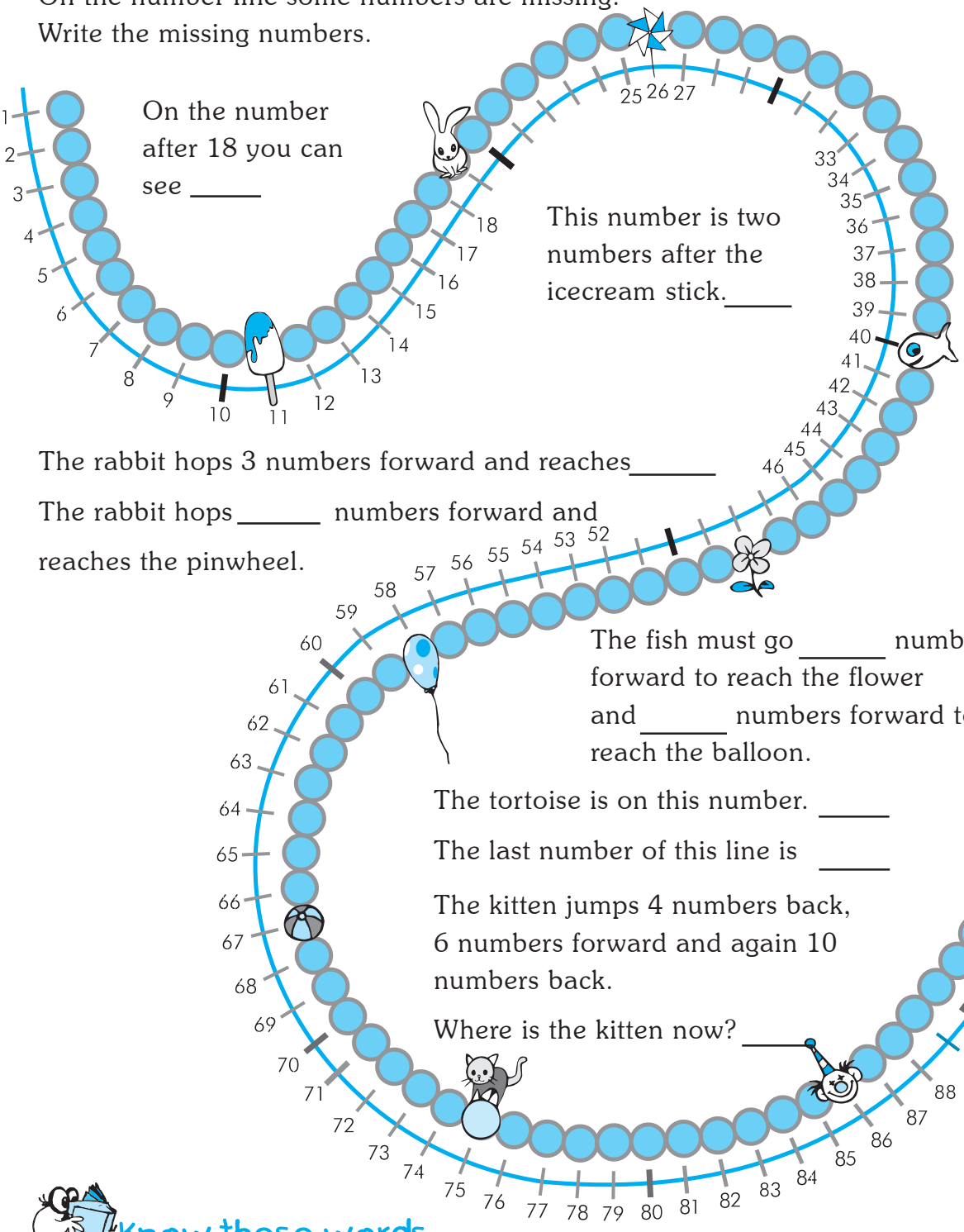
Rahim chacha is looking for Javed and Parveen who are wandering around in the forest.

The only safe path through the forest has all the numbers from 20 to 80 in the correct order.

Help Rahim chacha by tracing the safe path.

Number line

On the number line some numbers are missing.
Write the missing numbers.



On the number after 18 you can see _____

This number is two numbers after the icecream stick._____

The rabbit hops 3 numbers forward and reaches_____

The rabbit hops _____ numbers forward and reaches the pinwheel.

The fish must go _____ numbers forward to reach the flower and _____ numbers forward to reach the balloon.

The tortoise is on this number. _____

The last number of this line is _____

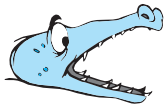
The kitten jumps 4 numbers back, 6 numbers forward and again 10 numbers back.

Where is the kitten now? _____

Know these words

greater than, less than

Do you remember the sign for **'greater than'** and **'less than'**?

25  22 **25 > 22** 36  45 **36 < 45**

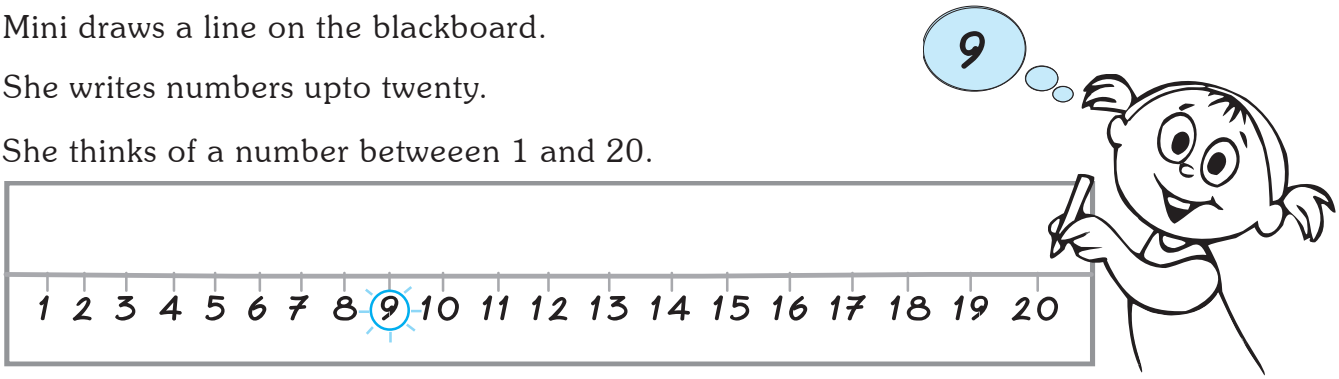
Bury the flags

How to play

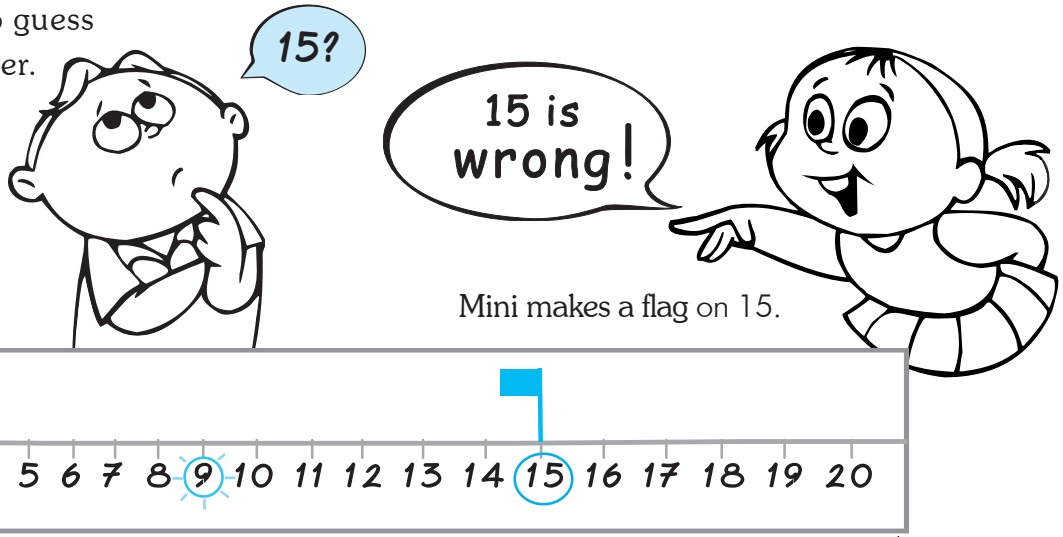
Mini draws a line on the blackboard.

She writes numbers upto twenty.

She thinks of a number betweeen 1 and 20.



Tuttu tries to guess Mini's number.

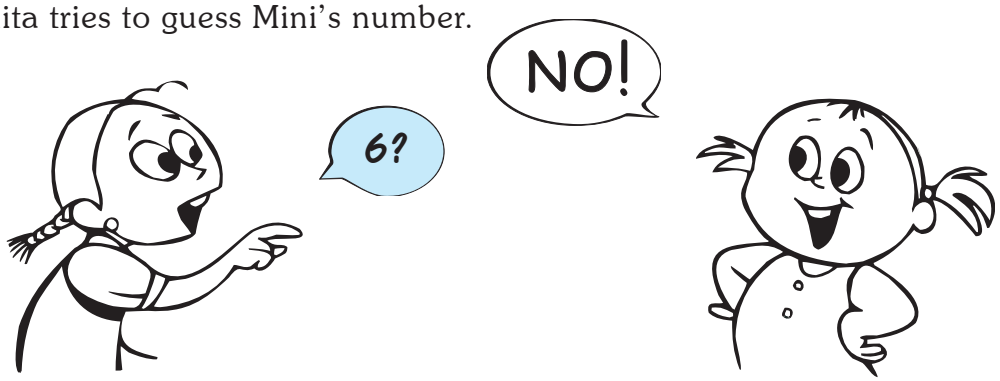


Mini makes a flag on 15.

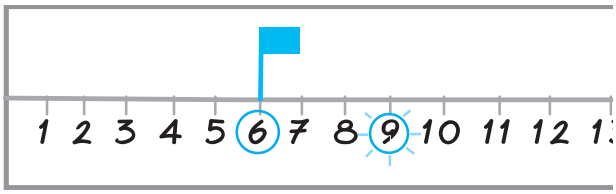
Why does the flag point to the left ?

Because Mini's number is smaller than 15.

Now Smita tries to guess Mini's number.

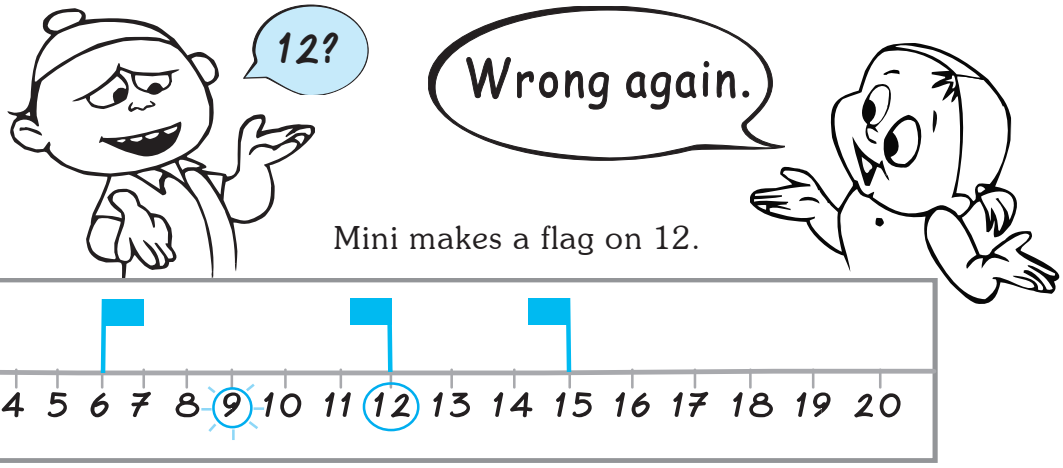


Mini makes a flag on 6.

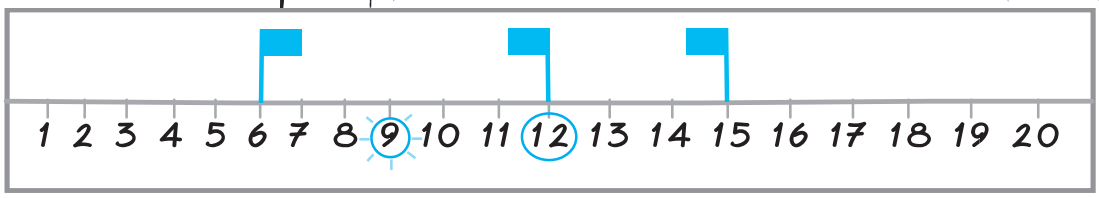


Why does the flag point to the right?

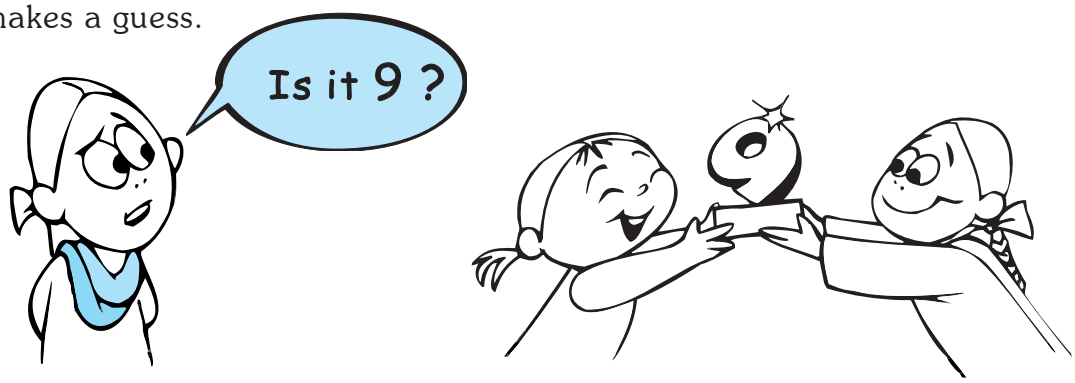
Chunindar tries to guess too. . .



Mini makes a flag on 12.



Razia makes a guess.



GAME FOR TWO

1. Draw a different number line in your notebook, for example, from 21 to 40. Play the game on this number line.

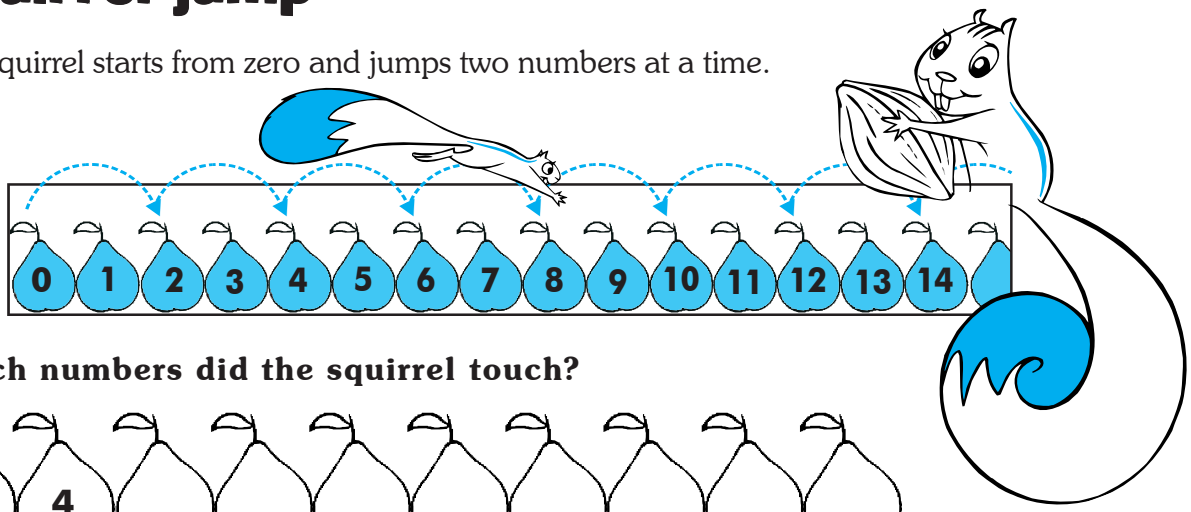
   Try to guess the number in less than 5 chances.

2. Guess the number written on the folded paper from the clues.

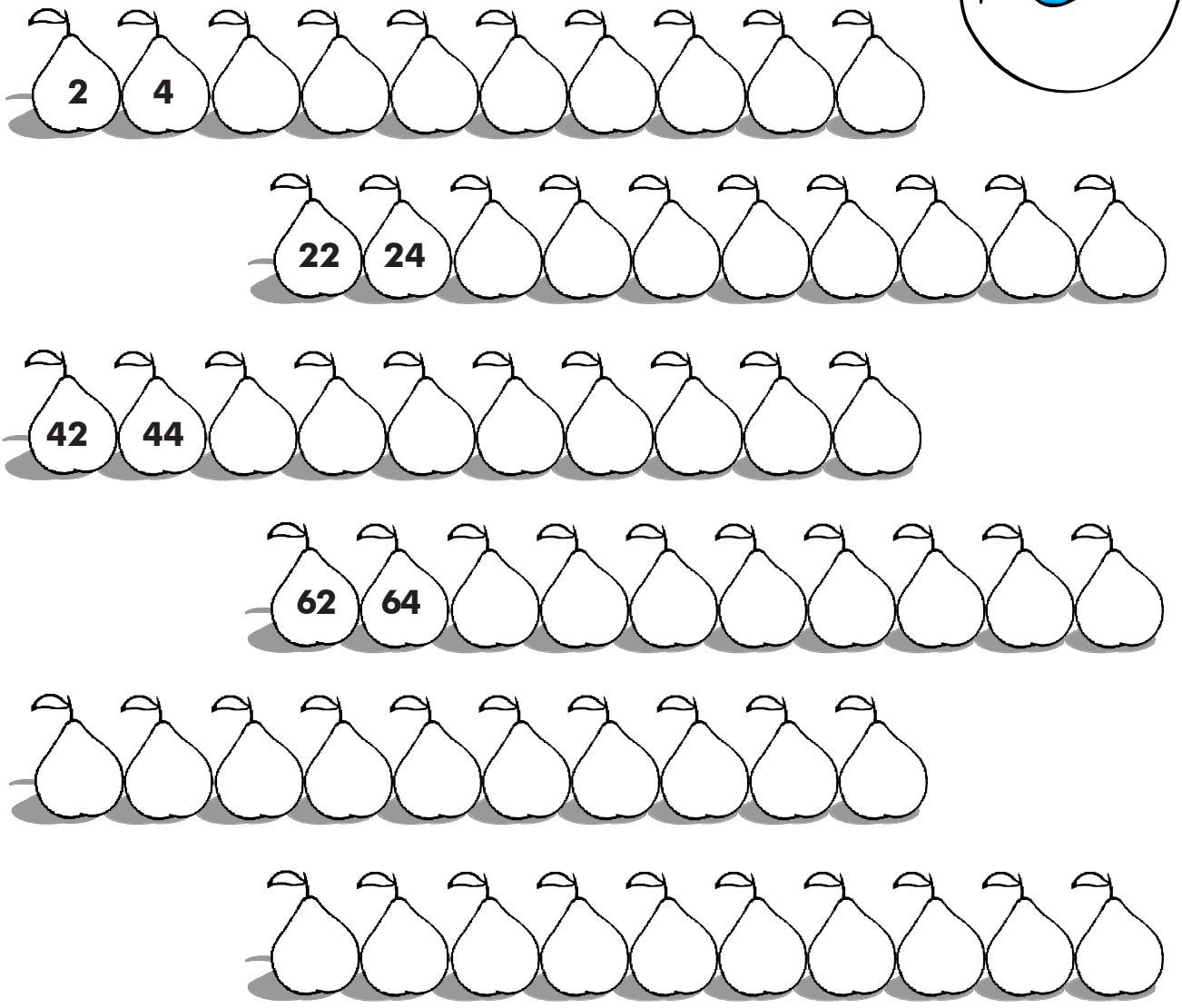
   Clues: ? > 43 ? < 54 ? < 50 ? < 45

Squirrel jump

The squirrel starts from zero and jumps two numbers at a time.



Which numbers did the squirrel touch?

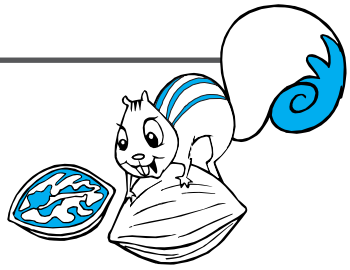


EXERCISE

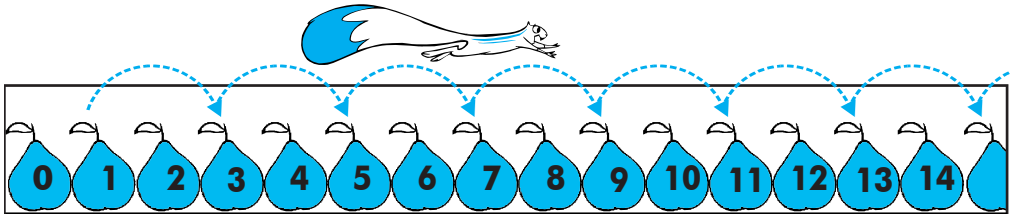
Write down ten numbers after 190 that the squirrel touched.

Circle the numbers that the squirrel touched:

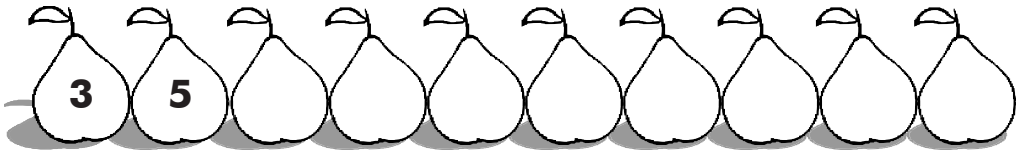
23, 27, 28, 88, 96, 121.

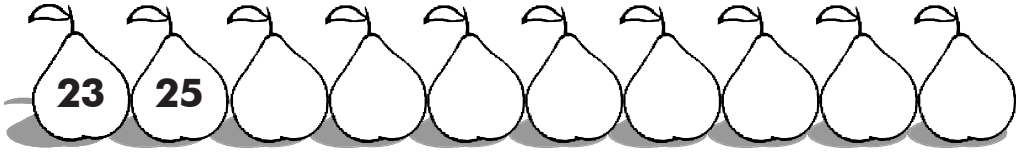


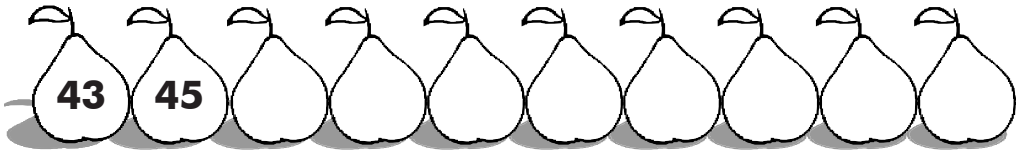
Now the squirrel starts jumping from one.

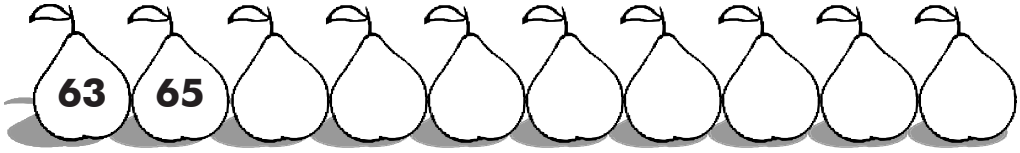


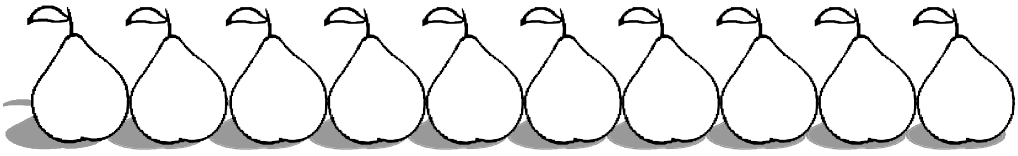
Which numbers did the squirrel touch?

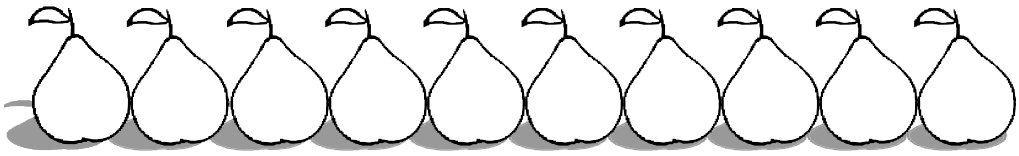












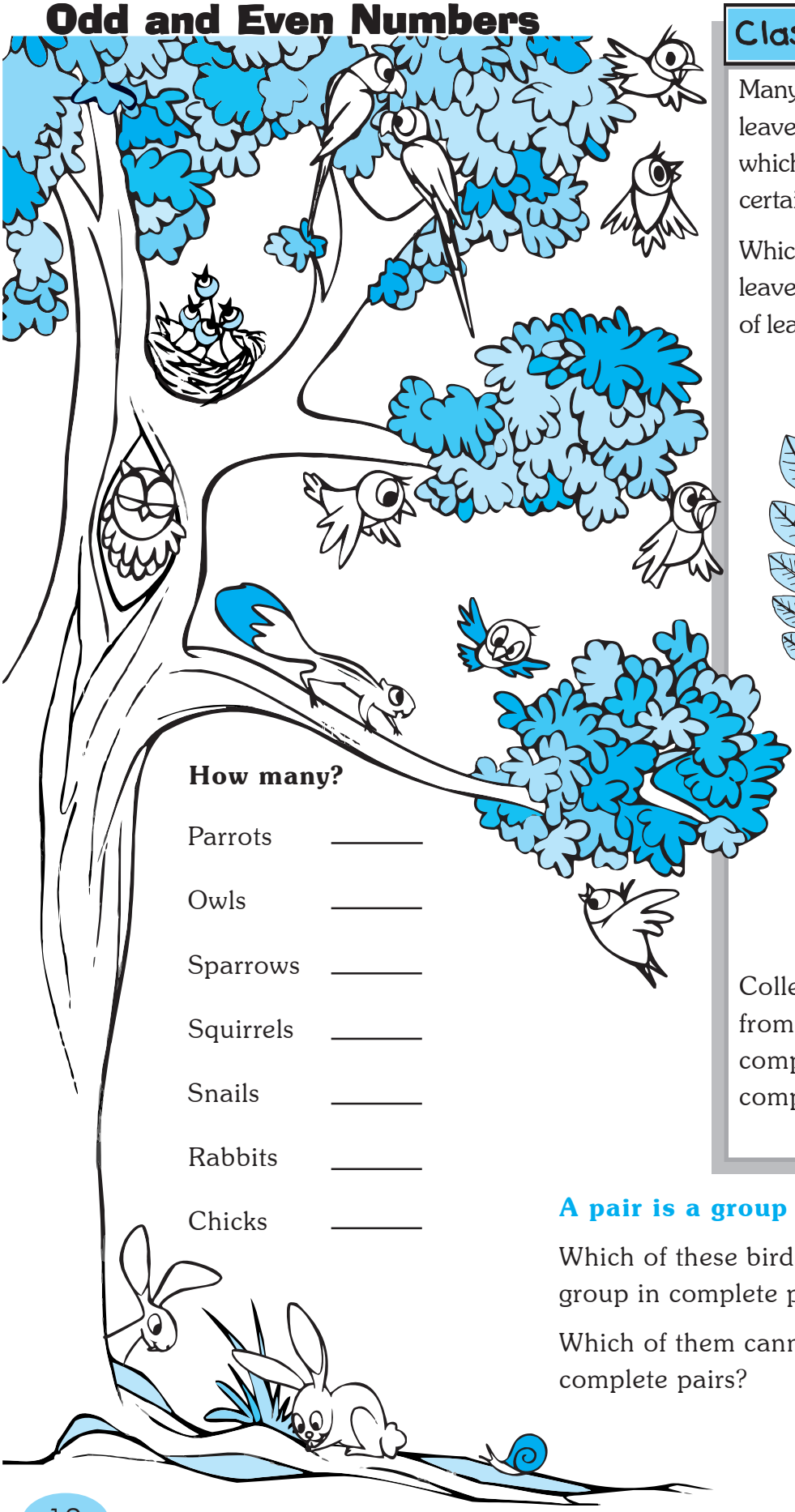
EXERCISE

Learn these different ways of counting:

Count up and count down starting from any number.

Count in jumps of 2, 3, 5 and10.

Odd and Even Numbers



How many?

Parrots _____

Owls _____

Sparrows _____

Squirrels _____

Snails _____

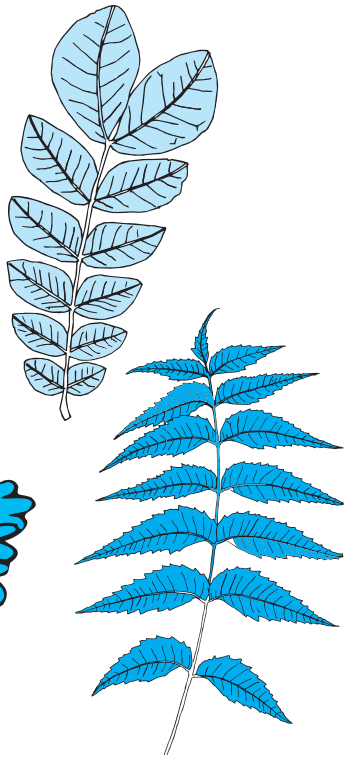
Rabbits _____

Chicks _____

Classroom Activity

Many trees have compound leaves made up of leaflets which are arranged in a certain pattern.

Which of these compound leaves has complete pairs of leaflets?



Collect compound leaves from nearby trees. Which compound leaves have complete pairs of leaflets?

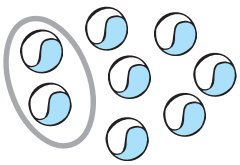
A pair is a group of two.

Which of these birds and animals can you group in complete pairs?

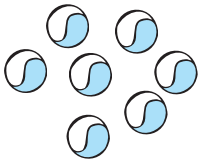
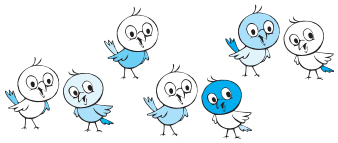
Which of them cannot be grouped in complete pairs?

When you have 8 things you can group them in complete pairs. So 8 is an **even** number.

Group these into pairs by drawing rings.



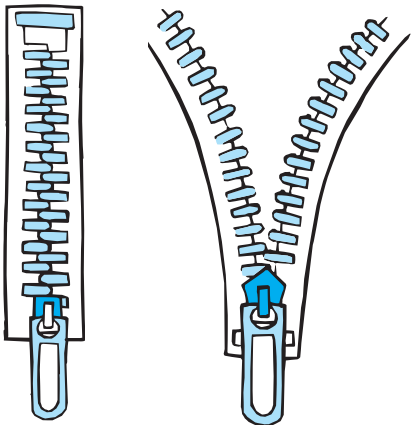
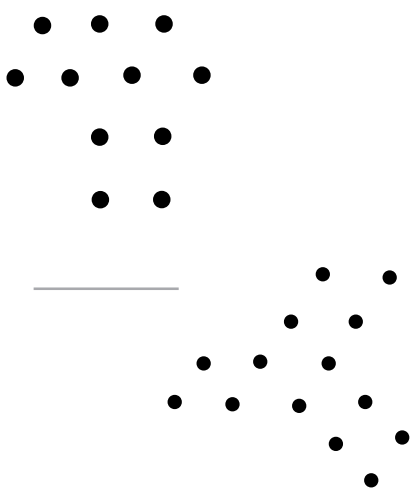
Now try to make complete pairs of these things.


7 is an **odd** number. Why? _____

Guess whether even or odd.

Then check your guess by counting and making pairs.

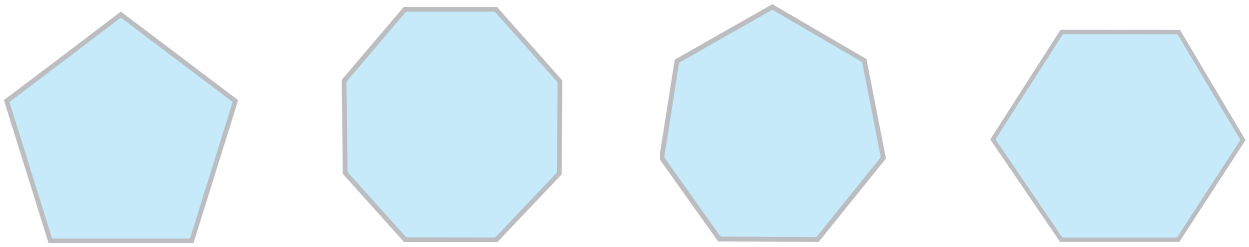

EXERCISE

Draw dots and find out if the numbers are odd or even.

Example: 12  12 is even.

4 9 2 10 5 1 3 15

Odd or even number of sides?



_____ _____ _____ _____

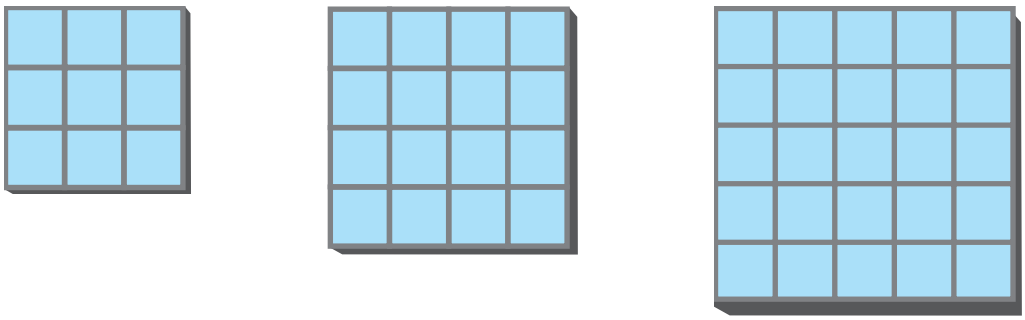
Classroom Activity

This is a domino shape. 

Trace the shape on paper and cut it out.

Make about 10 to 15 domino shaped pieces of paper.

Try to completely fill these checkerboards with the domino shapes. The domino shapes should not lie outside the checkerboards.



Which checkerboards can you fill?

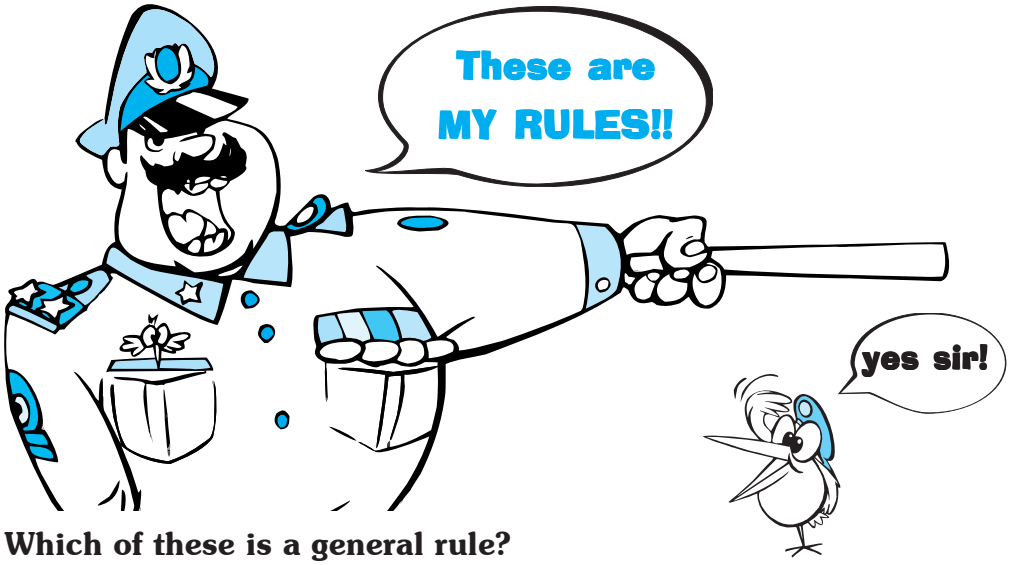
Why can't you fill some of them? _____

_____

EXERCISE

Write down the odd numbers between 10 and 20 and between 90 and 110.

Write down the even numbers between 11 and 21 and between 91 and 111.



Which of these is a general rule?

Rule 1 You must brush your teeth at night if you have eaten sweets.

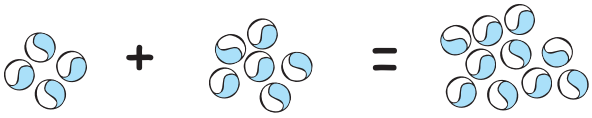
Rule 2 You must always brush your teeth at night.

What is the difference between a rule and a general rule? Give some examples.

Another Rule

Even + Even = Even

Example



4 + 6 = 10

(even) (even) (even)

Check if the rule works for other even numbers.

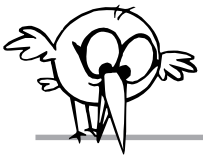
Why does the rule work?

An odd rule

Find this rule:

Odd + Odd = _____

Test these rules out with your own numbers and see if they work.



Rule to check if a number is even :

If a number ends in '0' it is even.

Check if the rule is correct.

Can the rule be used to check all even numbers?

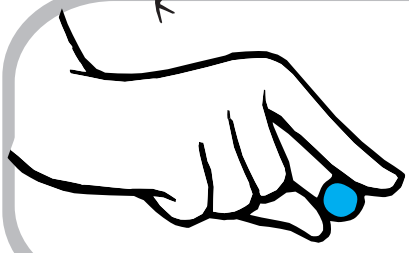
Make a general rule to check whether any number is even.

Nim game

It's time for the NIM GAME.

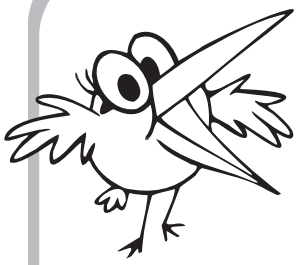
This is a game for two people.

You can play this game on a blackboard, in your notebook or simply with pebbles.*



Let`s play with pebbles. Put 10 pebbles in a row.

RULES

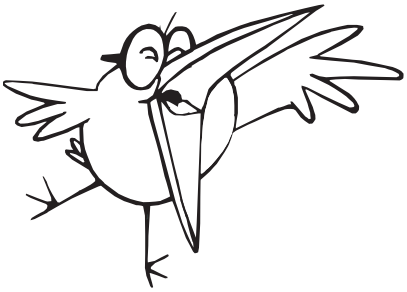


Take turns to pick up pebbles from each end.

You can pick only ONE or TWO pebbles at a time.

The one who picks the last one or two pebbles

WINS THE GAME !



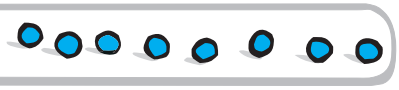
LET'S GO!

*To play on a blackboard or in a notebook, draw 10 circles. Rub out or cross out one or two circles at a time.

The game begins.

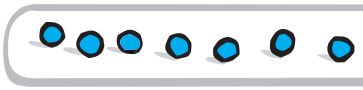
Bittoo

Bittoo picks up two Pebbles.



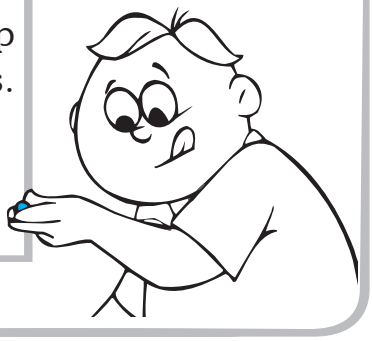
Tuttu

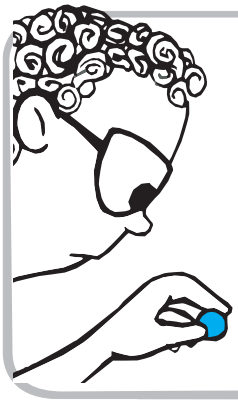
Tuttu picks up one pebble.



Bittoo again picks up two Pebbles.

Tuttu picks up two pebbles.



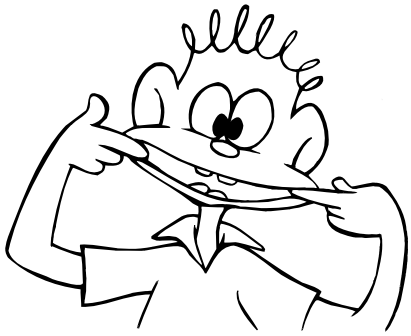


Bittoo picks up one pebble.

Tuttu picks up the last two pebbles.

WINNER!

Finding the opposite



Eti Soppo was a friendly child, but he had a naughty habit. When someone asked him to do something, he would do the opposite.

Once Eti's mother told him to clean his shoes. Instead Eti pasted it with mud. He got a pasting for doing that!

One day Eti's teacher gave him this sum: 5 + 3 =____

Eti knew the answer, but he wanted to do the opposite of adding.

What is the opposite of adding? _____

Eti wrote: 5 - 3 = 8.

Oops! Eti knew he had written something wrong.

So he struck it out . ~~5 - 3 = 8.~~

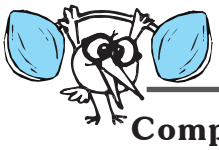
and wrote 5 - 3 = 2.

Although this was correct, Eti was not happy because he had a new number 2, in place of 8. He wanted the same three numbers: 5, 3 and 8.

Write a subtraction problem with these numbers 5, 3, 8 : _____

Eti found that there were actually two opposites of 5 + 3 = 8.
Can you find both of them? _____

If you ask Eti Soppo to write his name, how do you think he would write it?



EXERCISE

Complete these addition facts and write the opposites.

6 + 5 = *11*
11 - 5 = 6
11 - 6 = 5

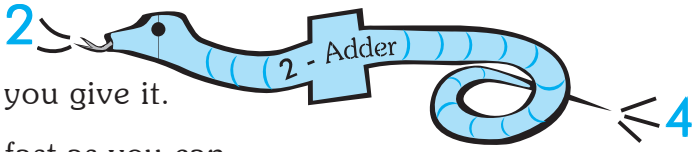
21 + 5 =

10 + 15 =

Adders

The adders add very fast.

The 2-adder adds 2 to any number that you give it.



Now you be different adders and add as fast as you can.

Add 2

3 → 5	7 → 9	1 →	5 →	8 →	4 →
9 →	12 →	15 →	10 →	13 →	11 →
17 →	26 →	19 →	28 →	46 →	59 →
78 →	89 →	98 →	99 →	106 →	118 →

Add 3

4 → 7	2 → 5	6 →	1 →	7 →	3 →
10 →	8 →	13 →	9 →	11 →	5 →
12 →	15 →	14 →	17 →	25 →	27 →

Add 4

2 → 6	3 → 7	1 →	5 →	7 →	4 →
6 →	8 →	11 →	14 →	10 →	15 →
13 →	16 →	22 →	26 →	36 →	48 →

Add 5

1 → 6	3 → 8	5 →	2 →	6 →	4 →
7 →	9 →	12 →	8 →	10 →	11 →
14 →	16 →	13 →	15 →	18 →	17 →

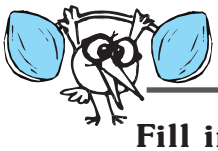
Notebook Exercise

Write down all the numbers from 40 to 60 and from 78 to 99.

Write the numbers backwards from 80 to 50.

Write down the odd numbers between 18 and 32.

Write down the even numbers between 27 and 45.



EXERCISE

Fill in numbers of your choice.

25 > __ 36 > __ __ < 41 __ > 10

Check Raju's answers. Put a `tick' for correct and a `cross' for wrong.

18 > 19 ☐ 17 < 18 ☐ 23 < 22 ☐ 16 > 15 ☐

12 > 21 ☐ 22 < 33 ☐ 19 < 91 ☐ 36 > 36 ☐

Fill in '>', '<' or '=' in the box.

3 + 7 ☐ 11 3 + 18 ☐ 21 8 + 7 ☐ 15

15 + 5 ☐ 19 7 + 7 ☐ 13 12 + 9 ☐ 21

18 – 6 ☐ 13 17 – 10 ☐ 6 10 ☐ 19 – 9

31 ☐ 14 + 20 16 ☐ 20 – 4 23 ☐ 30 – 7

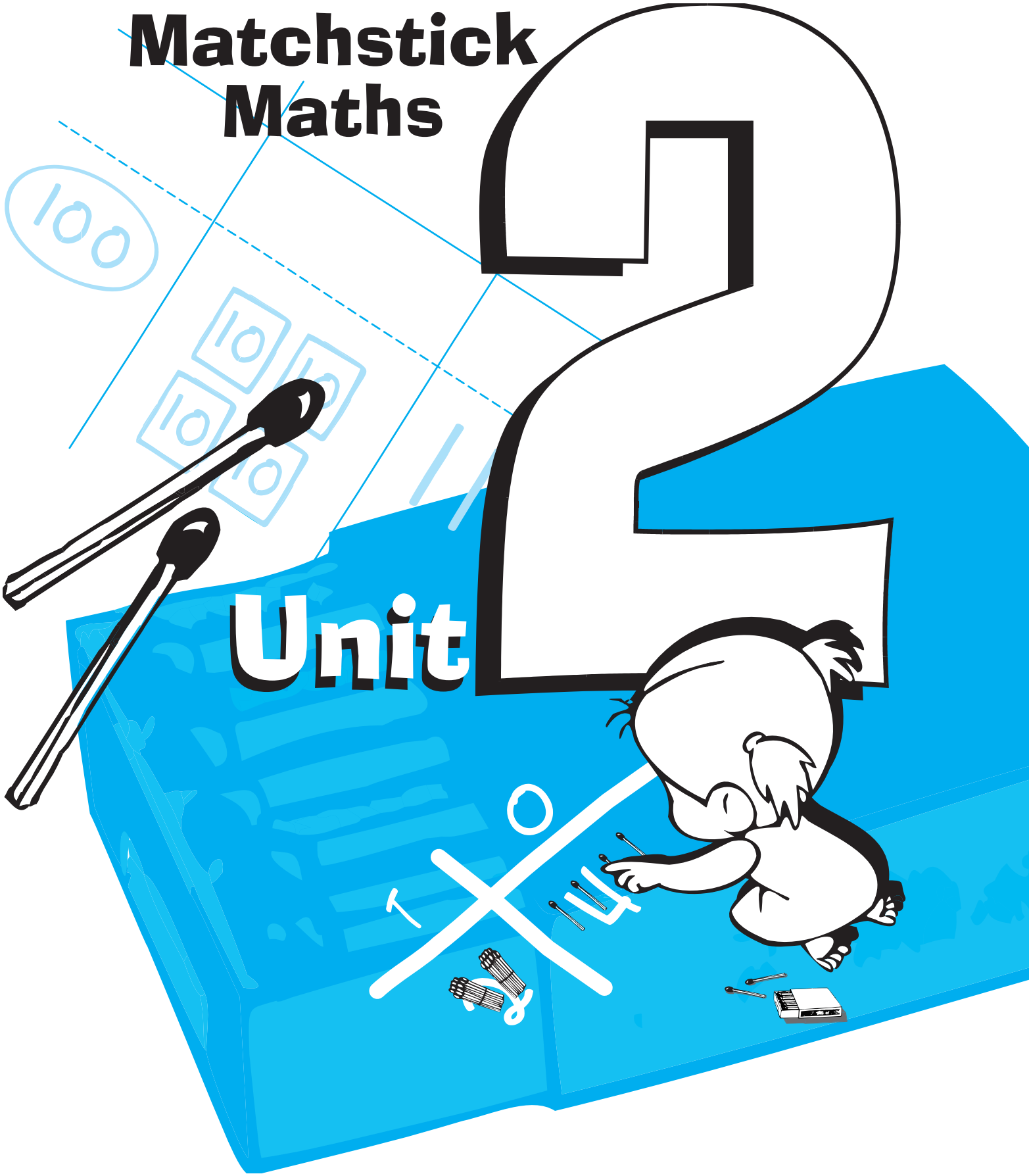
Complete these addition facts and write the opposites.

8 + 6 = 16 + 12 = 20 + 11 =

19 + 1 = 8 + 0 = 9 + 9 =

Matchstick Maths

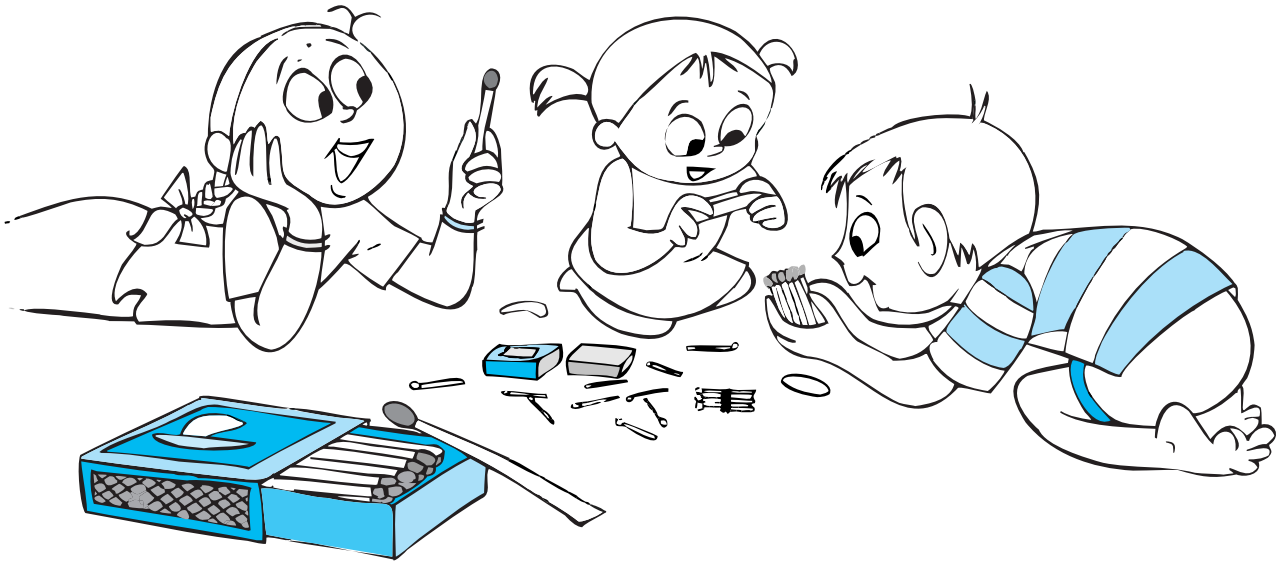
Unit 2



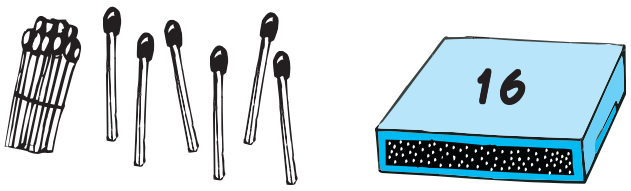
Making ones and tens

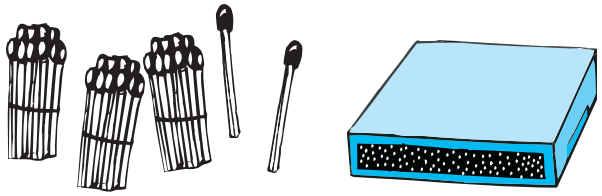
A single matchstick is a ONE.

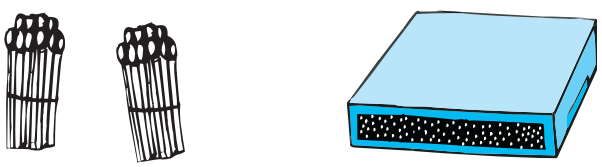
A bundle of ten matchsticks is a TEN.



Which numbers are shown?







Classroom Activity

Show these numbers using matchsticks.*

34 12

43 6

21 9

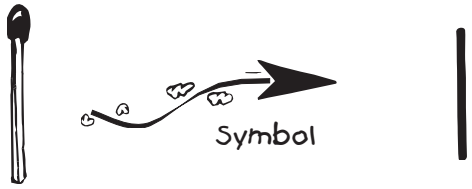
69 10

70

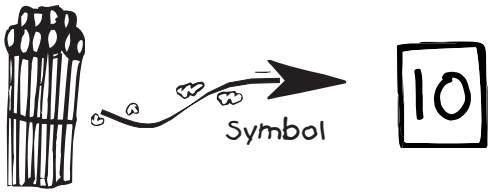
* Use actual matchsticks and rubberbands. See teacher's book.

Drawing ones and tens

Show a ONE by drawing a LINE.



Show a bundle of TEN by drawing a BOX. Write '10' inside the box.



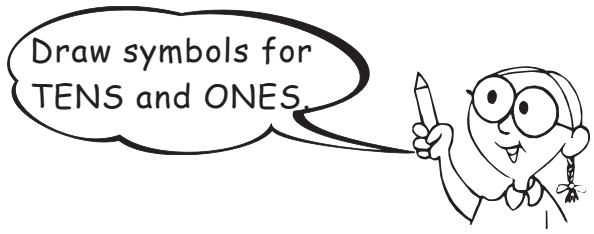
Draw ones and tens.

Tens column | Ones column

23

T	O
10 10	|||

T	O
2	3



28

T	O

T	O

46

T	O

T	O

64

T	O

T	O

19

T	O

T	O

20

T	O

T	O

8

T	O

T	O

Notebook Exercise

Write how many tens and ones.

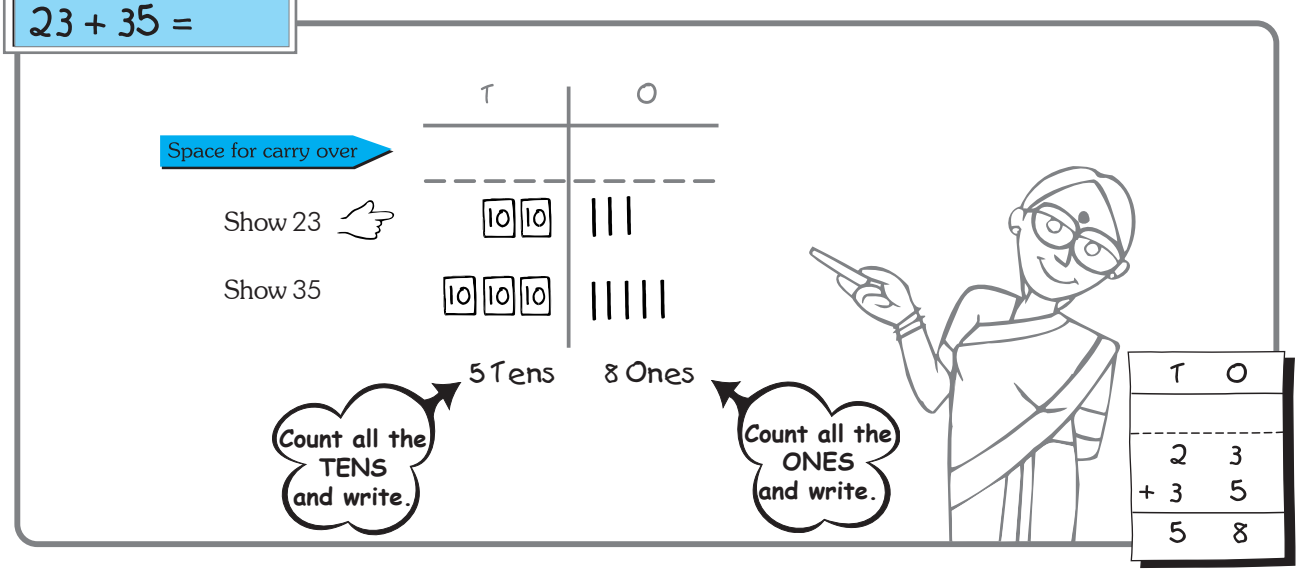
43 = 4 tens and 3 ones

37 55 19 78 16 61 5 6

Adding with matchsticks 1

example

23 + 35 =



Draw matchsticks and add.

34 + 12 = ____

T O

T O

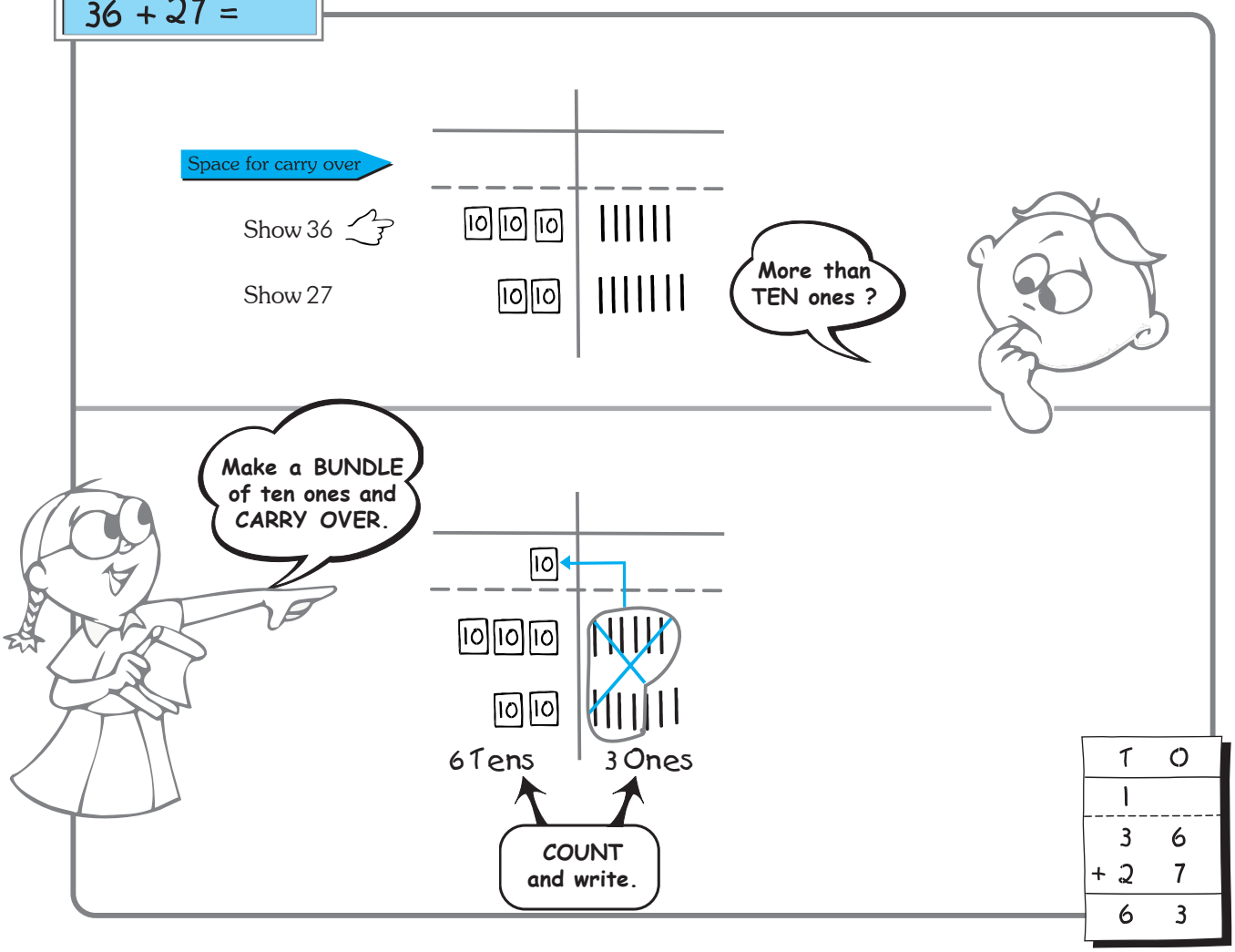
15 + 43 = ____

T O

T O

example

36 + 27 =



Draw matchsticks and add.

34 + 18 = ____

T O

T O

Notebook Exercise

Draw matchsticks and add.

27 + 16

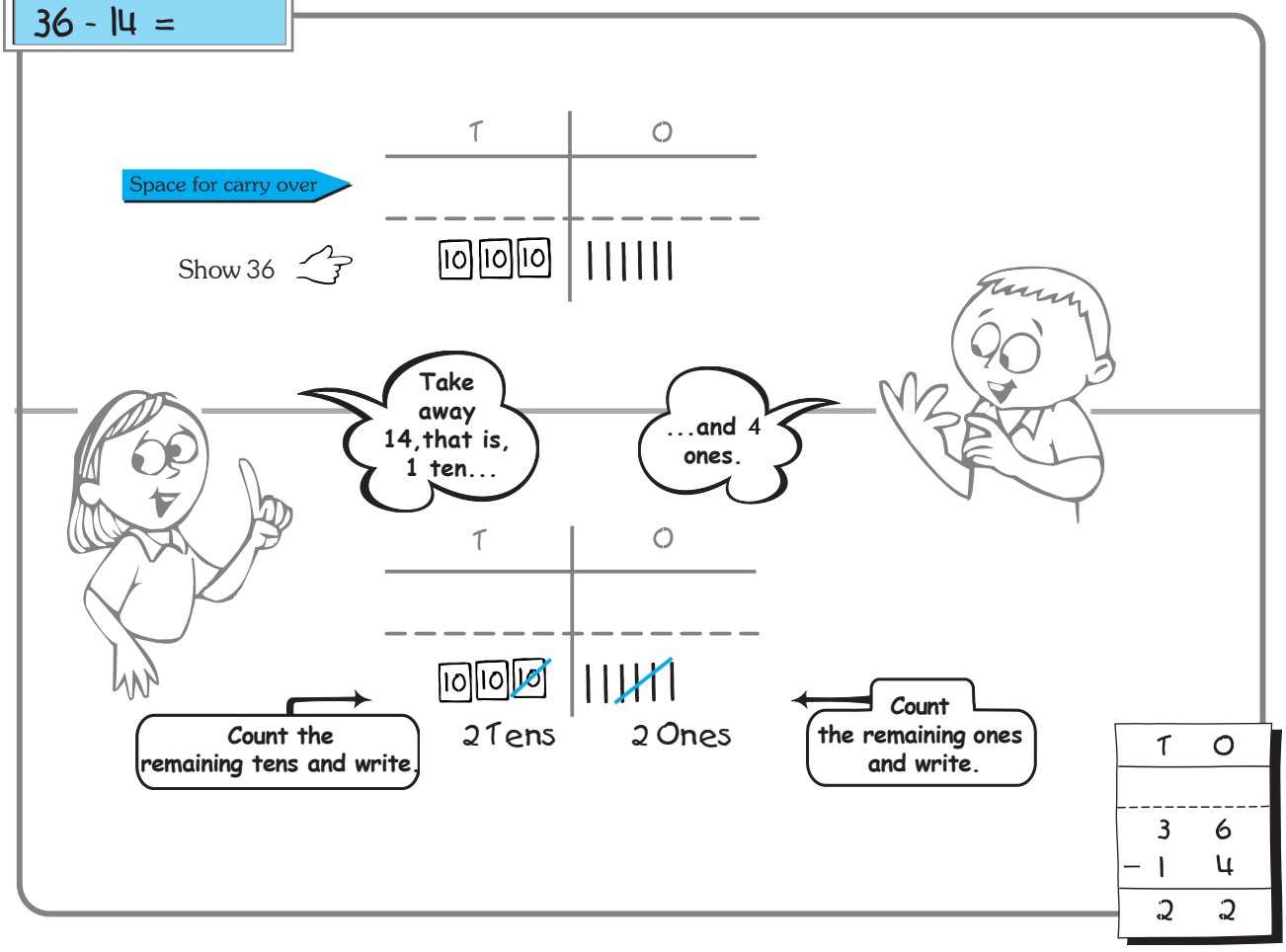
36 + 28

16 + 44

Subtracting with matchsticks 1

example

36 - 14 =



Draw matchsticks and subtract.

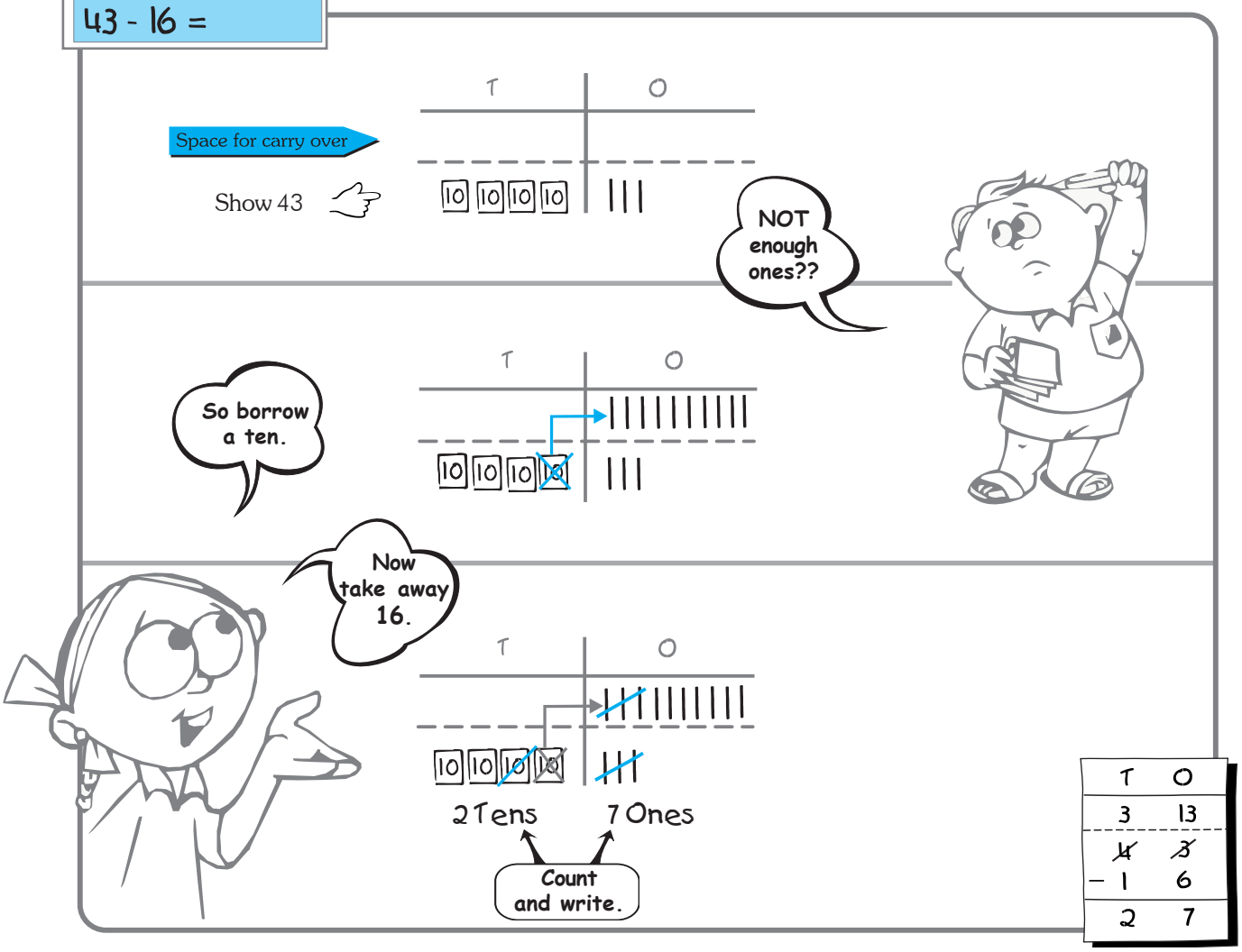
46 − 23 = ___

T O

T O

example

43 - 16 =



T	O
3	13
~~4~~	~~3~~
− 1	6
2	7

Draw matchsticks and subtract.

36 − 18 = ____

T O

T O

Notebook Exercise

Draw matchsticks and add.

28 + 42 25 + 14 + 23 36 + 28 + 19

Draw matchsticks and subtract.

52 – 27 40 – 18 20 – 19

PRACTICE SUMS

Add without drawing matchsticks.

T	O
4	6
+ 2	3

T	O
4	5
+	3

T	O
2	7
+ 1	3
+ 5	6

T	O
3	7
+ 1	8
+ 3	6

Subtract without drawing matchsticks.

T	O
6	4
– 3	2

T	O
3	9
– 2	3

T	O
5	6
– 1	8

T	O
1	7
–	9

Notebook Exercise

Add without drawing matchsticks.

7 + 34 8 + 39 49 + 4 + 17 6 + 22 + 67

Subtract without drawing matchsticks

54 – 48 62 – 45 80 – 17 16 – 9 38 – 19

Clap-snap game

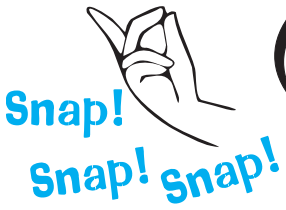
REMEMBER

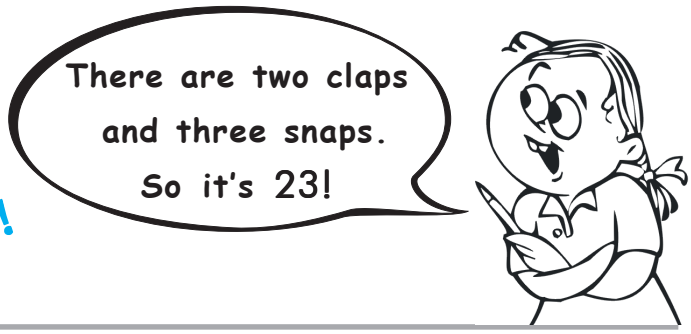
A Snap means 1.

Snap!

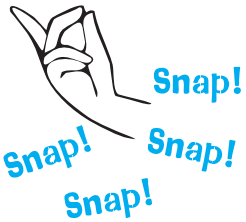
A Clap means 10.

Clap!





Count the claps and snaps and write the number.



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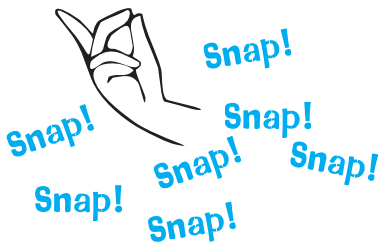

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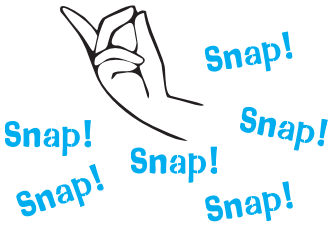

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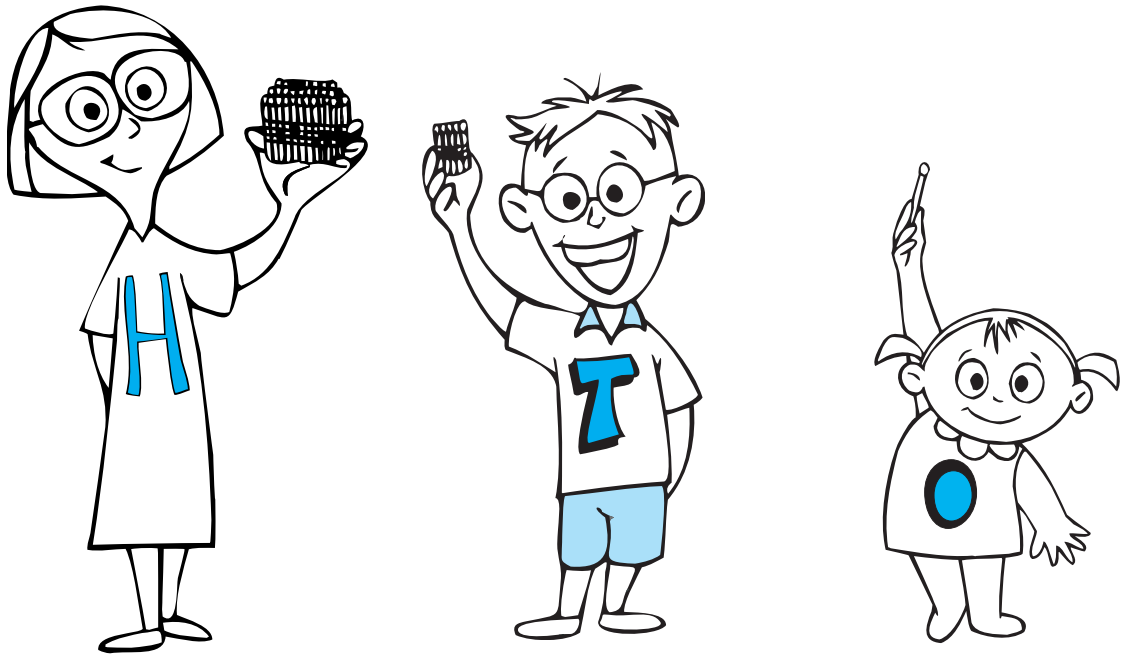
Play the clap-snap game in the class. One of you shows a number through claps and snaps. The others say which number it is.

Making hundreds

A single matchstick is a ONE.
A bundle of ten matchsticks is a TEN.
A bundle of ten TENS is a HUNDRED.



Which numbers are shown?

Classroom Activity

Show these numbers using matchsticks.*

317

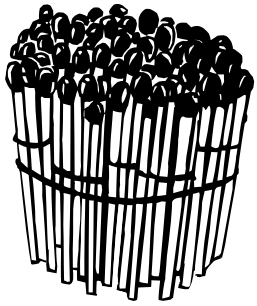
256

109

199

200

* Use actual matchsticks and rubberbands. See teacher's book.



Show a HUNDRED by drawing a CIRCLE.
Write '100' inside the circle.

100

Draw hundreds, tens and ones.

213

H	T	O
100 100	10	III

H	T	O
2	1	3

Draw symbols for HUNDREDS,
TENS and ONES.

101

H	T	O

H	T	O

110

H	T	O

H	T	O

111

H	T	O

H	T	O

99

H	T	O

H	T	O

100

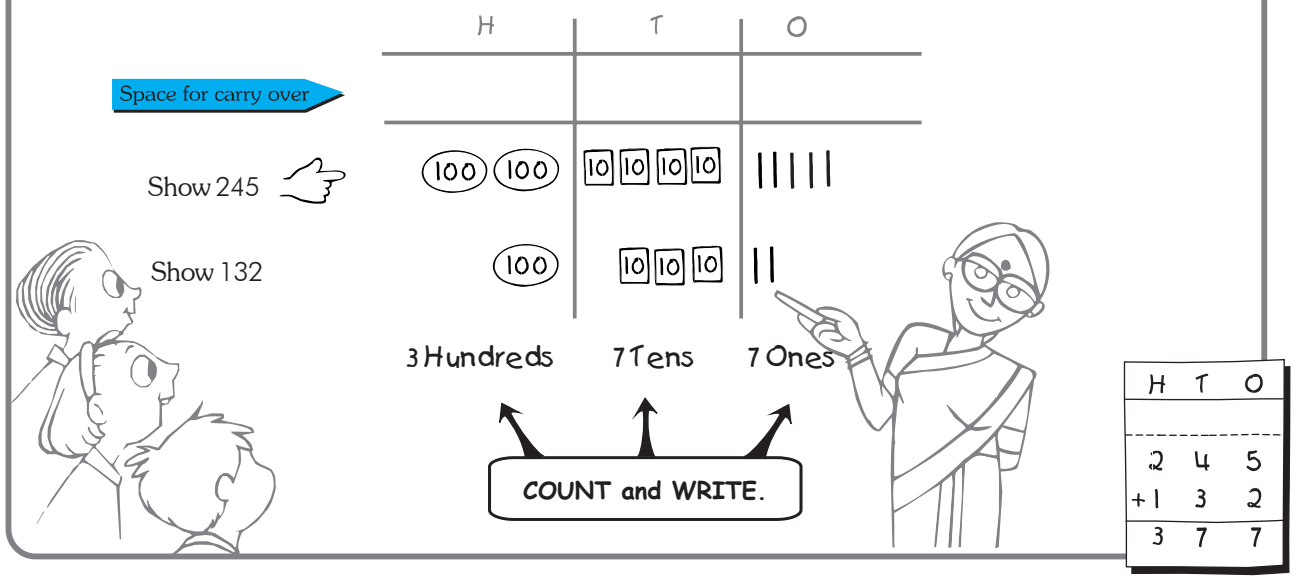
H	T	O

H	T	O

Adding with matchsticks 2

example

245 + 132 =



243 + 155 = ___

H	T	O

H	T	O

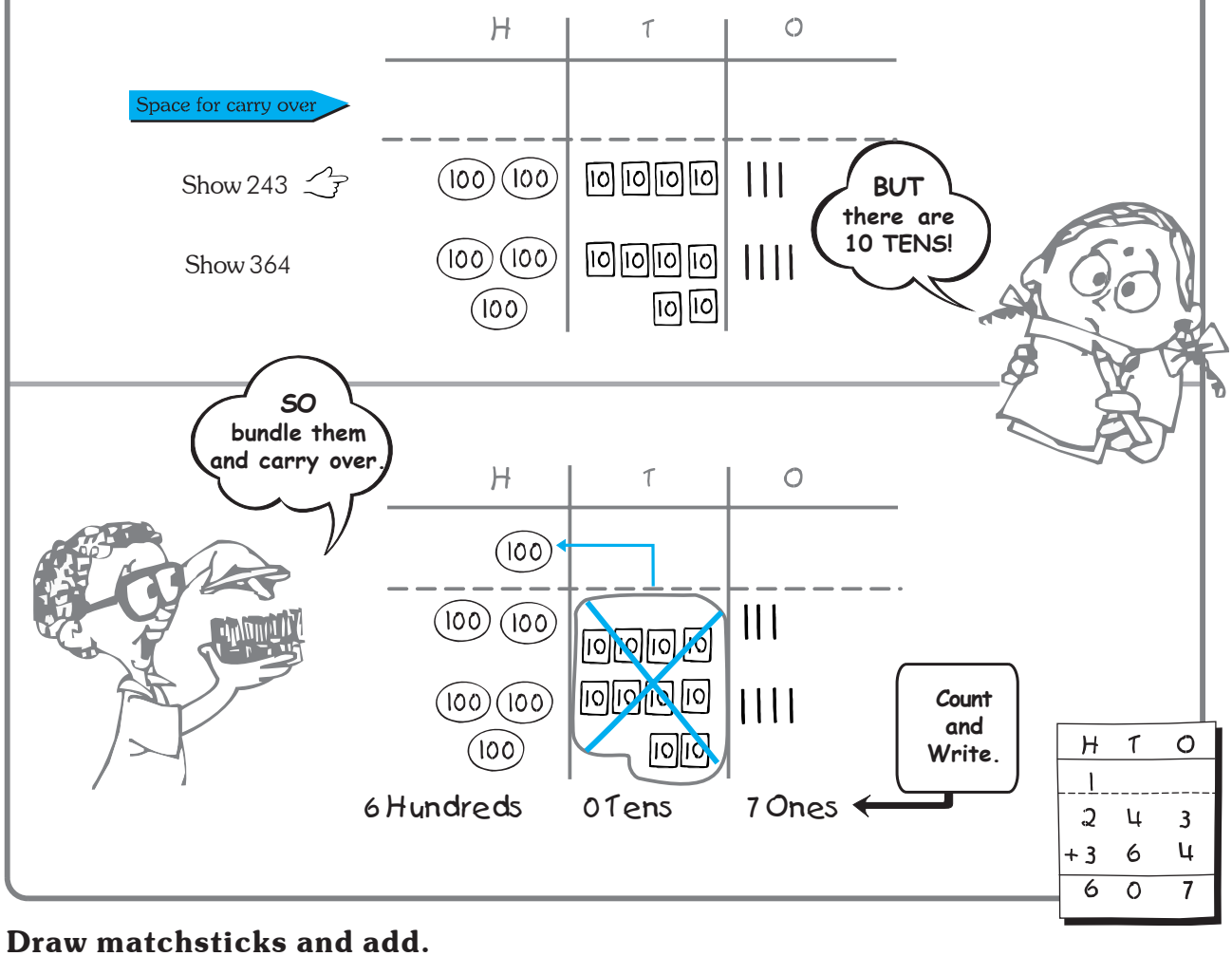
Notebook Exercise

Draw matchsticks and add.

316 + 272 153 + 326

example

243 + 364 =



Draw matchsticks and add.

273 + 256 = ____

H T O H T O

Notebook Exercise

Draw matchsticks and add.

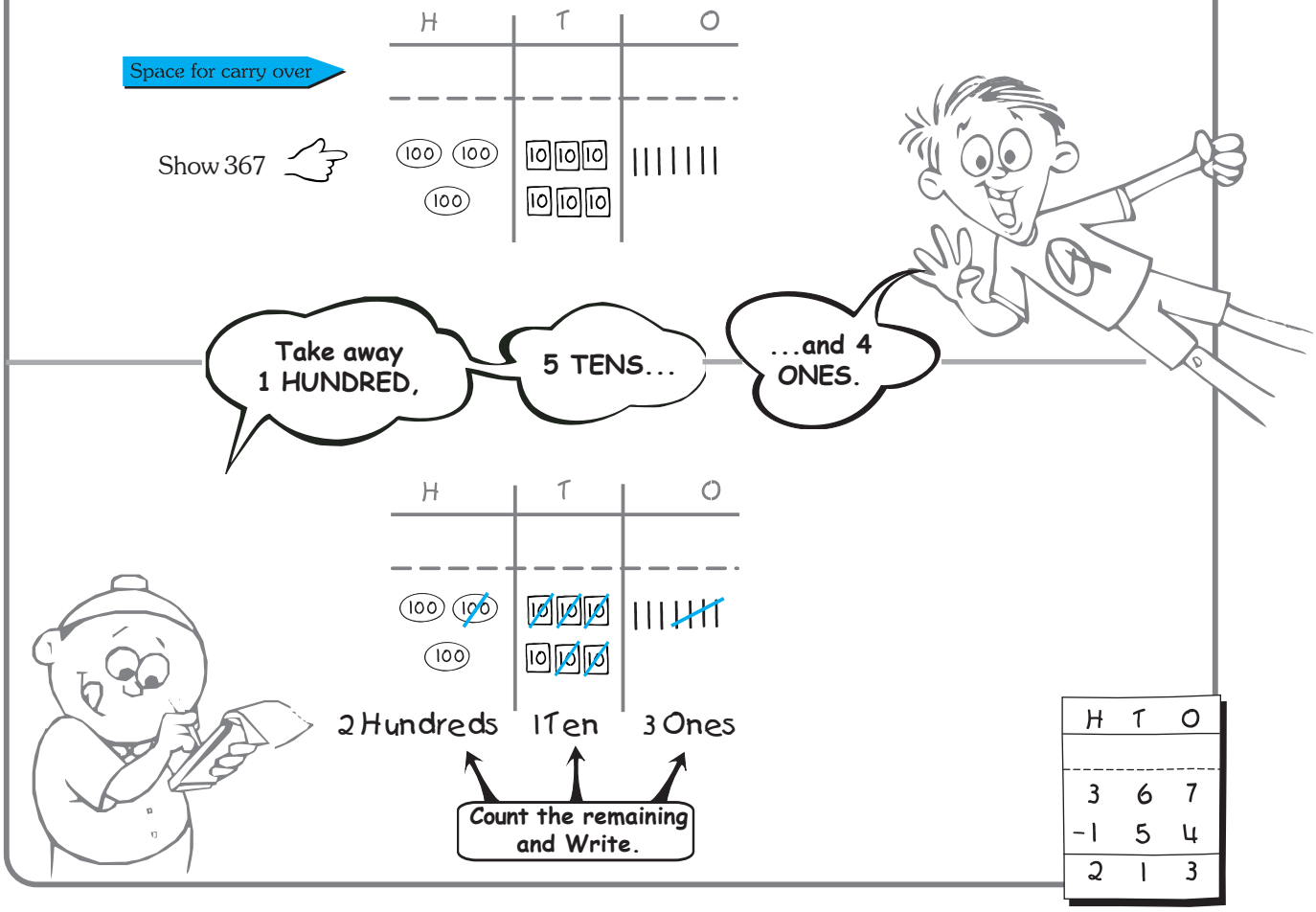
383 + 175

293 + 15

Subtracting with matchsticks 2

example

367 - 154 =



H	T	O
3	6	7
-1	5	4
2	1	3

Draw matchsticks and subtract.

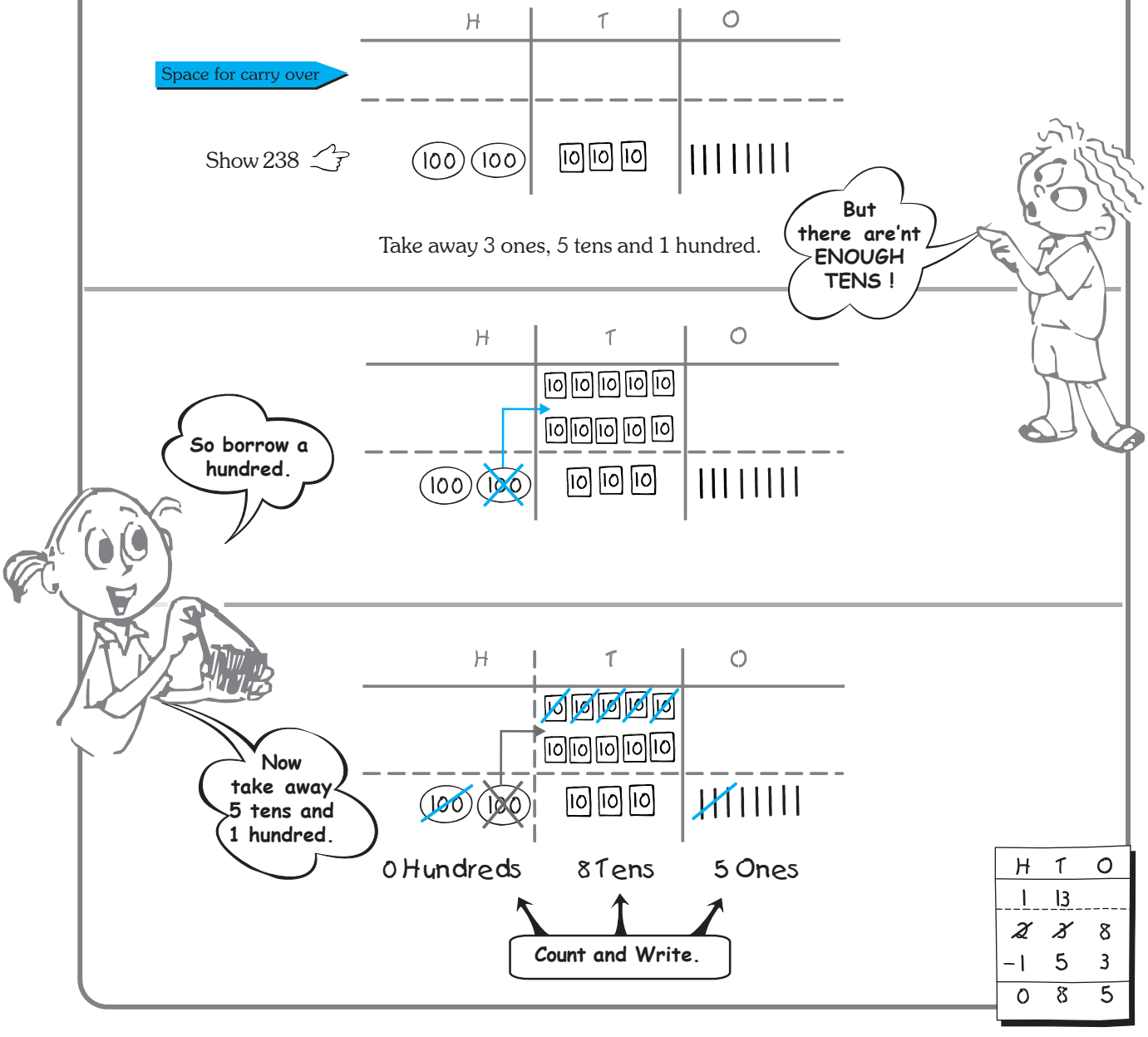
236 – 125 =____

H	T	O

H	T	O

example

238 - 153 =

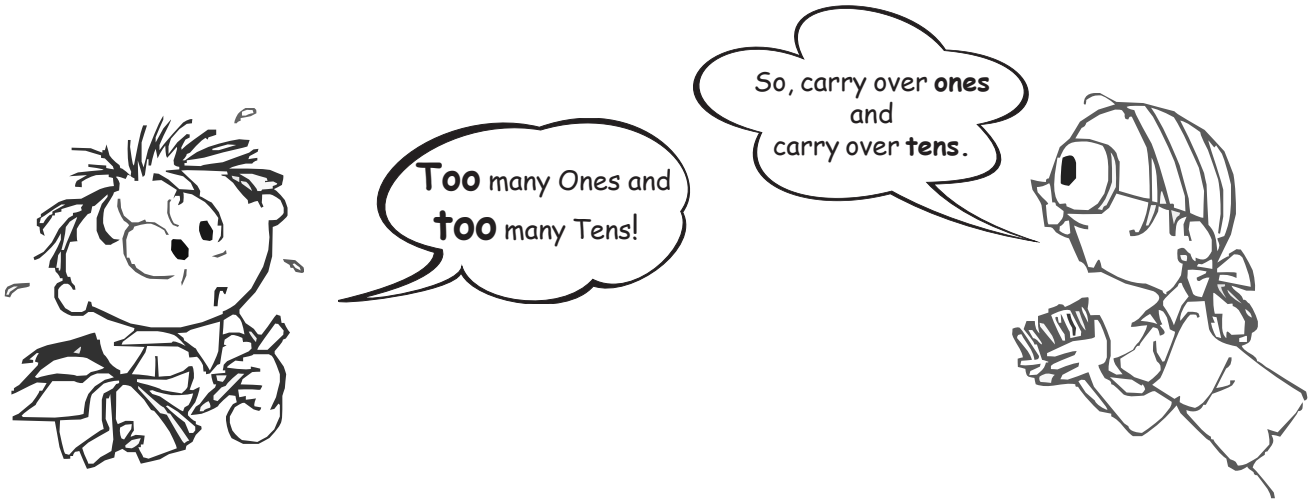


Notebook Exercise

Draw matchsticks and subtract.

346 – 254 303 – 172 215 – 45

Adding with matchsticks 3



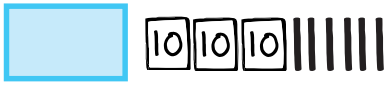
Draw matchsticks and add.

246 + 167 = ___

H	T	O	H	T	O

204 + 96 = ___

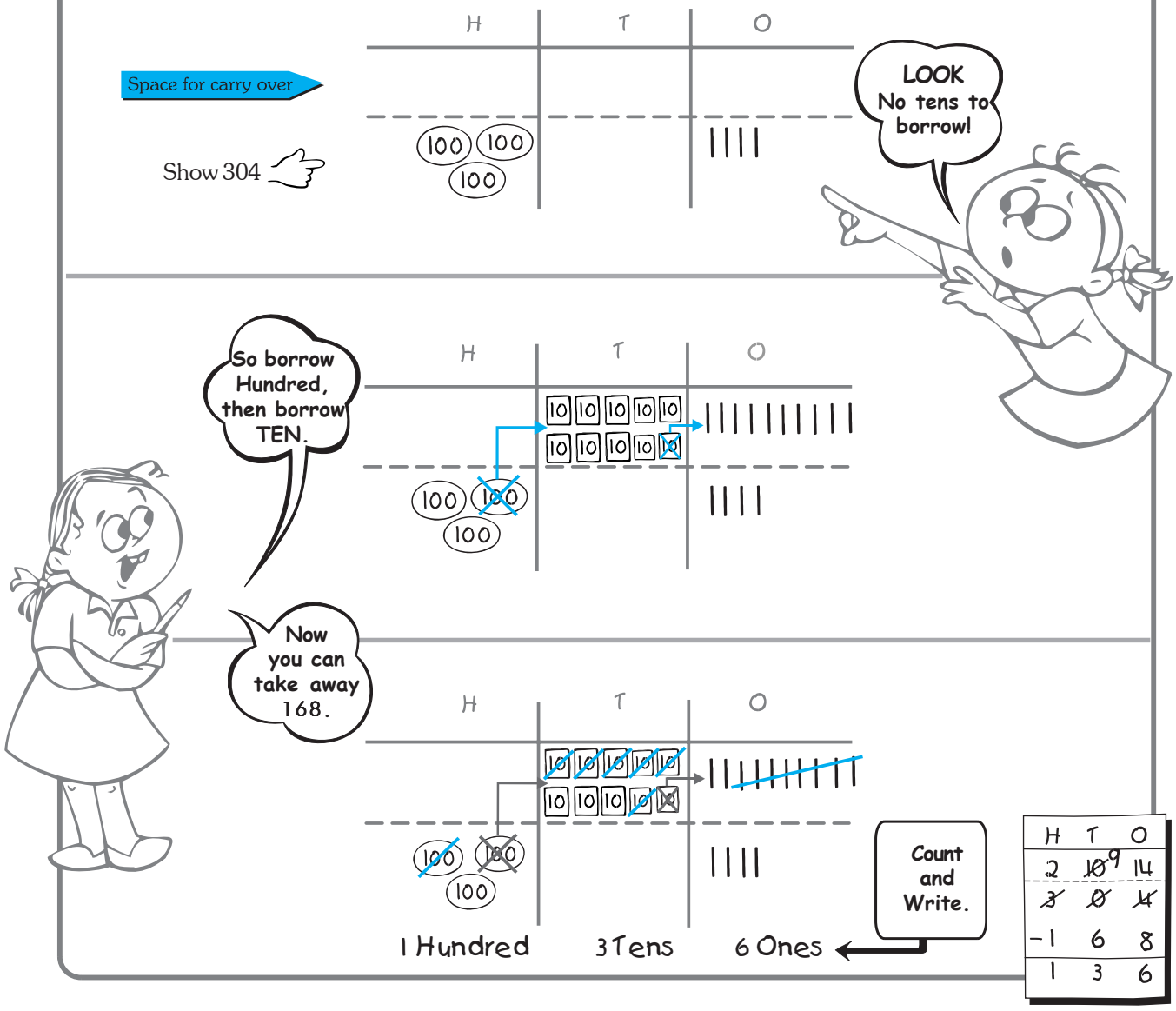
H	T	O	H	T	O



Subtracting with matchsticks 3

example

304 - 168 =



Draw matchsticks and subtract.

205 – 156 =___

H T O

H T O

Notebook Exercise

Draw matchsticks and add or subtract.

383 + 175	257 + 168	2 + 198	99 + 211
321 – 132	364 – 265	208 – 19	200 – 1

PRACTICE SUMS

Add without drawing matchsticks.

H T O	H T O	H T O	H T O
2 3 6	5 6 9	2 1 1	2 8 7
+ 5 8 5	+ 3 6 9	+ 9 9	+ 1 3

Subtract without drawing matchsticks.

H T O	H T O	H T O	H T O
6 2 5	5 8 5	4 7 6	2 0 6
– 2 6 7	– 3 7 9	– 3 8 7	– 1 7

Notebook Exercise

Add or subtract without drawing matchsticks.

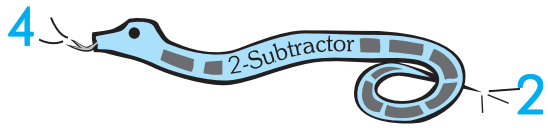
469 + 469	1 + 499	19 + 581	4 + 696
100 – 1	500 – 3	200 – 19	1000 – 1

Subtractors

The subtractors are a bit like the adders. They subtract very fast.

The 2-subtractor subtracts 2 to any number that you give it.

Like the subtractors, subtract as fast as you can.



Subtract 2

3 → 1	7 → 5	5 →	2 →	4 →	8 →
9 →	12 →	15 →	10 →	13 →	11 →
17 →	26 →	21 →	32 →	46 →	51 →
78 →	80 →	91 →	99 →	101 →	110 →

Subtract 3

5 → 2	4 → 1	6 →	7 →	3 →	10 →
8 →	13 →	9 →	11 →	12 →	15 →
19 →	21 →	34 →	30 →	42 →	51 →

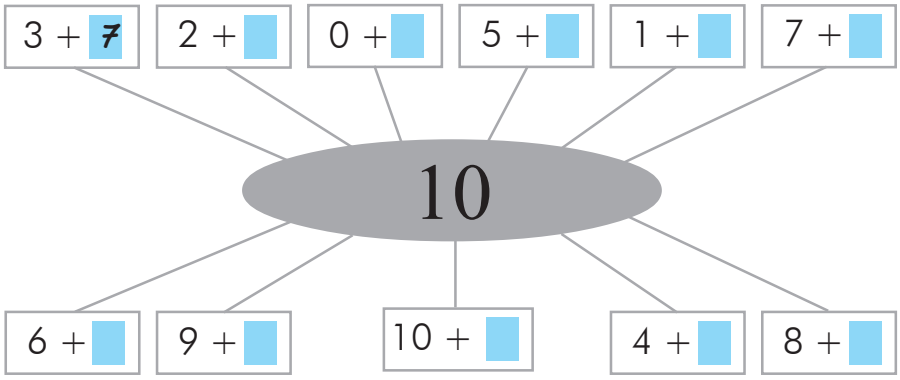
Subtract 4

6 → 2	7 → 3	5 →	8 →	4 →	9 →
10 →	12 →	11 →	14 →	19 →	21 →
23 →	26 →	32 →	36 →	40 →	48 →

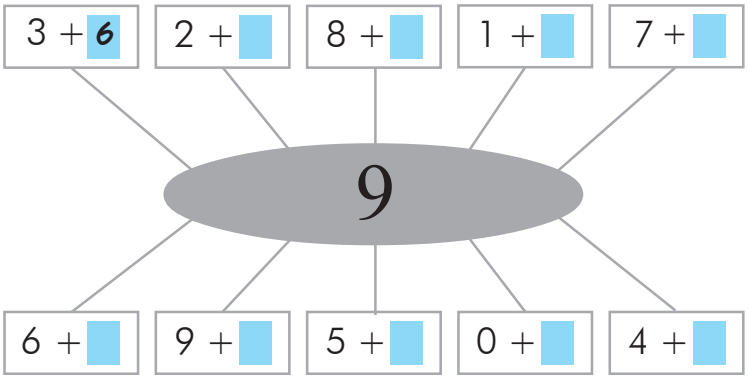
Subtract 5

6 → 1	8 → 3	7 →	9 →	5 →	10 →
12 →	11 →	15 →	20 →	24 →	31 →
35 →	36 →	33 →	45 →	38 →	47 →

Add a number so that the total is 10.



Add a number so that the total is 9.



Add and write the total.

2 + 2 =	10 + 10 =	17 + 17 =	21 + 21 =
3 + 3 =	11 + 11 =	19 + 19 =	23 + 23 =
4 + 4 =	13 + 13 =	20 + 20 =	25 + 25 =
6 + 6 =	12 + 12 =	22 + 22 =	27 + 27 =
8 + 8 =	14 + 14 =	24 + 24 =	29 + 29 =
5 + 5 =	16 + 16 =	26 + 26 =	32 + 32 =
7 + 7 =	15 + 15 =	28 + 28 =	31 + 31 =
9 + 9 =	18 + 18 =	30 + 30 =	34 + 34 =

Number Building

Number building

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

FIRST

GROUND

Exploring the Number Building

The number building has ten floors. It has many, many rooms.

Which are the rooms on the ground floor? _____

Which are the rooms on the second floor? _____

Which are the rooms on the top floor? _____

Which are the rooms on the fifth floor? _____

CROSSWORD PUZZLE

Across

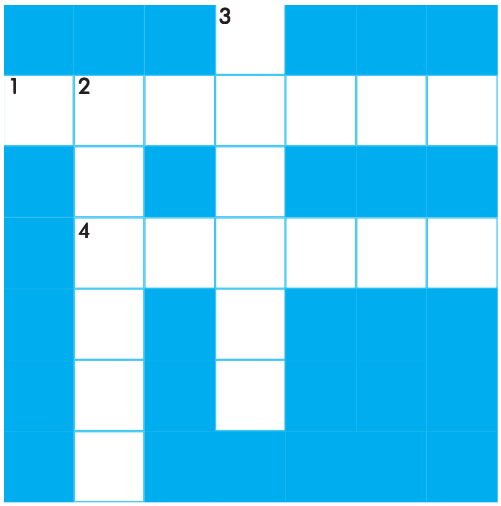
1) The cat is on this floor.

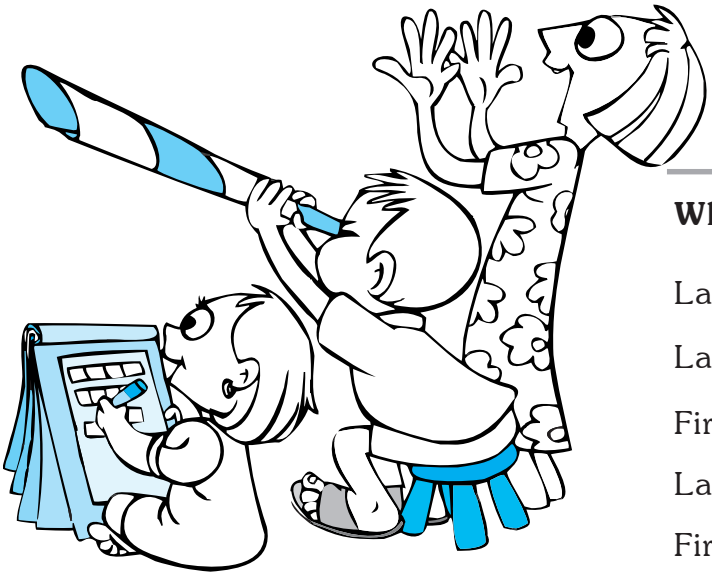
4) The boy is on this floor.

Down

2) 87 is on this floor.

3) The clothes are on this floor.





Which rooms are these?

Last room on the fourth floor _____

Last room on the third floor _____

First room on the seventh floor _____

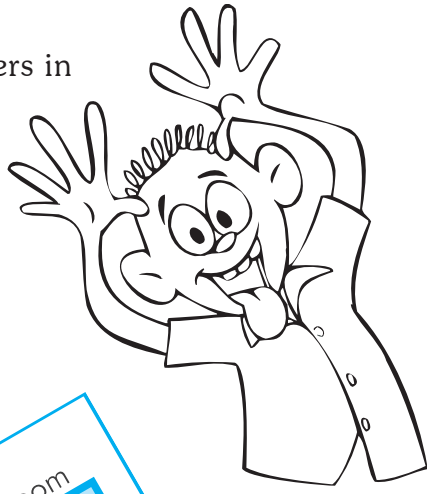
Last room in the number building _____

First room in the number building _____

Which room?

Eti Soppo has sent Diwali greetings to his friends in the number building. Instead of room numbers, he has written clues.

Help Postman chacha by writing the correct room numbers in the empty boxes.



Example

Greetings
Above 38
Room 48

Greetings
Above 77
Room

Greetings
Before 31
Room

Greetings
Below 94
Room

Greetings
After 0
Room

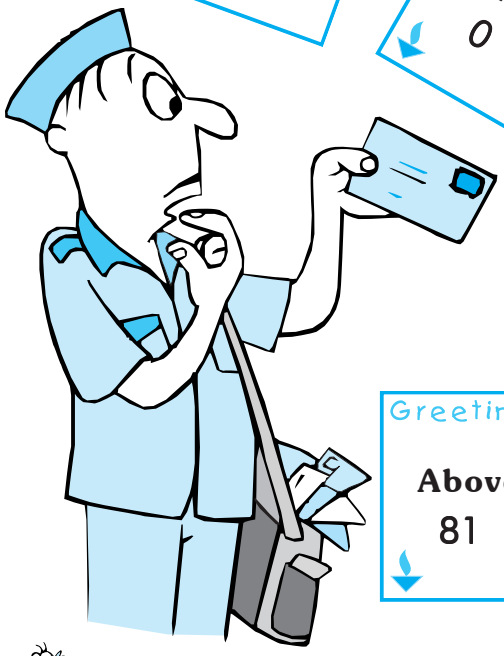
Greetings
Above 27
Room

Greetings
Below 49
Room

Greetings
Before 99
Room

Greetings
Above 81
Room

Greetings
After 20
Room



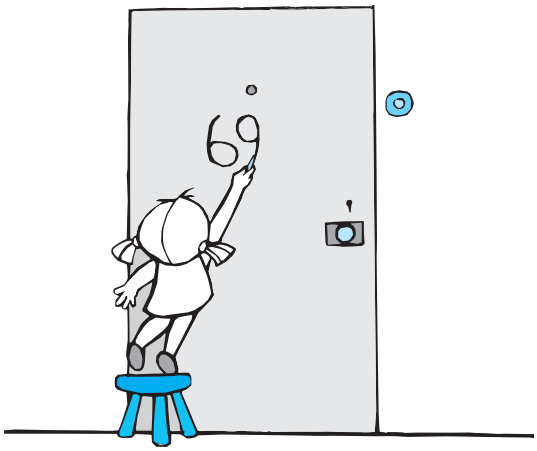
GAME FOR TWO

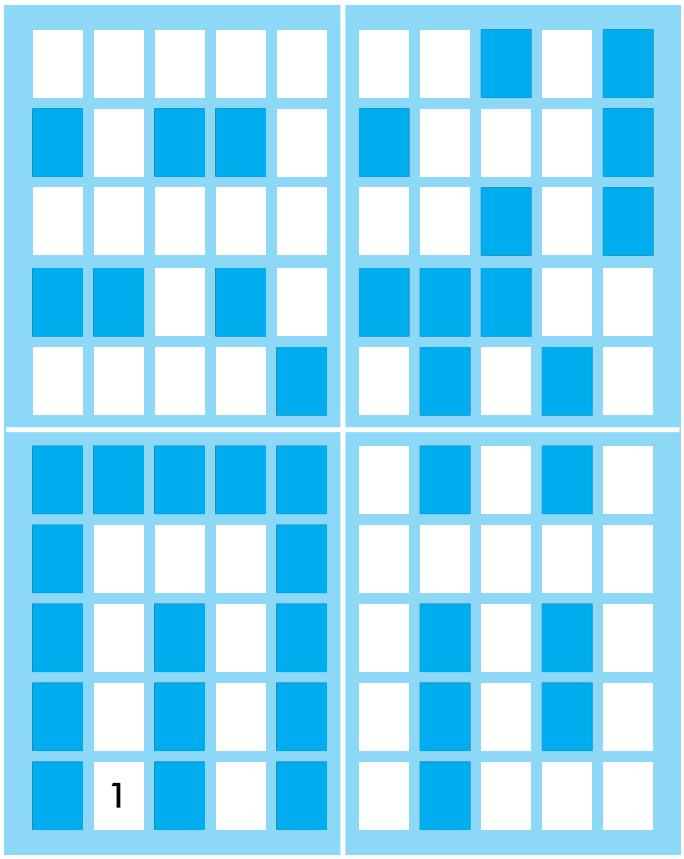
Give your friend clues like the ones above. She should guess the room number without looking at the number building.

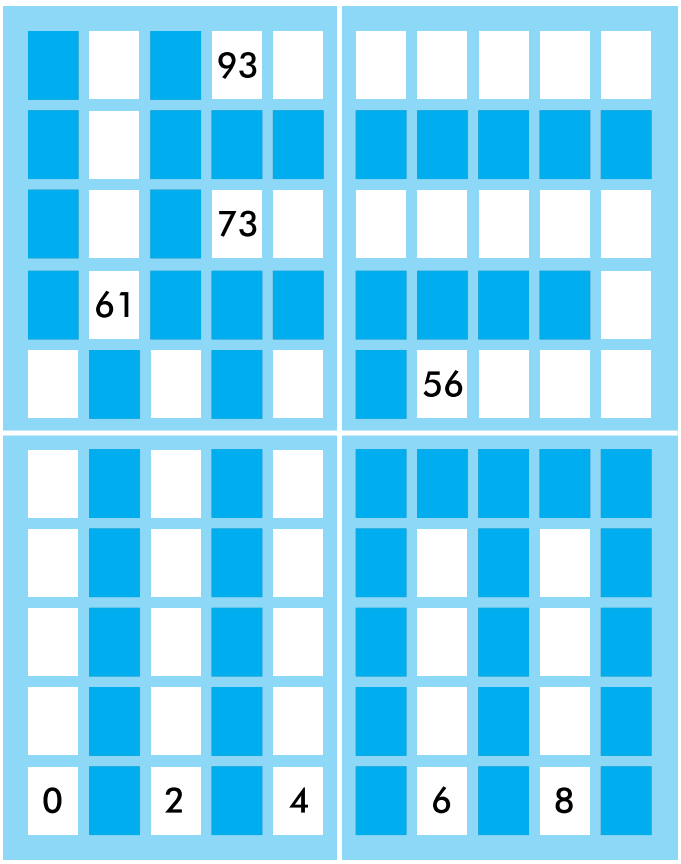
Help the postman

Postman chacha has come to give letters to people. Let's help him!

Write the room numbers of the rooms which are not shaded.



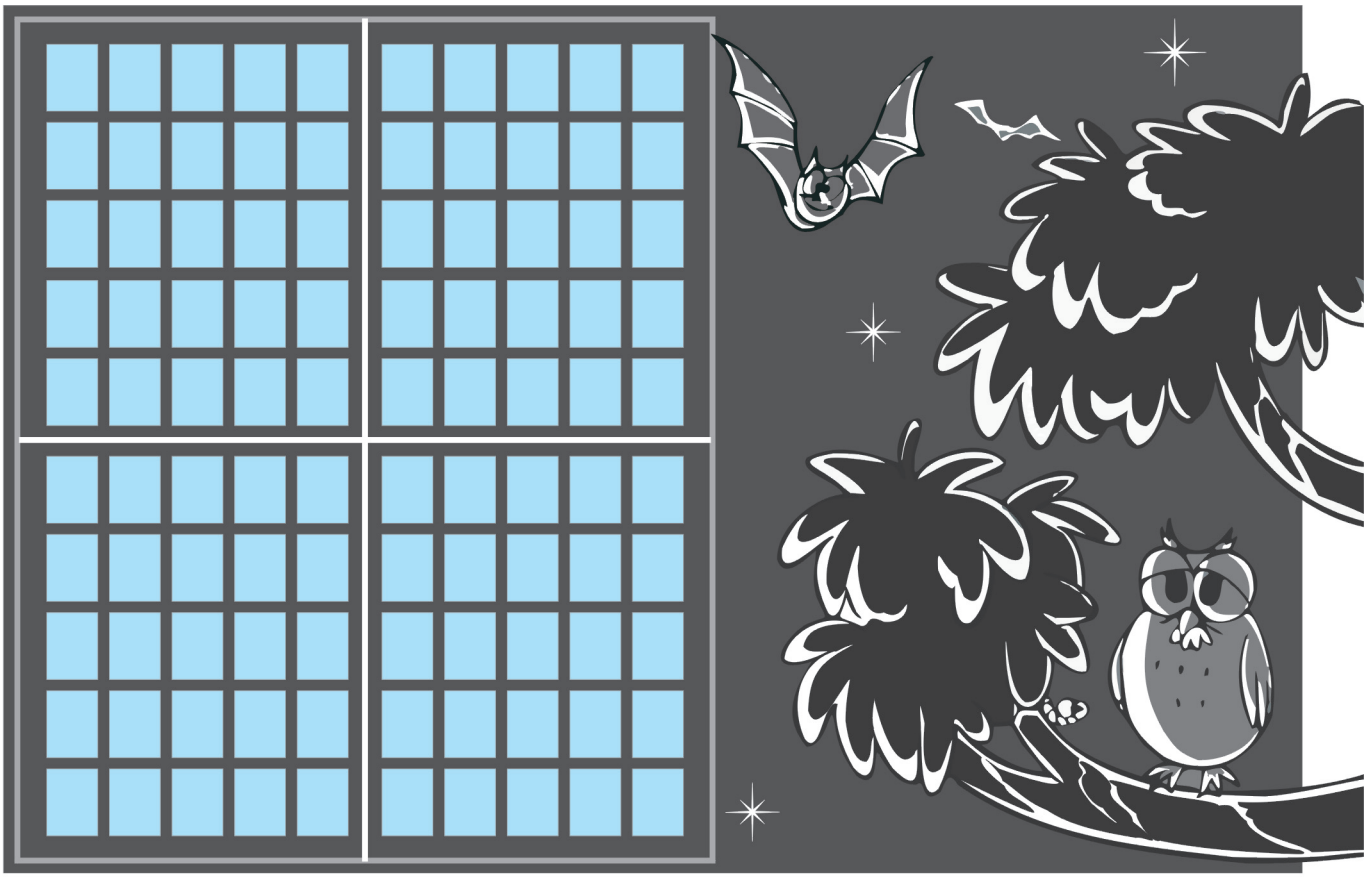


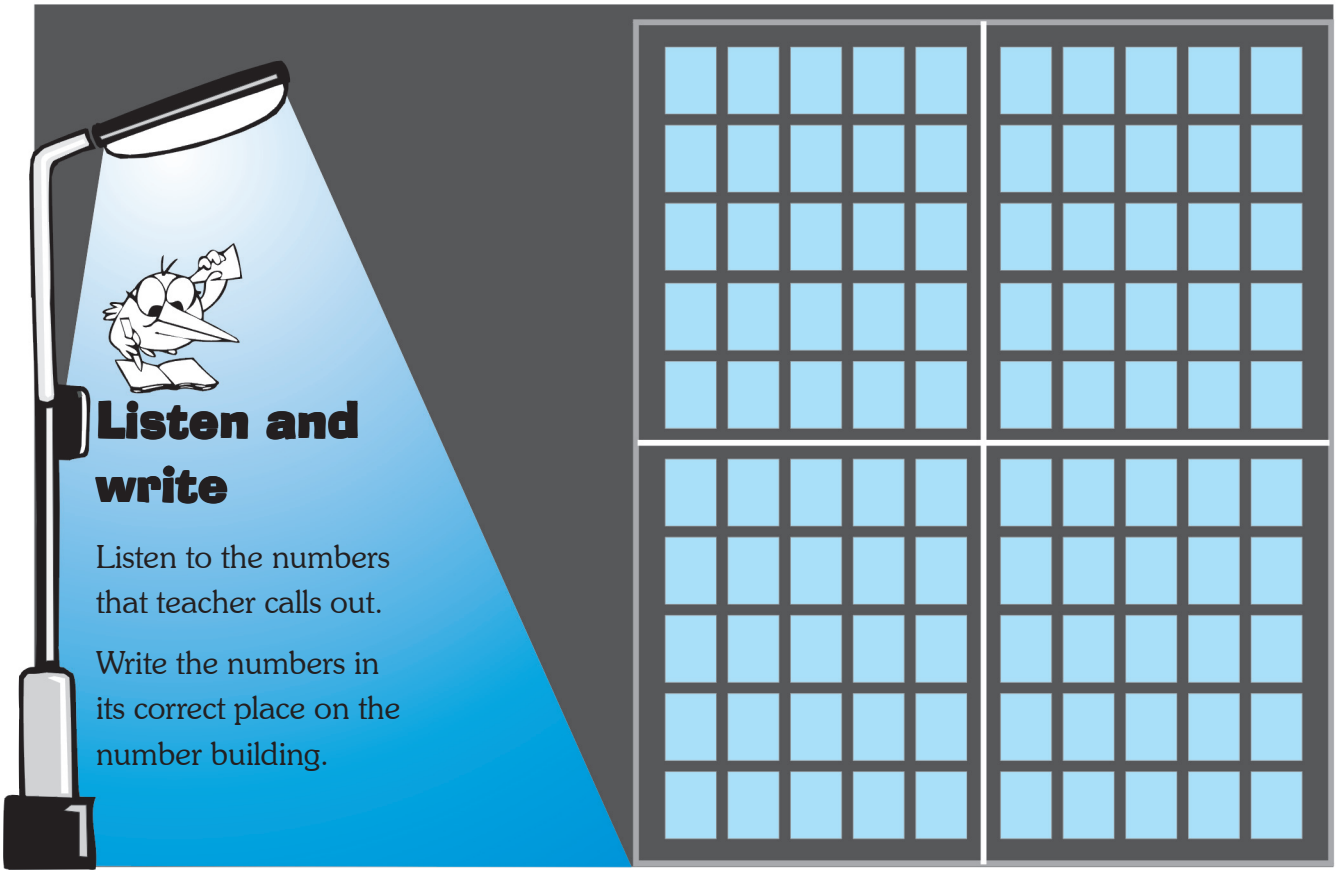


When it's dark

When it is dark all you can see are the lights that shine from the rooms that are open.

Write the numbers of the rooms that are open.





Listen and write

Listen to the numbers that teacher calls out.

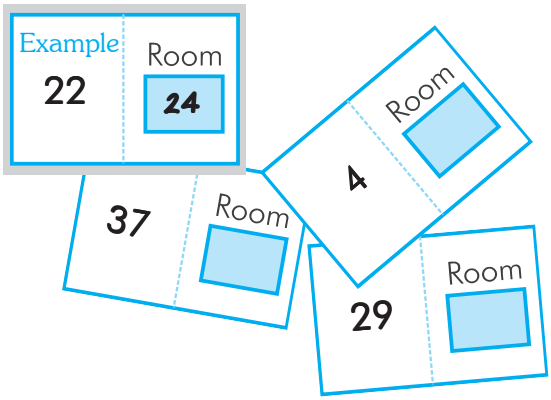
Write the numbers in its correct place on the number building.

Which room?

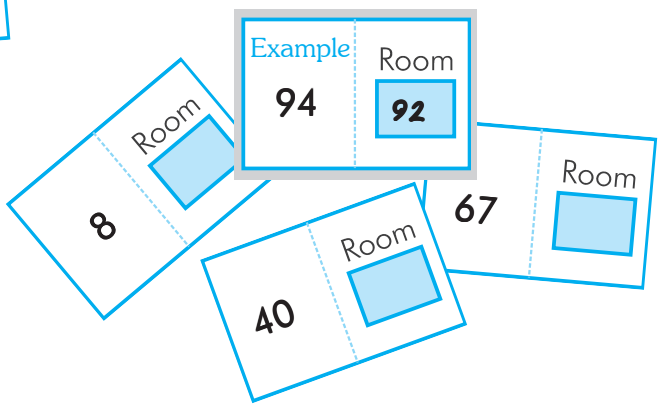
Eti soppo has done it again!

Can you write the correct room numbers?

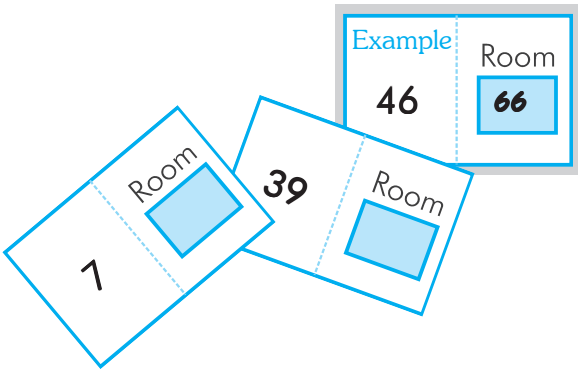
Two rooms after



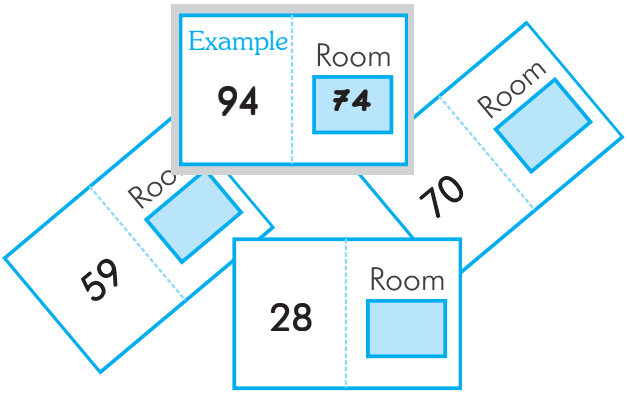
Two rooms before



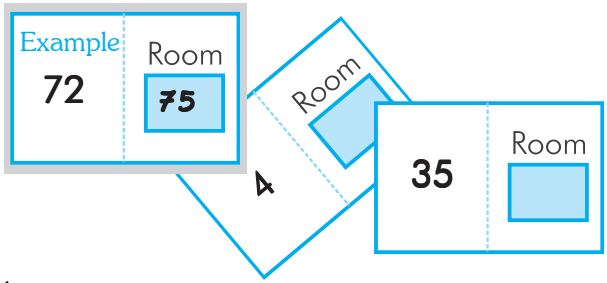
Two floors above



Two floors below



Three rooms after



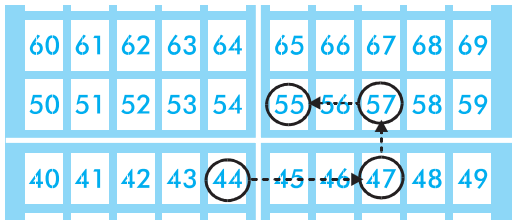
GAME FOR TWO

Give your friend clues like the ones above. Let her guess the room numbers as quickly as possible.

Where are you?

Geeta's kitten is lost in the number building. Can you help find her ?

Follow the clues and write the room numbers you come to.

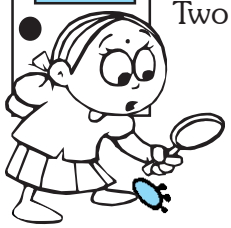


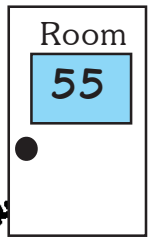
1 Start from room 44.

Go three rooms forward. 47

One floor up. 57

Two rooms back. 55

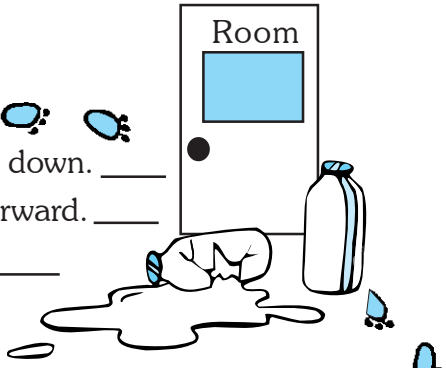




2 Now go one floor down. ____

Three rooms forward. ____

Two floors up. ____



3 Now go three rooms back. ____

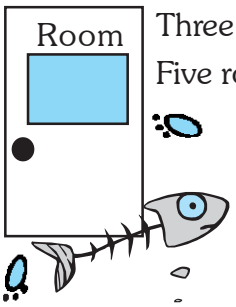
Two floors down. ____

Four rooms forward. ____

4 Now go one room forward. ____

Three floors down. ____

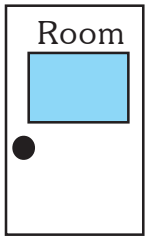
Five rooms back. ____

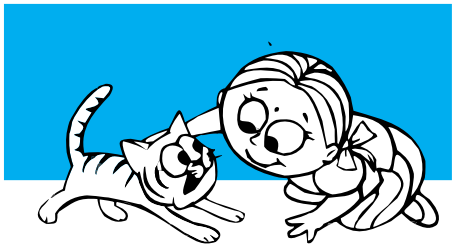


5 Now go two rooms forward. ____

Three floors up. ____

Three rooms back. ____





GAME FOR TWO

Make a 'where are you' puzzle for your friend to solve.

Adding ones

Do you remember how to carry over?

Do these sums.

Draw a ring around the problems where you need to carry over.

T	O
1	
2	5
+	6
3	1

T	O
1	3
+	5

T	O
1	3
+	6

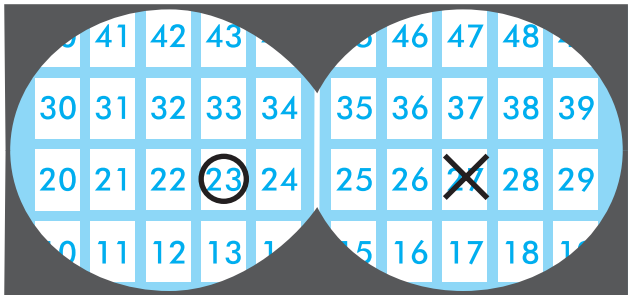
T	O
1	3
+	7

T	O
2	2
+	8

A burglar has entered the number building !

The answers to the problems tell you which rooms have been burgled.

Put a cross on each room that has been burgled. Write if you are on the same floor as 23 or on the next floor. Ring the problems where you go to the next floor.



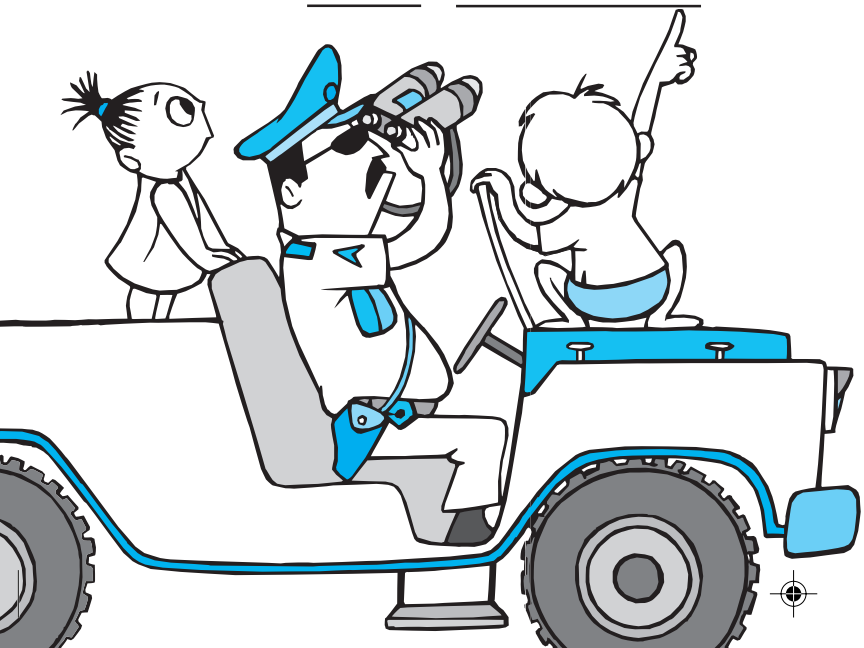
23 + 4 = 27 (same floor)

23 + 5 = _____ _____

23 + 6 = _____ _____

23 + 7 = _____ _____

23 + 8 = _____ _____



Now do the same additions in vertical columns.

Ring the problems where you need to carry over.

T	O
2	3
+	4

T	O
2	3
+	5

T	O
2	3
+	6

T	O
2	3
+	7

T	O
2	3
+	8

The burglar has burgled more rooms !

Find out which ones.

Put a cross on each room. Write if you are on the same floor as 34 or on the next floor. Ring the problems where you go to the next floor.

40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19

34 + 3 = 37 (same floor)

34 + 4 = _____ _____

34 + 5 = _____ _____

34 + 6 = _____ _____

34 + 7 = _____ _____

Now do the same addition in vertical columns.

Ring the problems where you need to carry over.

T	O
3	4
+	3

T	O
3	4
+	4

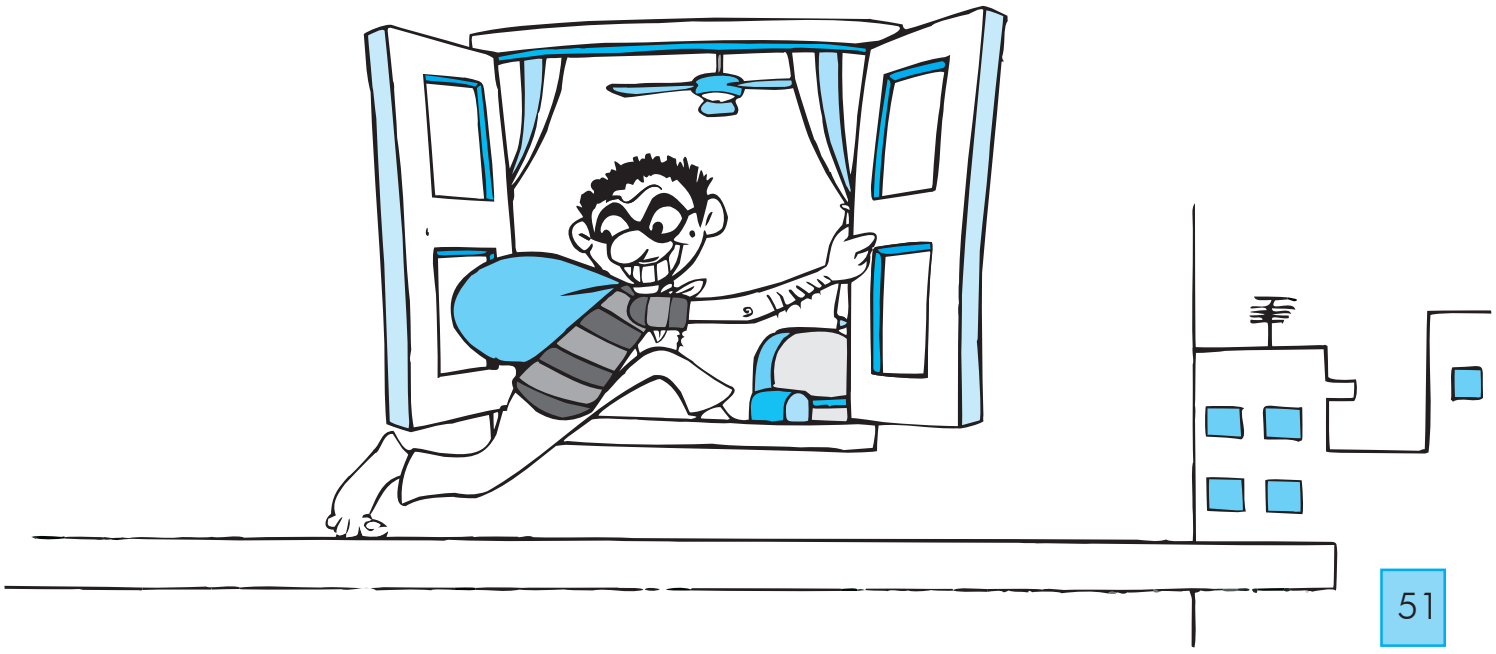
T	O
3	4
+	5

T	O
3	4
+	6

T	O
3	4
+	7

Sometimes when you add ones, you go to the next floor.

Check if this happens whenever there is a carry over.



Subtracting ones

Do you remember how to borrow?

Draw a ring around the problems where you need to borrow.

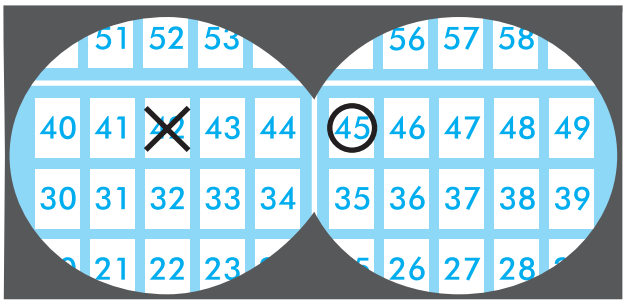
T	O
~~3~~ 2	~~2~~ 12
– 4	
2	8

T	O
3	2
– 5	

T	O
1	7
– 6	

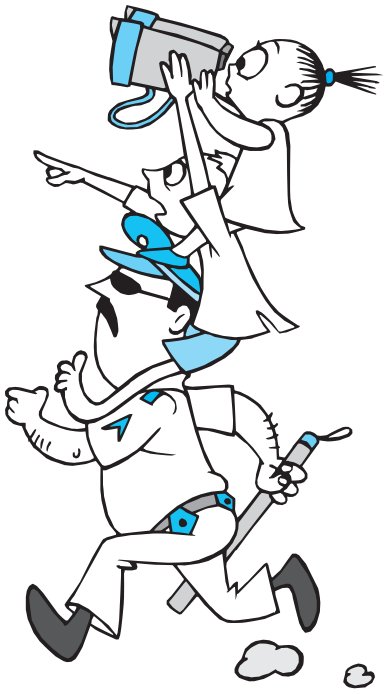
T	O
1	7
– 7	

T	O
1	7
– 8	



Put a cross on each room. Are you on the same floor as 45 or on the floor below? Ring the problems where you go to the floor below.

Help the children keep track of the burglar by solving these subtraction problems.



45 – 3 = 42 (same floor)

45 – 4 = _____ _____

45 – 5 = _____ _____

45 – 6 = _____ _____

45 – 7 = _____ _____

Do the same subtractions in vertical columns.

Ring the problems where you need to borrow.

T	O
4	5
– 3	

T	O
4	5
– 4	

T	O
4	5
– 5	

T	O
4	5
– 6	

T	O
4	5
– 7	

It's time to catch the burglar !

The answer to the last problem tells you in which room he was caught.

Cross the answers to these problems.

Are you on the same floor as 56 or on the floor below? Ring the problems where you go to the floor below.

56 – 5 =	51	(same floor)
56 – 6 =		
56 – 7 =		
56 – 8 =		
56 – 9 =		

Sometimes when you subtract ones, you go to the floor below.

Check if this happens whenever there is a borrow.

60	61	62	63	64	65	66	67	68	69
50	~~51~~	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39

Do the same subtractions in vertical columns.

Ring the problems where you need to borrow.

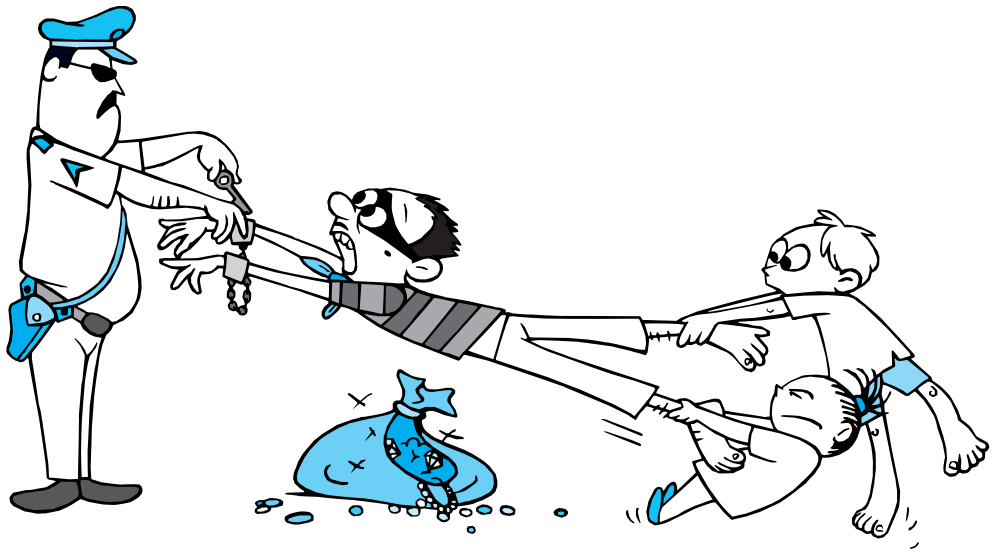
T	O
5	6
–	5

T	O
5	6
–	6

T	O
5	6
–	7

T	O
5	6
–	8

T	O
5	6
–	9



Clap-snap game

Teacher writes a number on the board. She then claps 3 times.

Add the claps to the number.

REMEMBER

A clap means a 10.

25 + Clap! Clap! Clap! = 55

44 + Clap! Clap! Clap! Clap! =

17 + Clap! Clap! Clap! Clap! Clap! =

Teacher writes a number on the board. Subtract the claps from the number.

78 - Clap! Clap! Clap! Clap! =

66 - Clap! Clap! Clap! Clap! Clap! =

GAME FOR TWO

1. Play the game of adding and subtracting claps with your friends.
2. Change the game. Give your friends claps **and** snaps to add.

Adding and subtracting ten

1) Circle room 14.

Now cross out the answer for 14 + 10.

2) Circle 36, cross out 36 + 10.

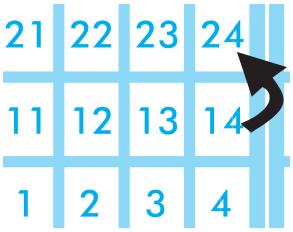
3) Circle 64, cross out 64 + 10.

4) Circle 77, cross out 77 + 10.

5) Circle 6, cross out 6 + 10.

6) Circle 20, cross out 20 + 10.

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9



What happens when you add ten?

Adding 10 is like jumping one floor up!

1) Circle room 54.

Now cross out the answer for 54 – 10.

2) Circle 27, cross out 27 – 10.

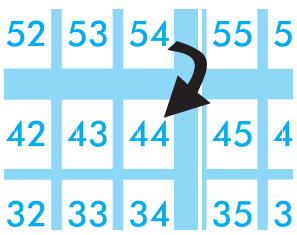
3) Circle 64, cross out 64 – 10.

4) Circle 83, cross out 83 – 10.

5) Circle 15, cross out 15 – 10.

6) Circle 40, cross out 40 – 10.

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9



What happens when you subtract ten?

Subtracting 10 is like jumping one floor down!

Adding twenty

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

Now let us see what happens when you add 20.

1) Circle room 32.

Cross out the answer for 32 + 20.

2) Circle 11, cross out 11 + 20.

3) Circle 46, cross out 46 + 20.

4) Circle 55, cross out 55 + 20.

5) Circle 3, cross out 3 + 20.

6) Circle 50, cross out 50 + 20

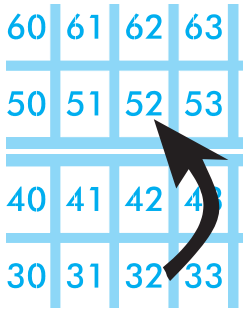
What happens when you add 20 ?

Adding 20 is like

_____

_____

_____



Find out what happens when you add 30 and 40.

Adding 30 is like _____

Adding 40 is like _____

Do these problems as quickly as you can. Imagine that you are jumping floors on the number building.

25 + 10 = ____	36 + 30 = ____	41 + 50 = ____
88 + 10 = ____	60 + 30 = ____	16 + 60 = ____
10 + 44 = ____	30 + 57 = ____	60 + 24 = ____
16 + 20 = ____	44 + 40 = ____	36 + 60 = ____
75 + 20 = ____	18 + 40 = ____	50 + 27 = ____
20 + 58 = ____	40 + 35 = ____	70 + 18 = ____

Subtracting twenty

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9

1) Circle room 52.

Cross out the answer for 52 – 20.

2) Circle 31, cross out 31 – 20.

3) Circle 46, cross out 46 – 20.

4) Circle 77, cross out 77 – 20.

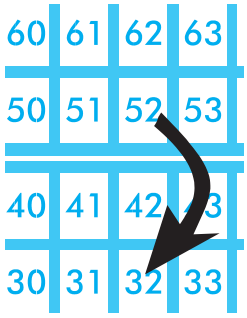
5) Circle 23, cross out 23 – 20.

What happens when you subtract 20 ?

Subtracting 20 is like _____

_____

_____



Find out what happens when you subtract 30 and 40.

Subtracting 30 is like _____

Subtracting 40 is like _____

Do these problems as quickly as you can. Imagine that you are jumping floors on the number building.

31 – 10 = _____	54 – 30 = _____	85 – 50 = _____
70 – 10 = _____	36 – 30 = _____	99 – 70 = _____
13 – 10 = _____	88 – 30 = _____	74 – 70 = _____
63 – 20 = _____	59 – 40 = _____	69 – 50 = _____
49 – 20 = _____	48 – 40 = _____	96 – 80 = _____
71 – 20 = _____	73 – 40 = _____	75 – 60 = _____

Adding tens and ones

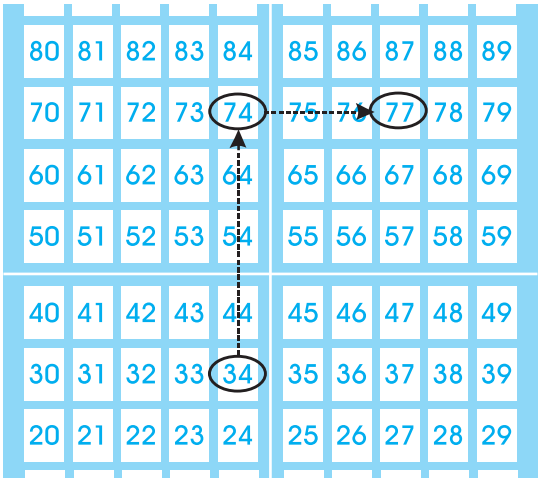
34 + 43

34 + (4 Tens + 3 Ones)

34 + (4 floors up + 3 rooms forward)

74 + 3

77

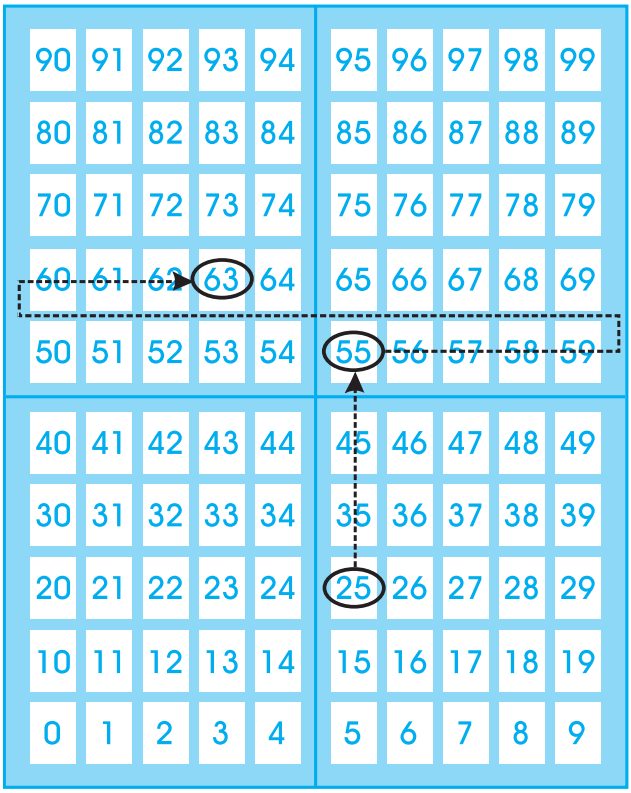


34 + 43 = 77

Trace the path for this problem on the number building.

Start from 34. Go 4 floors up, 3 rooms forward.

What happens if you go 3 rooms forward, **then** 4 floors up?



25 + 38

25 + 30 + 8

55 + 8

63

25 + 38 = 63

Trace the path: start from 25, go 3 floors up, 8 rooms forward.

What happens if you go 8 rooms forward, **then** 3 floors up?

Do these problems in your mind and trace the path on the number building.

54 + 21 = _____ 67 + 24 = _____

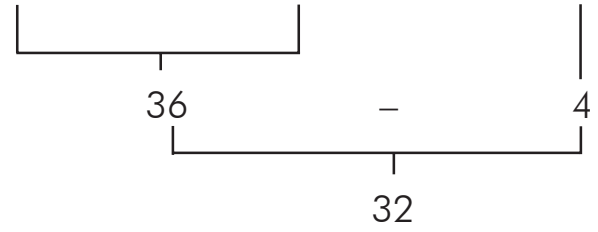
43 + 36 = _____ 28 + 69 = _____

Subtracting tens and ones

56 – 24

56 – (2 Tens and 4 Ones)

56 – (2 floors down + 4 rooms back)

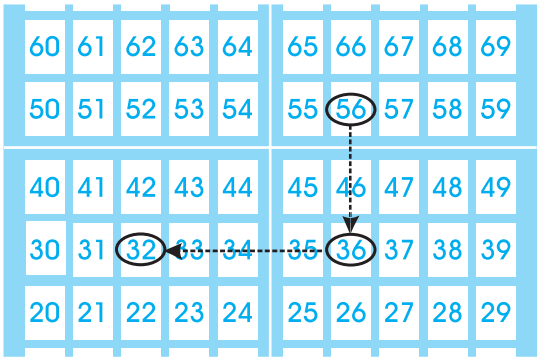


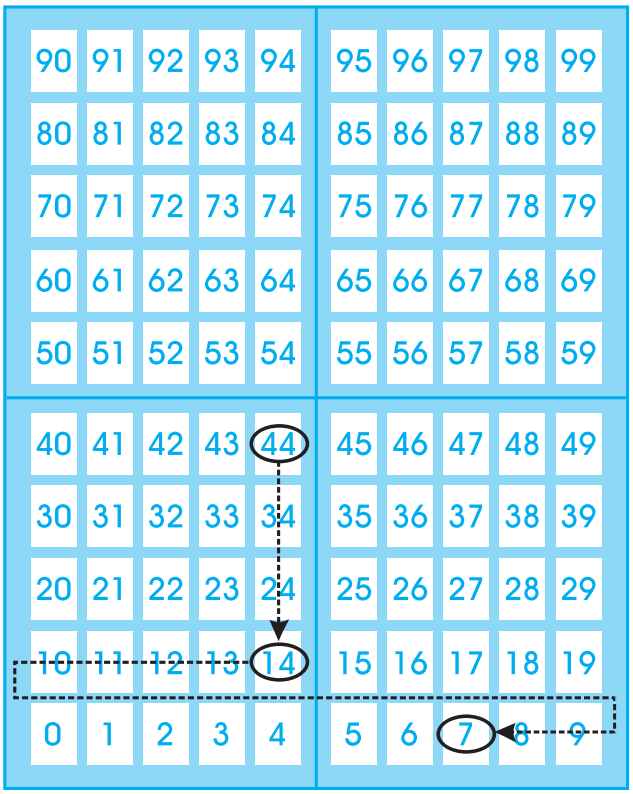
56 – 24 = 32

Trace the path for this problem on the number building.

Start from 56. Go 2 floors down, 4 rooms back.

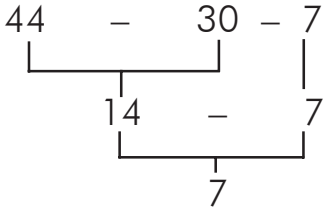
What happens if you go 4 rooms back, **then** 2 floors down?





44 – 37

44 – 30 – 7



44 – 37 = 7

Trace the path: start from 44, go 3 floors down, 7 rooms back.
What happens if you go 7 rooms back, **then** 3 floors down?

Do these problems in your mind and trace the path on the number building.

54 – 23 = _____ 67 – 26 = _____

43 – 37 = _____ 65 – 28 = _____

Now where are you?

We can make a problem from a 'where are you' puzzle.

The Puzzle

Start from 34.

Go two floors up (+ 20)

Six rooms forward (+ 6)

Two rooms back (– 2)

Where are you? _____

The Problem

34 + 20 + 6 – 2 = _____

Now make a problem from this puzzle.

The Puzzle

Start from 41.

Go one floor up _____

Three rooms back _____

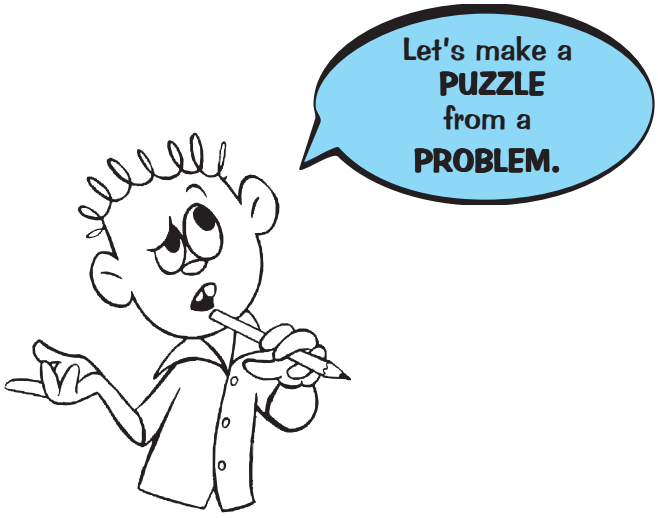
Two floors up _____

Where are you? _____

The Problem

41 _____ = _____

Eti Soppo has another idea.



The Problem

26 + 10 – 4 – 20 = _____

The Puzzle

Start from 26.

Go one floor up (+ 10)

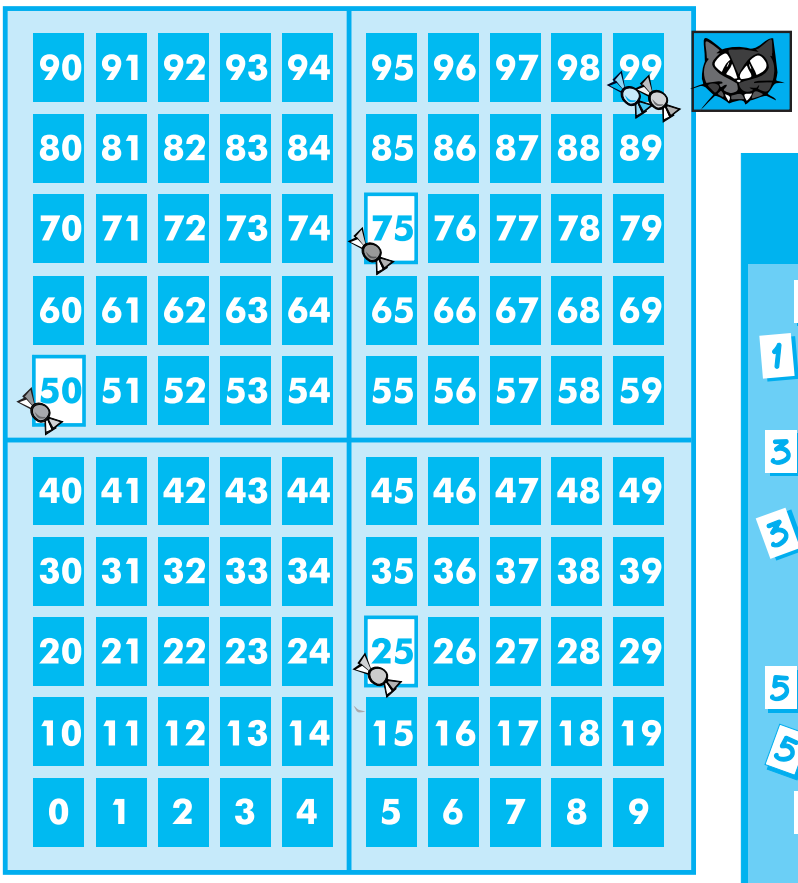
Four rooms back (– 4)

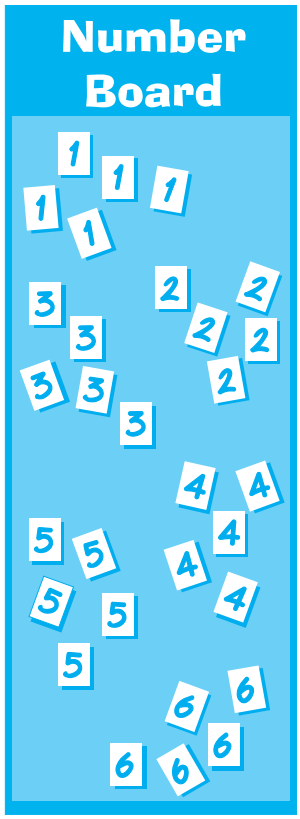
Two floors down (– 20)

Try making puzzles from these problems along with Eti.

5 + 30 – 2 + 10 + 7 67 – 20 + 4 + 30 – 6

Rat race





GAME FOR TWO

This game is for two players, but both move the **same** rat.

Start by keeping the rat on Room number 0. Choose a number card from the Number Board and move the rat forward by those many rooms. Your opponent now choses a number and moves the same rat forward. Take turns and continue the game. Once you choose a number from the number board, cross it out. You or your opponent cannot choose it again.

The Points

If you bring the rat exactly to

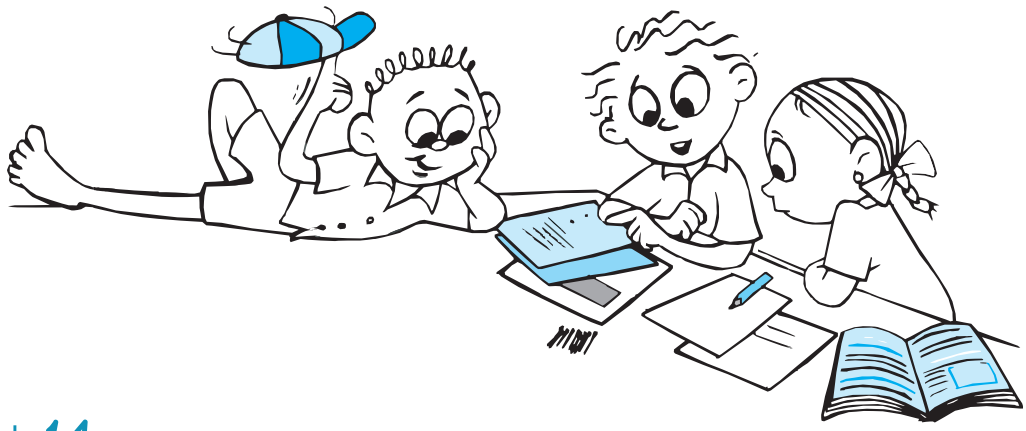
Room 25	1 point	Room 50	1 point
Room 75	1 point	Room 99	2 points

If the rat crosses these rooms you get zero points.

If the rat crosses room 99 it will be caught by the cat. So you lose two points.

Making connections

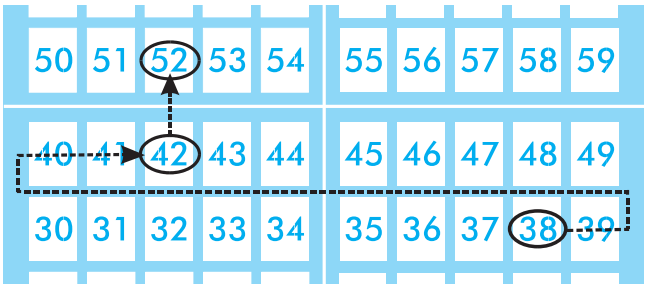
Rani, Javed and Eti Soppo were solving addition and subtraction problems.



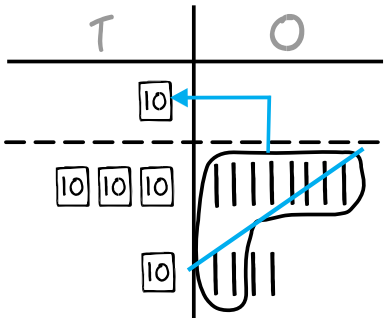
38 + 14 = _____

I can solve this with the number building.

I can do it with our **matchstick bundles** too!



T	O
1	
3	8
+1	4
5	2

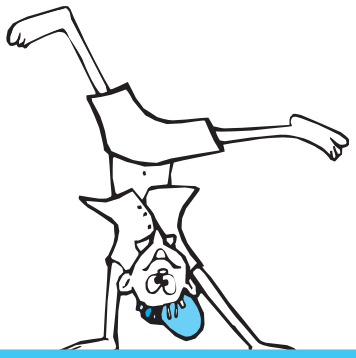


Eti, not to be left out, said " I can do it with my cap!"

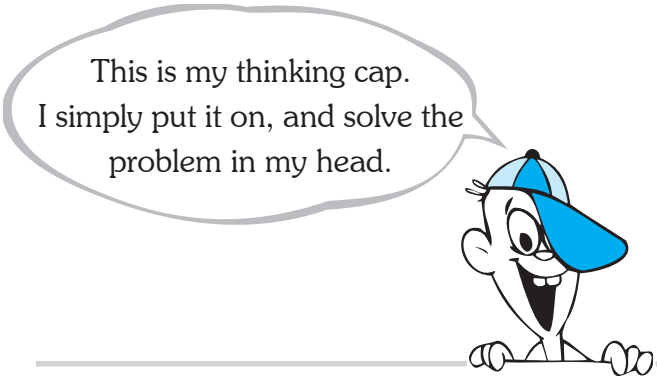
With your cap? How?

Solve this problem and show us.

Eti put his cap on his head and gave the answer.



$27 + 13 = 40$



How did Eti solve this problem? Do you think he imagined going up the number building?

Try to do these problems in your mind.

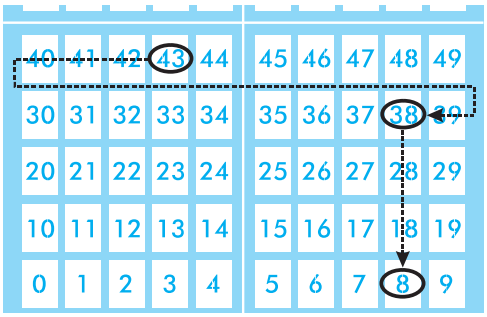
14 + 14 = _____	26 + 26 = _____	35 + 35 = _____
16 + 16 = _____	28 + 28 = _____	40 + 40 = _____
13 + 13 = _____	34 + 34 = _____	45 + 45 = _____
15 + 15 = _____	43 + 43 = _____	25 + 25 = _____
23 + 23 = _____	37 + 37 = _____	50 + 50 = _____

15 + 5 = _____	25 + 30 = _____	22 + 34 = _____
25 + 5 = _____	25 + 35 = _____	31 + 26 = _____
25 + 15 = _____	30 + 35 = _____	45 + 16 = _____
15 + 20 = _____	30 + 45 = _____	27 + 34 = _____
15 + 25 = _____	25 + 45 = _____	32 + 19 = _____

Look and figure out

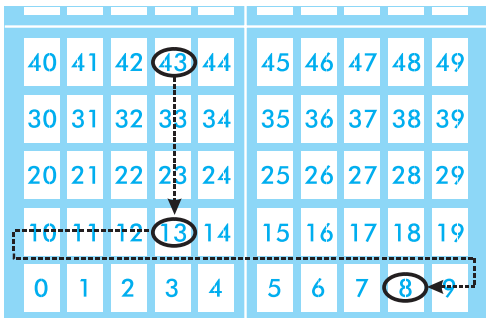
Look carefully and find the connections between these different ways of doing the same problem.

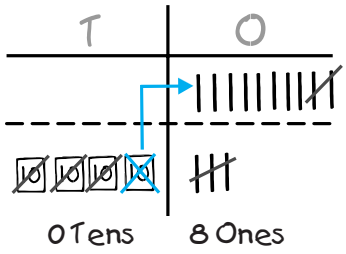
43 – 35 = 8



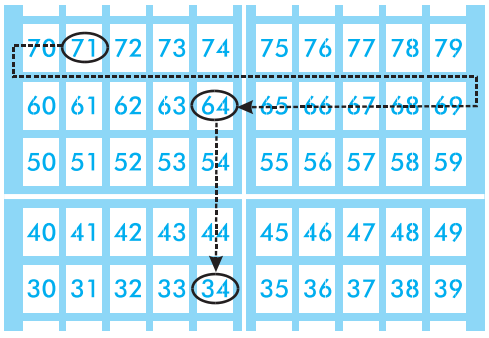
T	O
3	13
~~4~~	~~3~~
– 3	5
0	8

or



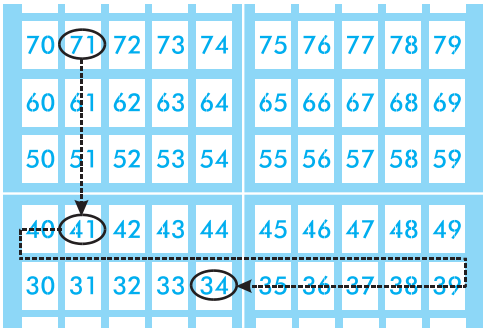


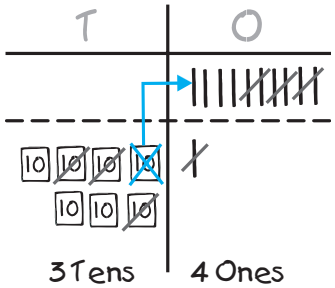
71 – 37 = 34



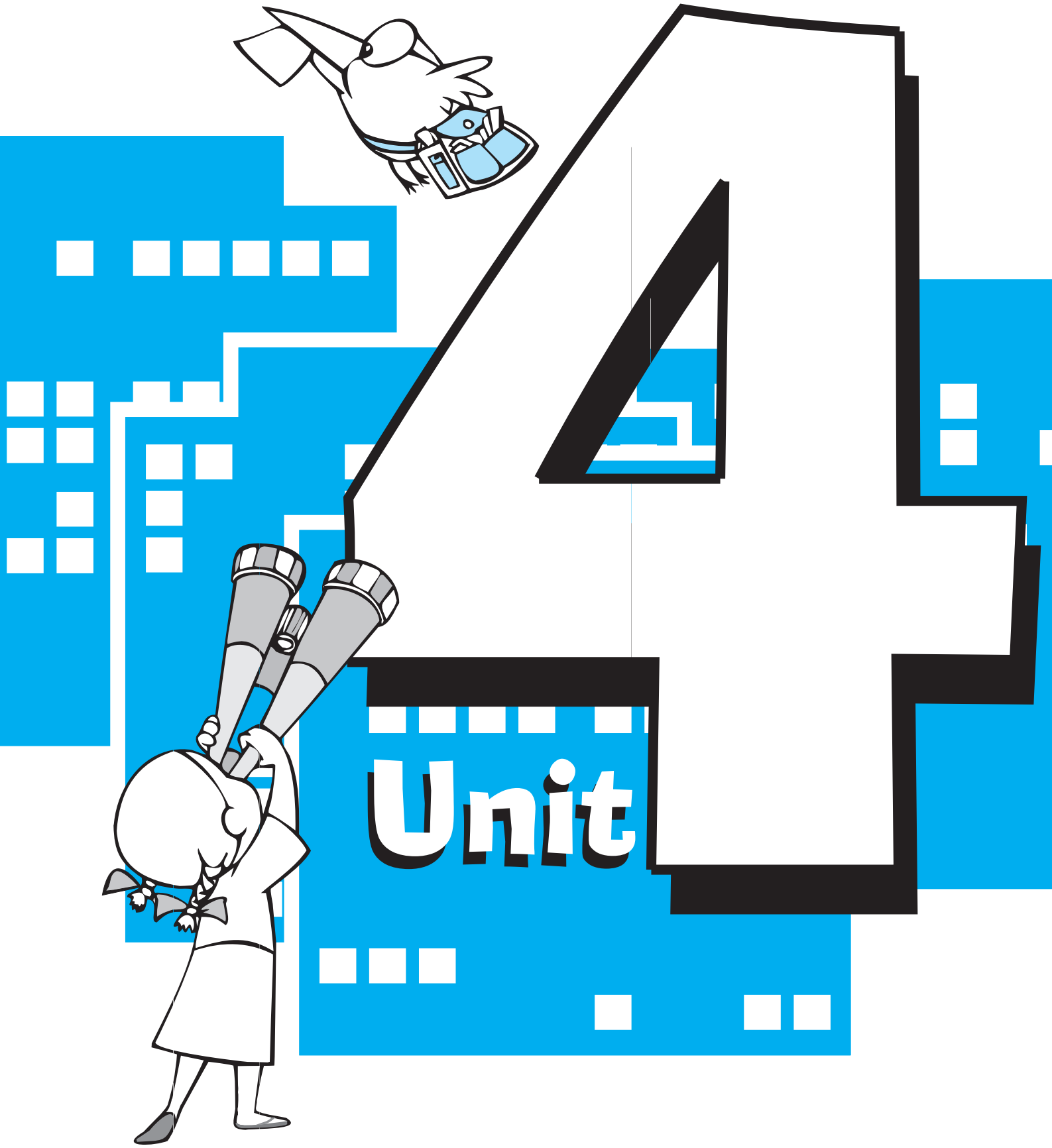
T	O
6	11
~~7~~	~~1~~
– 3	7
3	4

or





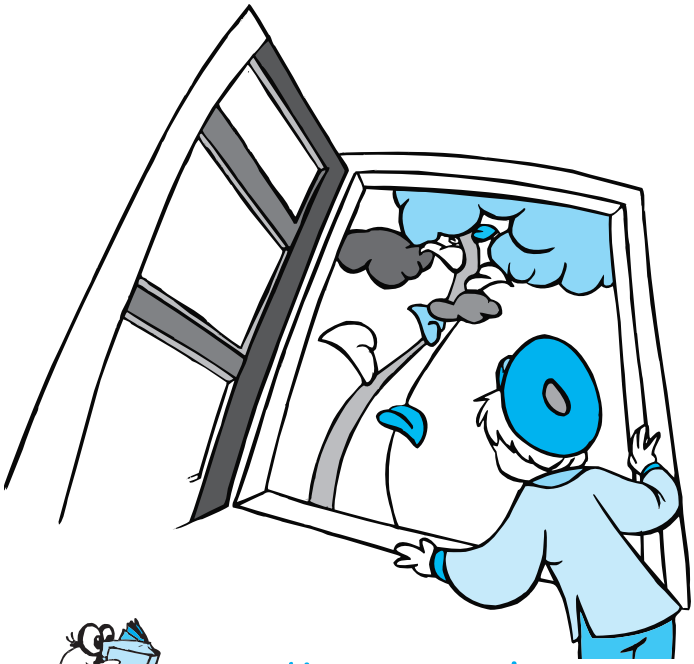
Bigger Numbers



Jack and the beanstalk

Have you heard this story before? It's about an English boy called Jack.

Jack lived with his mother. They were very poor. One day his mother asked him to sell their cow in the market so that they could buy some food. Jack sold the cow to a man in exchange for some magic beans. Jack's mother was very angry when she saw the beans. She flung the beans out of the window.

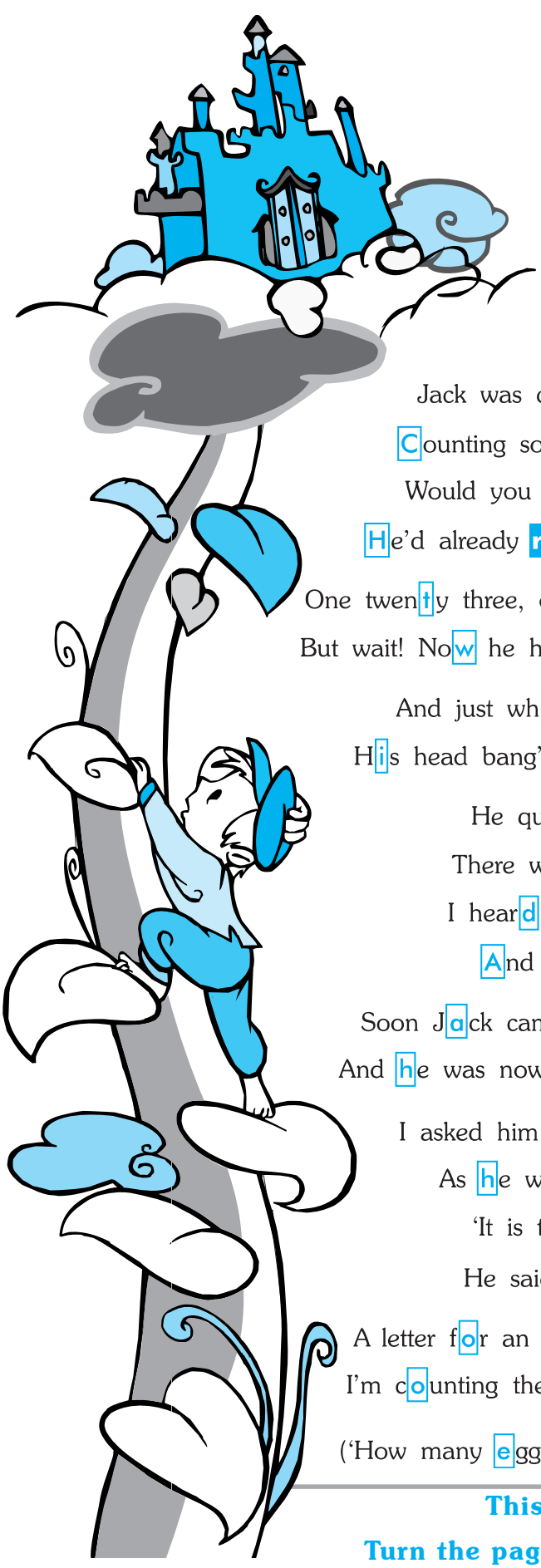


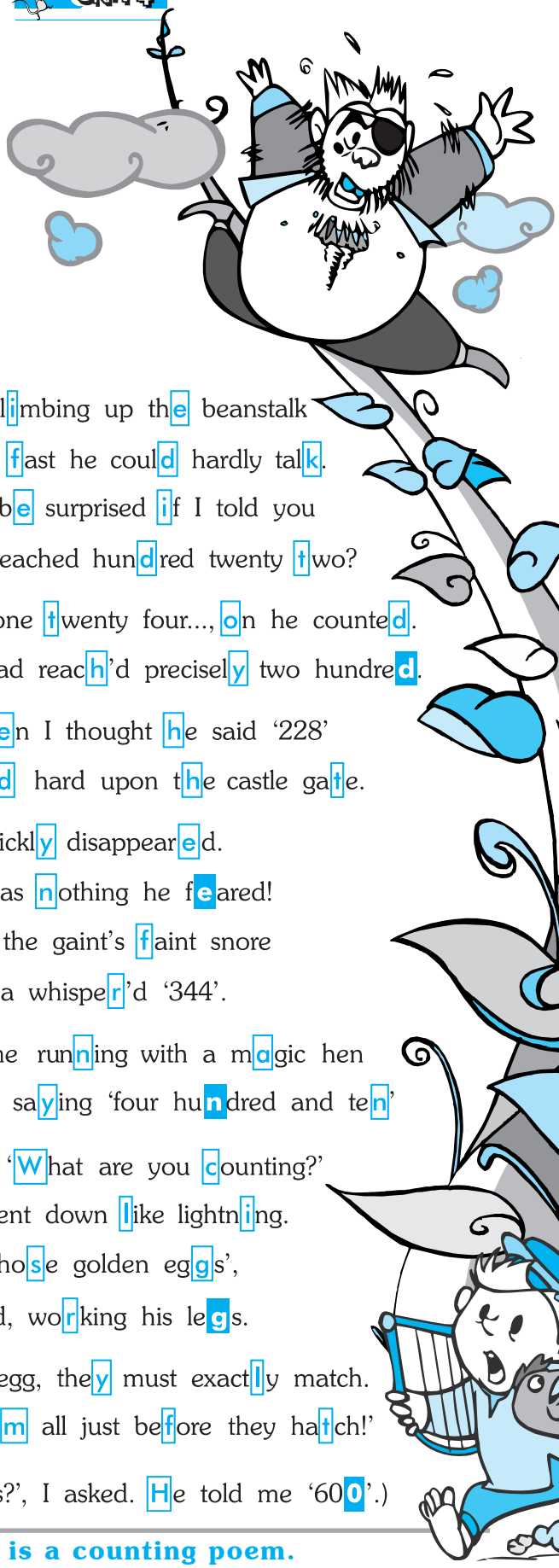
Next morning there was a giant beanstalk growing outside the window. It was so tall it went right up into the clouds. Jack climbed the beanstalk and found a giant's castle in the clouds. The giant had stolen a magic hen that laid golden eggs and a magic harp from Jack's family. Jack found these and carried them away. The giant chased Jack down the beanstalk but crashed down and died. Jack and his mother lived happily and were not poor any more.

Know these words

castle a palace with thick walls like a fort

harp a stringed musical instrument





Jack was climbing up the beanstalk
Counting so fast he could hardly talk.
Would you be surprised if I told you
He'd already reached hundred twenty two?

One twenty three, one twenty four..., on he counted.
But wait! Now he had reach'd precisely two hundred.

And just when I thought he said '228'
His head bang'd hard upon the castle gate.

He quickly disappeared.
There was nothing he feared!
I heard the gaint's faint snore
And a whisper'd '344'.

Soon Jack came running with a magic hen
And he was now saying 'four hundred and ten'

I asked him 'What are you counting?'
As he went down like lightning.
'It is those golden eggs',
He said, working his legs.

A letter for an egg, they must exactly match.
I'm counting them all just before they hatch!'

('How many eggs?', I asked. He told me '600'.)

This is a counting poem.

Turn the page to see how to count with it.

Count the letters in the first line of the poem.
(Don't count punctuation marks like: , ! ? ( ) ' ' .

Some letters are in a box. Why? What is the count when you come to a boxed letter?

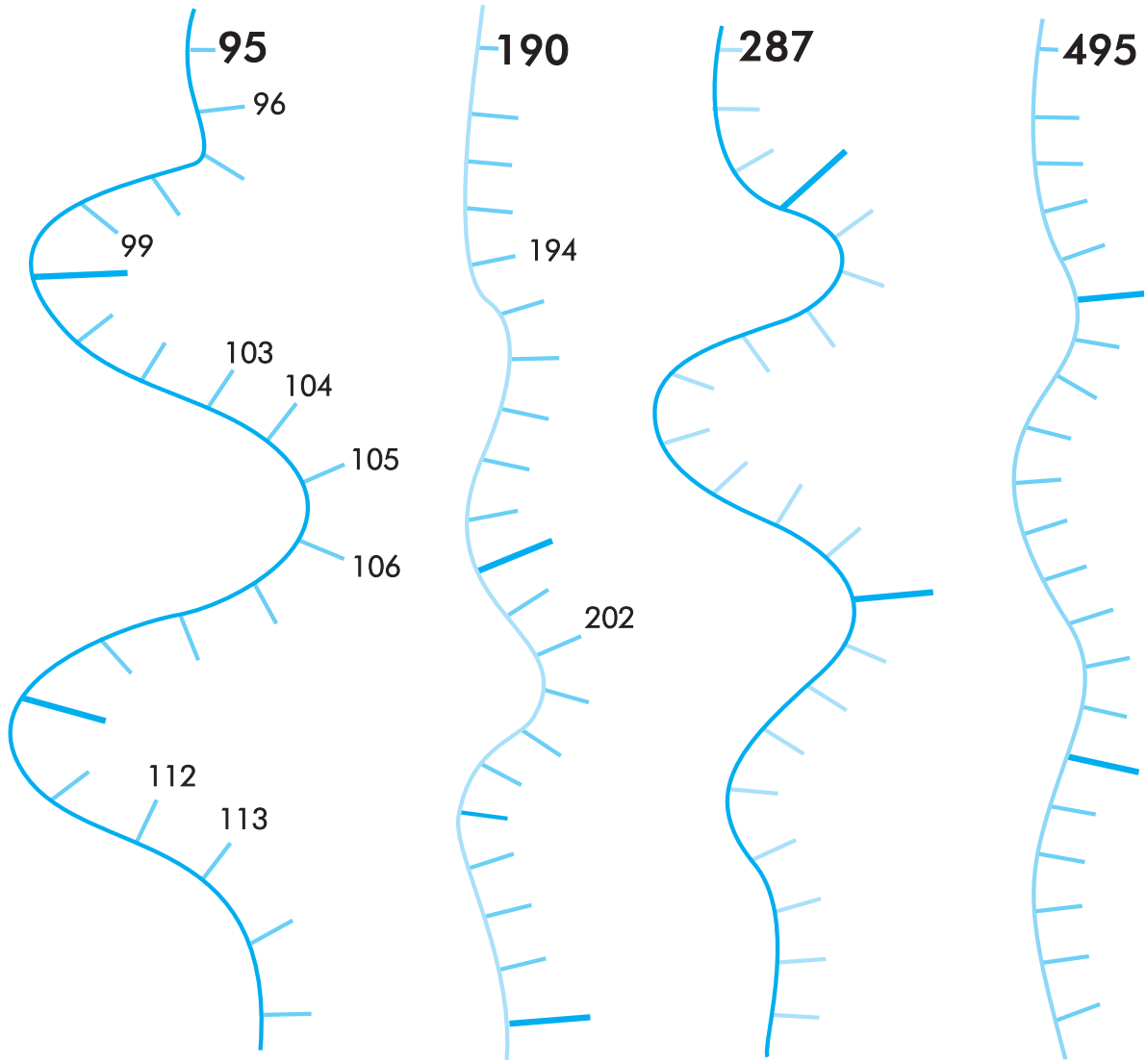
Try to use the boxed letters to count fast.

Some letters are shaded. Why?
What is the count when you come to a shaded letter?

How many letters are there in the poem?

Some of the words in the poem are numbers or number words.
Check the count when you come to these words.

Fill up the missing numbers on these number lines.



Number patterns

Continue the pattern.

70 80

102 104

93 95

75 80

235 245

100 200

50 100 150

10 110 210

25 125 225

246 256 266

Tap-clap-snap

REMEMBER

A snap means 1.

A clap means 10.

A tap means 100.

How much?

Play the tap-clap-snap game in class.

Copy-writing

Use number words to practice copy-writing.

Continue these numbers:

Two hundred and thirty six

Two hundred and thirty seven

Eti needs to send this cheque by post. Help him write the amount in words.

THE RIVER BANK OF NARMADA

PAY _____ **OR BEARER**

RUPEES _____ Rs. 435/—

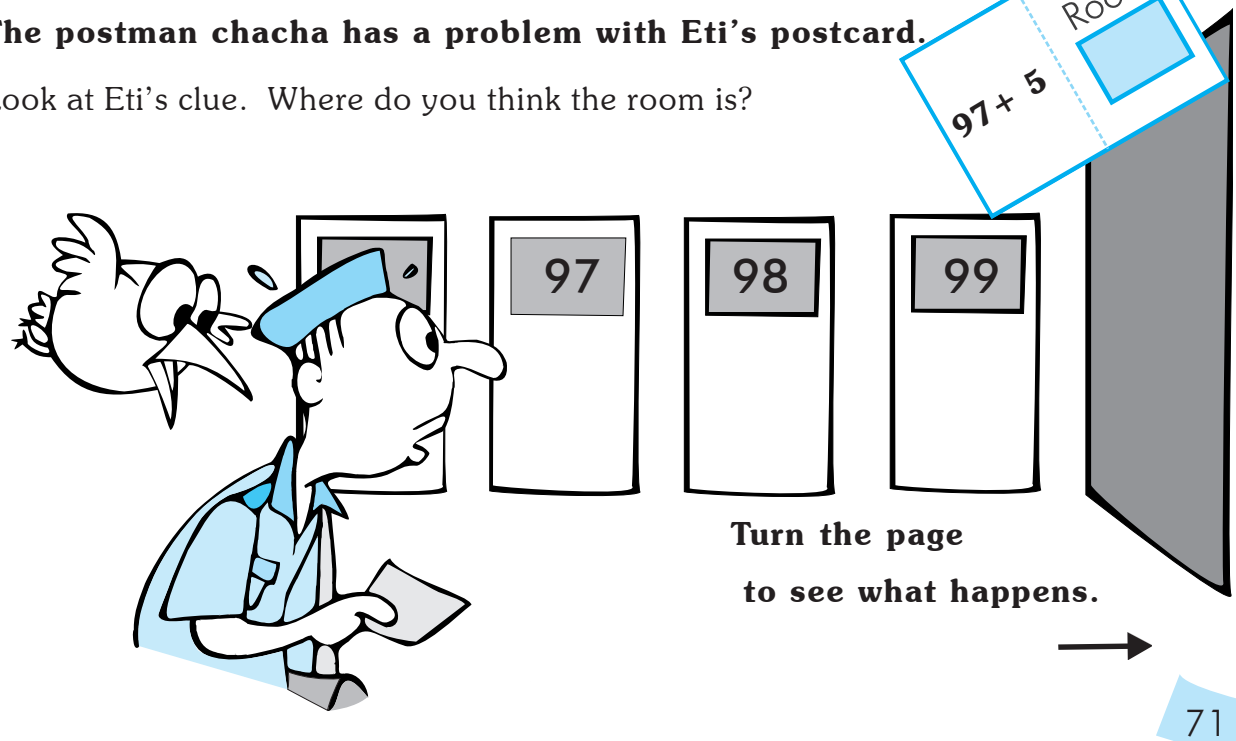
A/c No | LF | Intl

THE RIVER BANK OF NARMADA

II 888888II 333333333 I 10

The postman chacha has a problem with Eti's postcard.

Look at Eti's clue. Where do you think the room is?



Turn the page to see what happens.

The hundred building

The hundred building is another number building.

It is like the zero building but it starts from room number 100.

Look at the zero building and the hundred building and compare them.

The first room in the zero building is _____ and the last room is _____

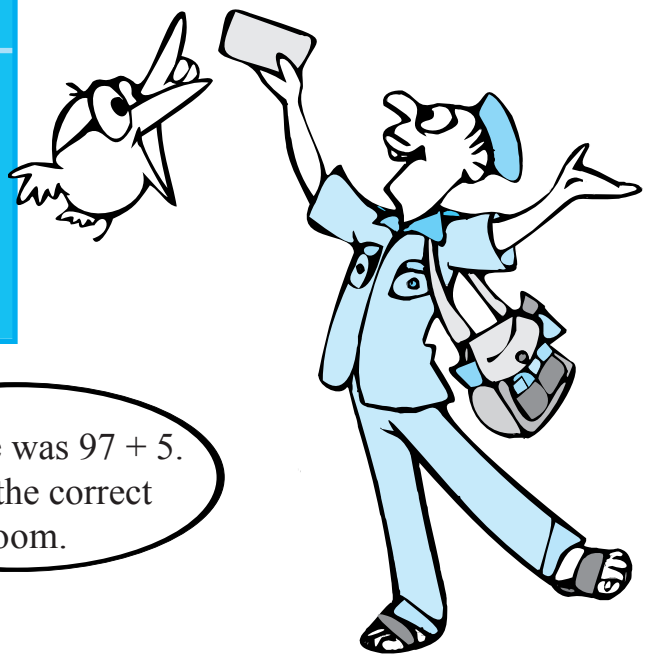
The first room in the hundred building is_____ and the last room is _____

100

190	191	192	193	194	195	196	197	198	199
180	181	182	183	184	185	186	187	188	189
170	171	172	173	174	175	176	177	178	179
160	161	162	163	164	165	166	167	168	169
150	151	152	153	154	155	156	157	158	159
140	141	142	143	144	145	146	147	148	149
130	131	132	133	134	135	136	137	138	139
120	121	122	123	124	125	126	127	128	129
110	111	112	113	114	115	116	117	118	119
100	101	102	103	104	105	106	107	108	109

ZERO

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
0	1	2	3	4	5	6	7	8	9



Eti's clue was 97 + 5. Circle the correct room.

Adding ones and tens

Ring the problems for which the answers are in the 100 building.

94 + 4 = 98

94 + 6 = ____

94 + 5 = ____

94 + 7 = ____

Now do the same problems in vertical addition.

H	T	O
	9	4
+		4

H	T	O
	9	4
+		5

H	T	O
	9	4
+		6

H	T	O
	9	4
+		7

Sometimes adding tens takes you to the hundred building.

Ring the problems where the answers are in the 100 building.

74 + 10 = 84

74 + 30 = ____

74 + 20 = ____

74 + 40 = ____

Now do the same additions in vertical columns.

H	T	O
	7	4
+	1	0

H	T	O
	7	4
+	2	0

H	T	O
	7	4
+	3	0

H	T	O
	7	4
+	4	0

Ring the problems where the answer takes you to the 100 building.

94 + 8 = 91 + 8 = 53 + 40 = 76 + 40 =

89 + 11 = 55 + 40 = 40 + 64 = 34 + 70 =

Subtracting ones and tens

Ring the problems for which the answers are in the zero building.

106 – 4 = 102

106 – 6 = ____

106 – 5 = ____

106 – 7 = ____

Now do the same problems in vertical subtraction.

H	T	O
1	0	6
–		4

H	T	O
1	0	6
–		5

H	T	O
1	0	6
–		6

H	T	O
1	0	6
–		7

Sometimes subtracting tens takes you to the zero building.

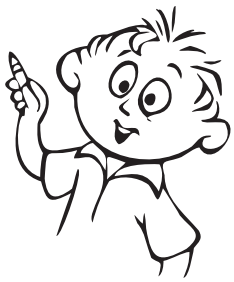
Ring the problems where the answers are in the zero building.

124 – 10 = 114

124 – 30 = ____

124 – 20 = ____

124 – 40 = ____



Do the same problems in vertical subtraction.

H	T	O
1	2	4
–	1	0

H	T	O
1	2	4
–	2	0

H	T	O
1	2	4
–	3	0

H	T	O
1	2	4
–	4	0

Ring the problems where the answer takes you to the zero building.

104 – 4 = 104 – 5 = 106 – 7 = 106 – 6 =

137 – 30 = 137 – 40 = 156 – 70 = 118 – 19 =

Ring the problems where the answers are in the 100 building.

H T O	H T O	H T O	H T O
8 4	8 4	7 4	7 4
+ 6	+ 1 6	+ 2 5	+ 2 6

H T O	H T O	H T O	H T O
5 6	4 9	9 5	6 1
+ 3 7	+ 6 7	+ 7 3	+ 8 9

When there is a carryover to the **'T' column**, you go to the **next floor.**

When there is a carryover to the **'H' column**, you go to the **next building.**

Ring the problems where the answers are in the zero building.

H T O	H T O	H T O	H T O
1 0 9	1 2 8	1 2 5	1 2 5
– 1 0	– 3 0	– 1 7	– 2 7

H T O	H T O	H T O	H T O
1 6 5	1 6 5	1 6 5	1 6 5
– 1 0	– 2 7	– 6 7	– 9 6

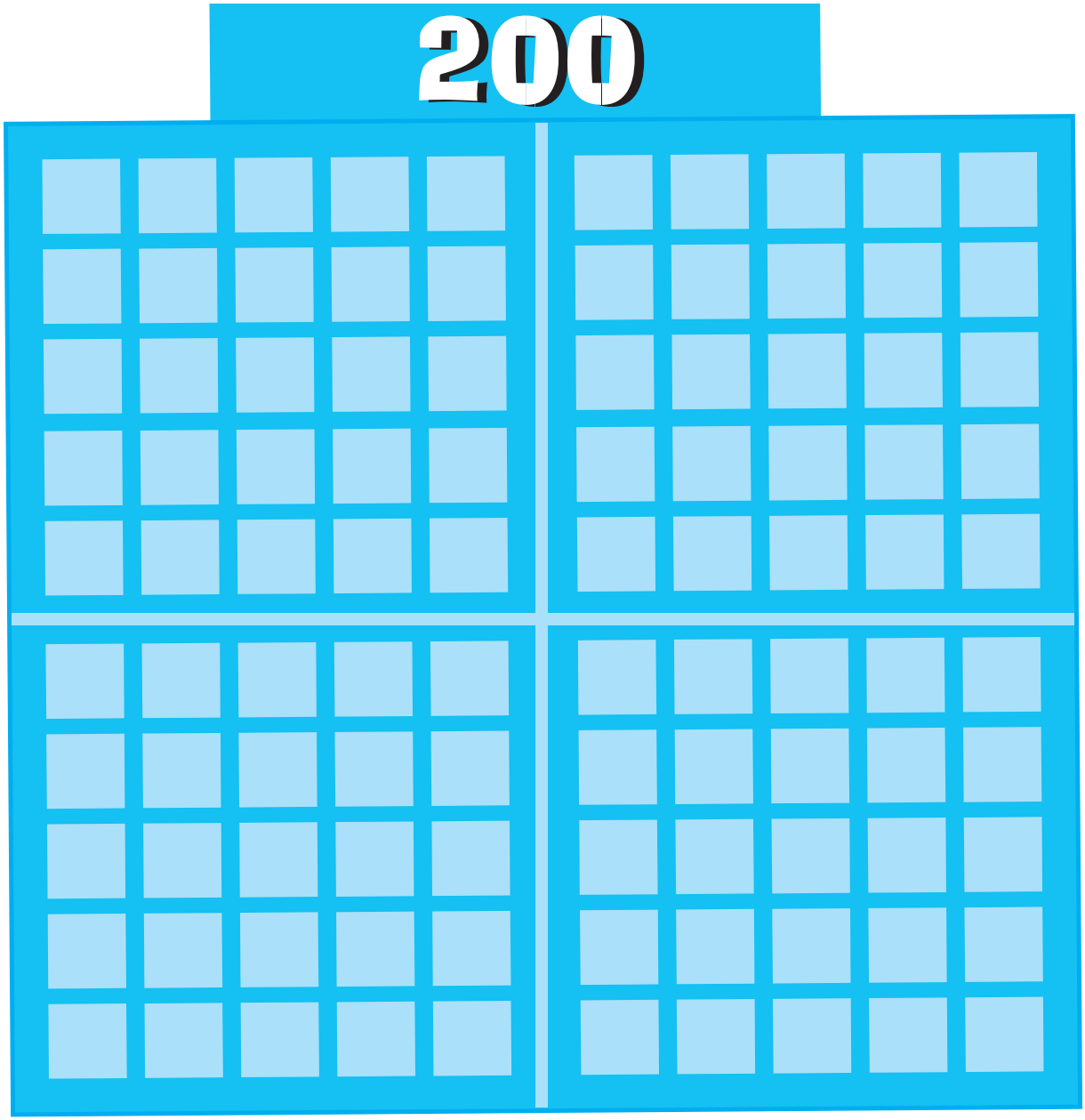
When there is a **borrow** from the **'T' column**, you go to the **floor below**.

When there is a **borrow** from the **'H' column**, you go to the **previous building**.

The 200 building

After the 100 building comes the 200 building

Write all the room numbers in the 200 building.



Shading puzzle

Shade room number 226 on the 200 number building. Now shade the answers to these problems.

226 + 1	226 – 10	226 – 8
226 + 2	226 + 10	226 + 12

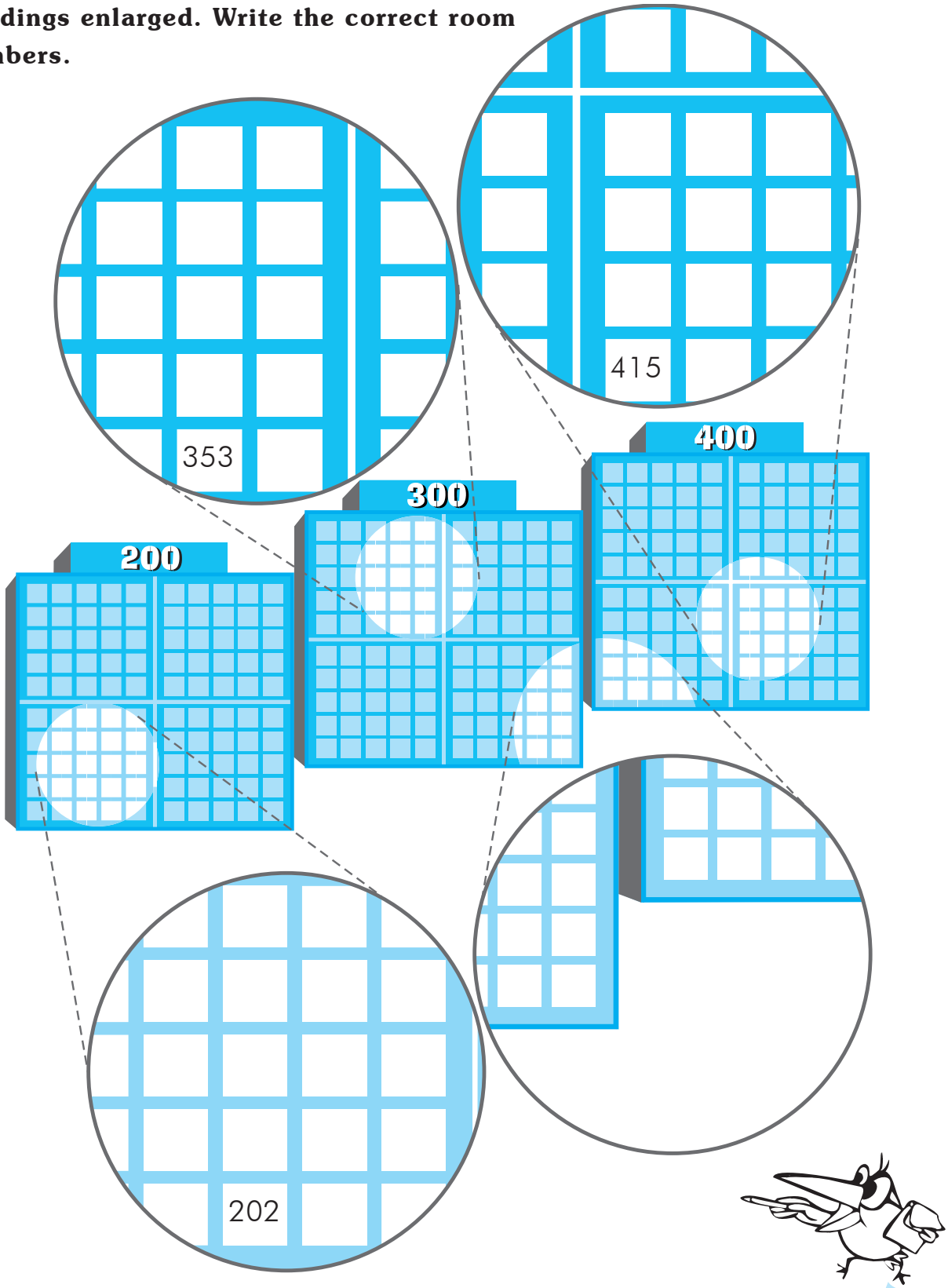
Which letter of the alphabet can you see?

Make similar puzzles for the letters 'L', 'E' and 'F'.

The 300 and 400 building

After the 200 building come the 300 and 400 buildings.

Inside the circles, you can see parts of the buildings enlarged. Write the correct room numbers.



The number colony

The number colony has ten number buildings and many, many, many rooms.

The first building is the ZERO Building.

The last building is the 900 Building.

Postman Chacha is ill today.

Our Birdie has promised to deliver all the letters for him.

2 rooms before 156 — Room

Last room on 600 building — Room

10 rooms after 540 — Room

Room after 199 — Room

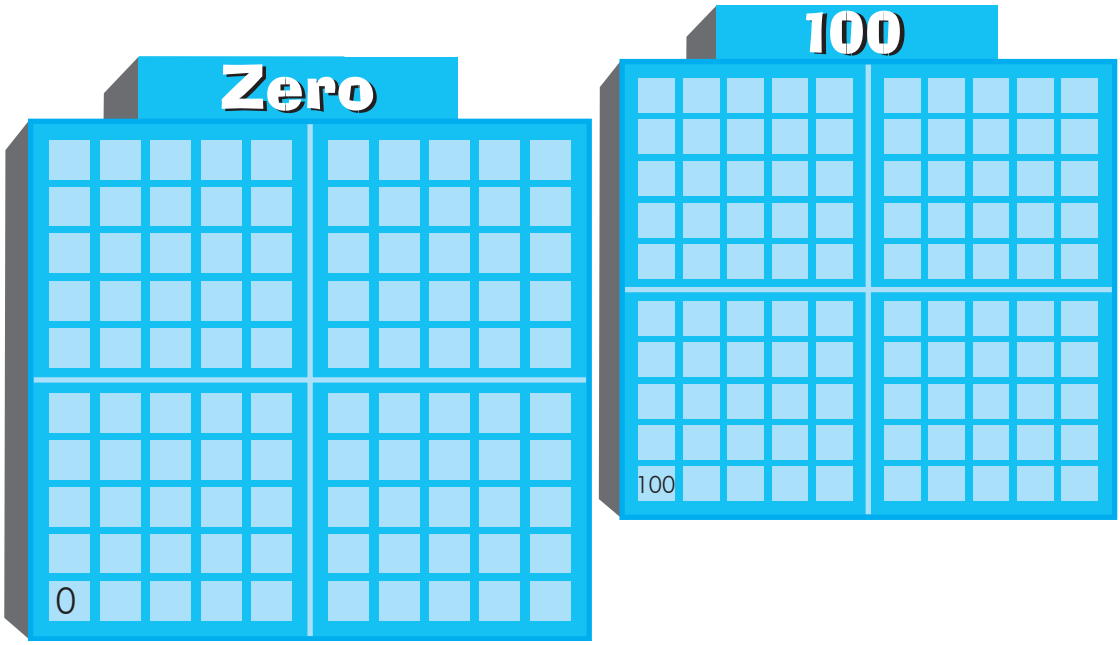
3 rooms after 397 — Room

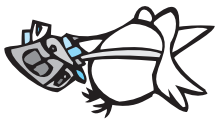
604 – 4 — Room

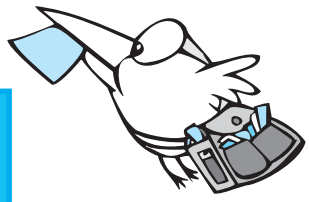
23 + 93 — Room

444 + 60 — Room

First write the correct room numbers on all the letters. Then find and shade the rooms in the number colony.







900

800

700

600

500

400

300

200

360+48 Room

706–9 Room

640–50 Room

20 rooms after 950 Room

60 rooms after 580 Room

635 + 200 + 90 Room

340 + 60 + 90 Room

710+95 Room

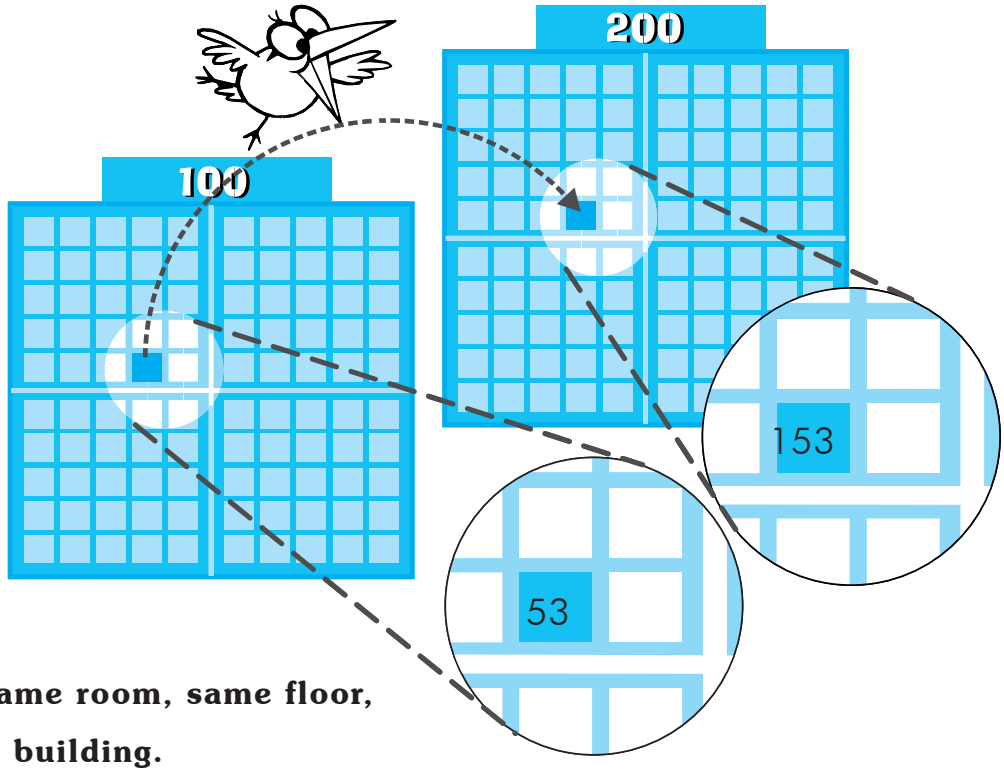
260 + 536 Room

In the picture which rooms in the number colony are fully hidden? Which rooms are partly hidden?

Adding hundreds

What happens when we add hundred?

Example 53 + 100 = 153.



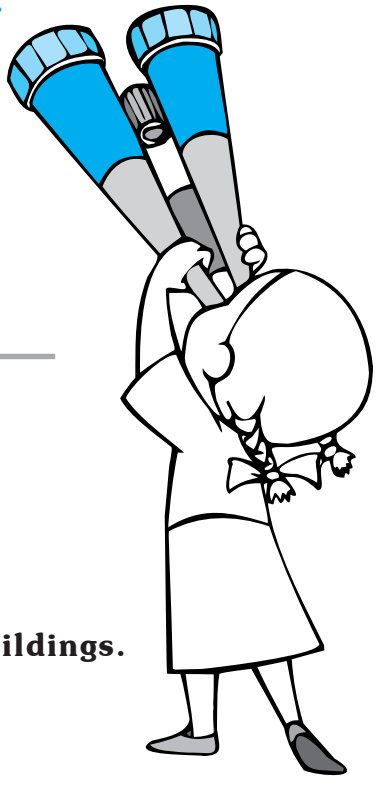
We go to the same room, same floor, but in the next building.

Adding hundred is like jumping one building forward.

Do these problems as quickly as you can.

129 + 100 = 169 + 100 = 200 + 100 =

301 + 100 = 100 + 567 = 100 + 789 =

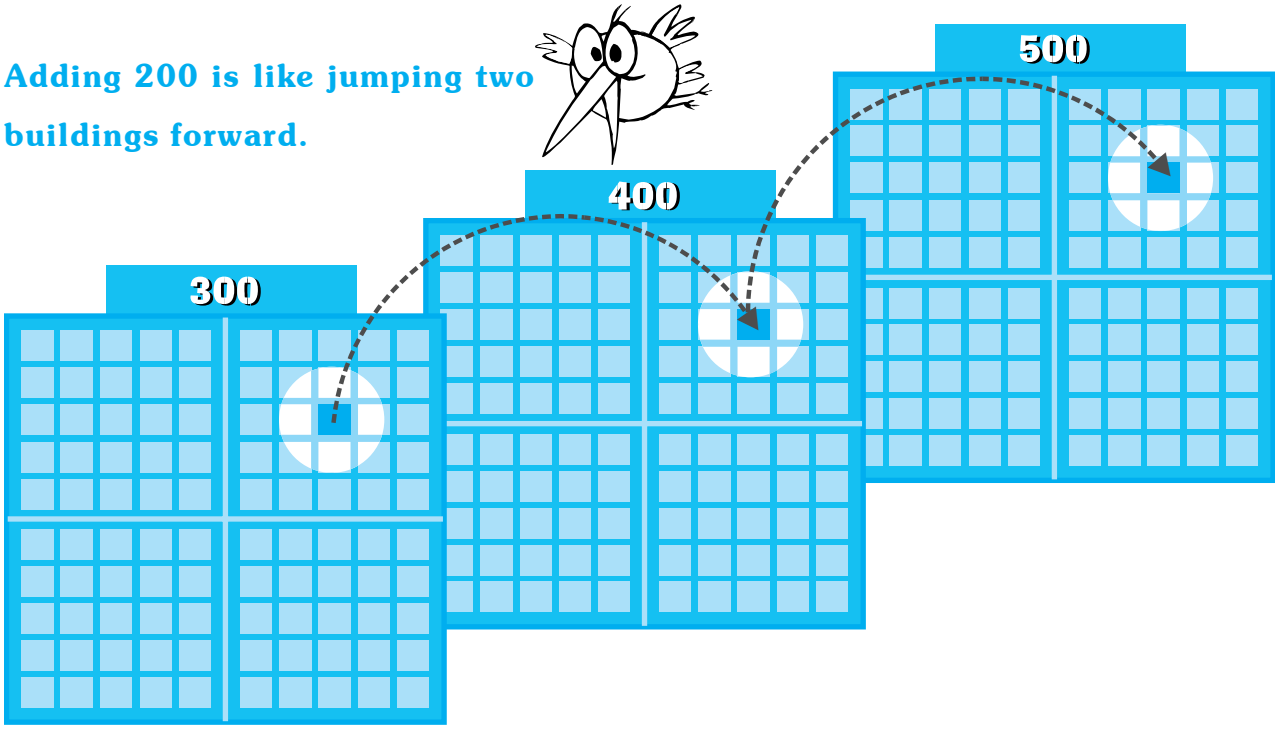


What happens when we add 200?

Example 377 + 200 = 577.

We go to the same room, same floor, but after two buildings.

Adding 200 is like jumping two buildings forward.



Do these problems as quickly as you can:

362 + 200 =	398 + 200 =	400 + 200 =	7 + 200 =
81 + 200 =	200 + 501 =	735 + 200 =	200 + 617 =

Now find the pattern for adding 300 and adding 400.

Adding 300 is like _____

Adding 400 is like _____

_____

Do these problems as quickly as you can.

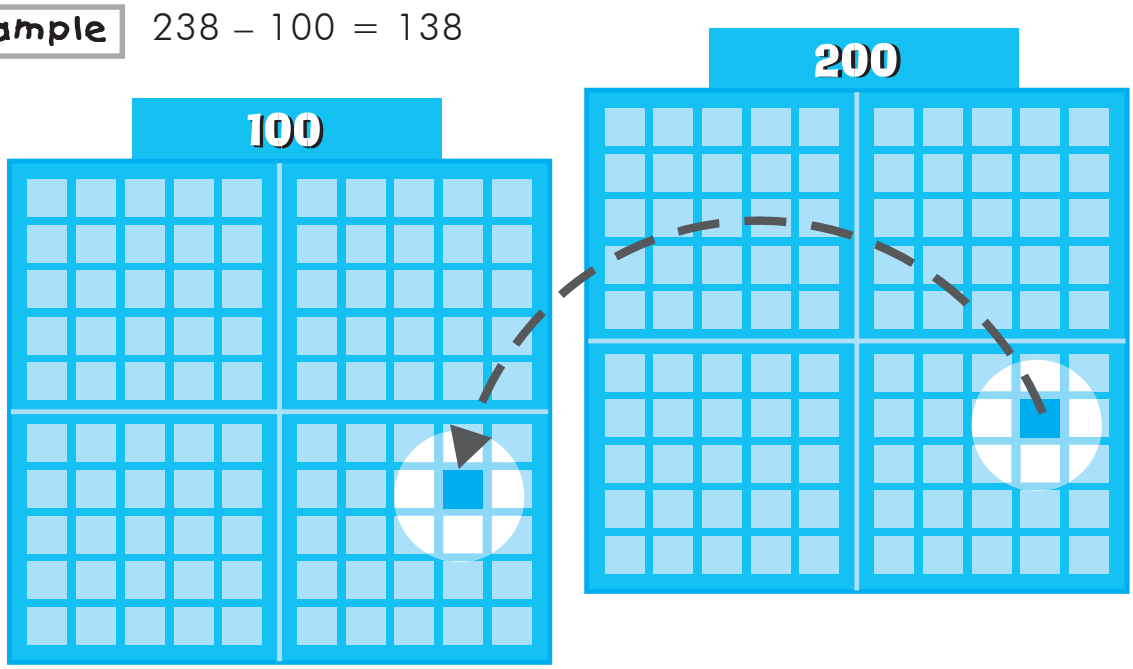
In your mind, imagine that you are jumping over buildings.

324 + 200 =	417 + 300 =	527 + 400 =
285 + 400 =	171 + 500 =	293 + 600 =
400 + 243 =	500 + 335 =	700 + 277 =
500 + 396 =	800 + 189 =	600 + 349 =

Subtracting hundreds

What happens when we subtract hundred?

Example 238 – 100 = 138



We go to the same room, same floor, but in the previous building.

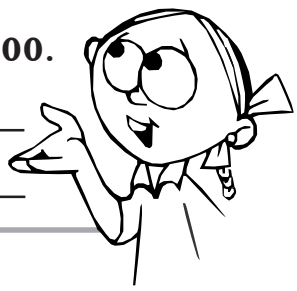
Subtracting hundred is like jumping one building backward.

Do these problems as quickly as you can.

256 – 100 = 200 – 100 = 301 – 100 =

347 – 100 = 567 – 100 = 789 – 100 =

Now find the pattern for subtracting 200 and subtracting 300.



Subtracting 200 is like _____

Subtracting 300 is like _____

Do these problems as quickly as you can.

In your mind, imagine that you are jumping over buildings.

342 – 200 = 527 – 300 = 667 – 400 =

685 – 500 = 591 – 400 = 777 – 500 =

865 – 500 = 932 – 600 = 886 – 700 =

Practice sums

H	T	O
	1	8
+	7	9	5

H	T	O
3	0	6
+	9	5

H	T	O
		3
+	7	9	7

H	T	O
4	0	5
+	4	5

H	T	O
3	7	3
–	8	9

H	T	O
4	5	0
–	3	8	5

H	T	O
3	0	6
–	1	9

H	T	O
9	0	8
–	4	1	9

H	T	O
5	0	0
–	4	7	6

H	T	O
3	4	6
–	9	5

H	T	O
5	5	1
–	4	5	8

H	T	O
7	1	1
–	1	8

H	T	O
		8
+	7	9	3

H	T	O
3	5	5
+	5	4	5

H	T	O
2	3	9
+	6	7	5

H	T	O
3	0	1
+	2	9	6

Notebook Exercise

Add:

341 and 67 | 218 and 637 | 47 and 407 | 8 and 809

Subtract:

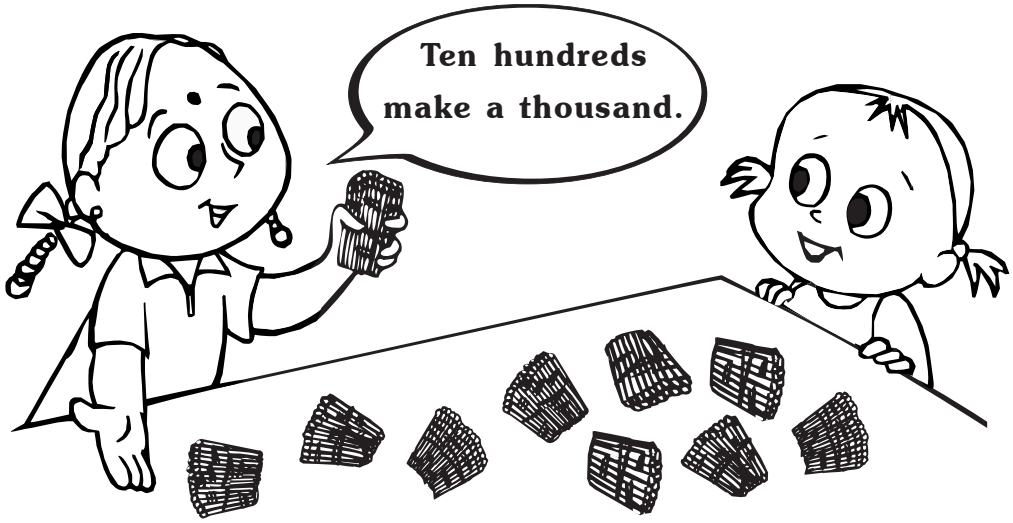
36 from 360 | 413 from 601 | 379 from 800 | 498 from 502

Classroom Game

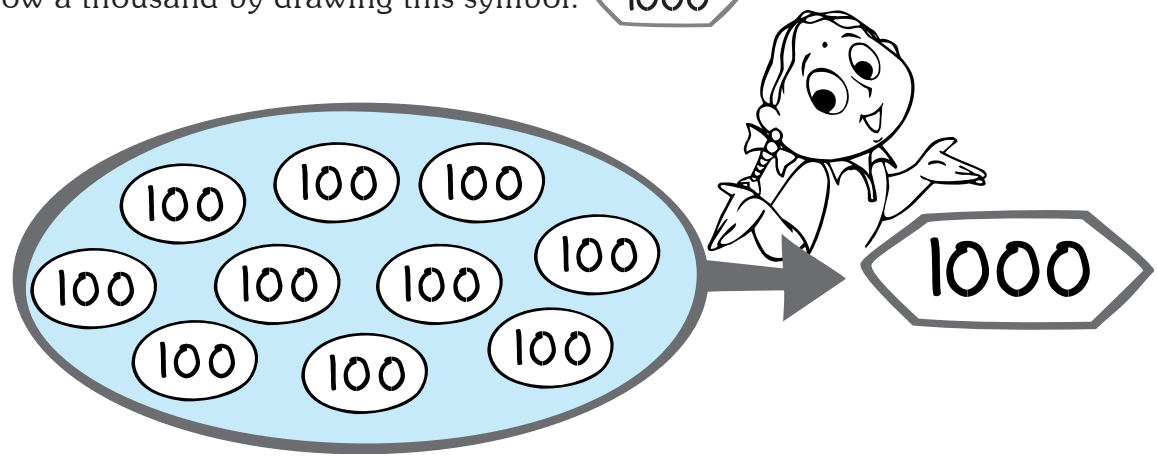
Write a number on the board. Show another number using taps, claps and snaps. Ask your friend to add the second number to the number on the board.

Thousand and beyond

Which number comes after 9? _____	9 + 1 =
Which number comes after 99? _____	99 + 1 =
Which number comes after 999?_____	999 + 1 =



We show a thousand by drawing this symbol: 1000



Cross out the phrases which do not mean a thousand.

1.	999 + 1	900 + 100	99 +100
2.	Ten hundreds	One thousand	Hundred ones
3.	Number after 999	Number before 1000	Number before 1001
4.	300 + 300 + 300	500 + 500	2000 – 1000
5.	Thousand ones	One more than 999	600 + 600

2318

Th	H	T	O
1000 1000	100 100 100	10									

3146

Th	H	T	O

2121

Th	H	T	O

4010

Th	H	T	O

4001

Th	H	T	O

4100

Th	H	T	O

Palindrome Numbers

Read these numbers forward and backward: 121, 4224

1 → 2 → 1
1 ← 2 ← 1

4 → 2 → 2 → 4
4 ← 2 ← 2 ← 4

They are the same both ways.
These are **palindrome numbers**.

Check and make sure that these are not palindrome numbers: 142, 48.

But see what happens when you reverse and add each number!

Example

Let us try 142.
Reverse 142 and add.

	H	T	O
	1	4	2
+	2	4	1
	3	8	3

3 → 8 → 3
3 ← 8 ← 3

383 is a **palindrome number.**

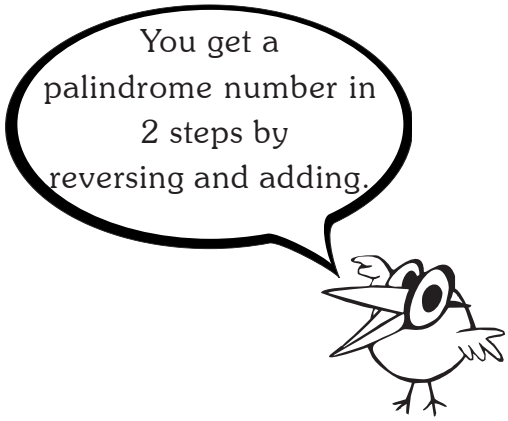
Now let us try 48.
Reverse 48 and add.

	H	T	O
		4	8
+		8	4
	1	3	2

132 is not a palindrome number.

So reverse 132 and add.

	H	T	O
	1	3	2
+	2	3	1
	3	6	3



363 is a **palindrome number!**

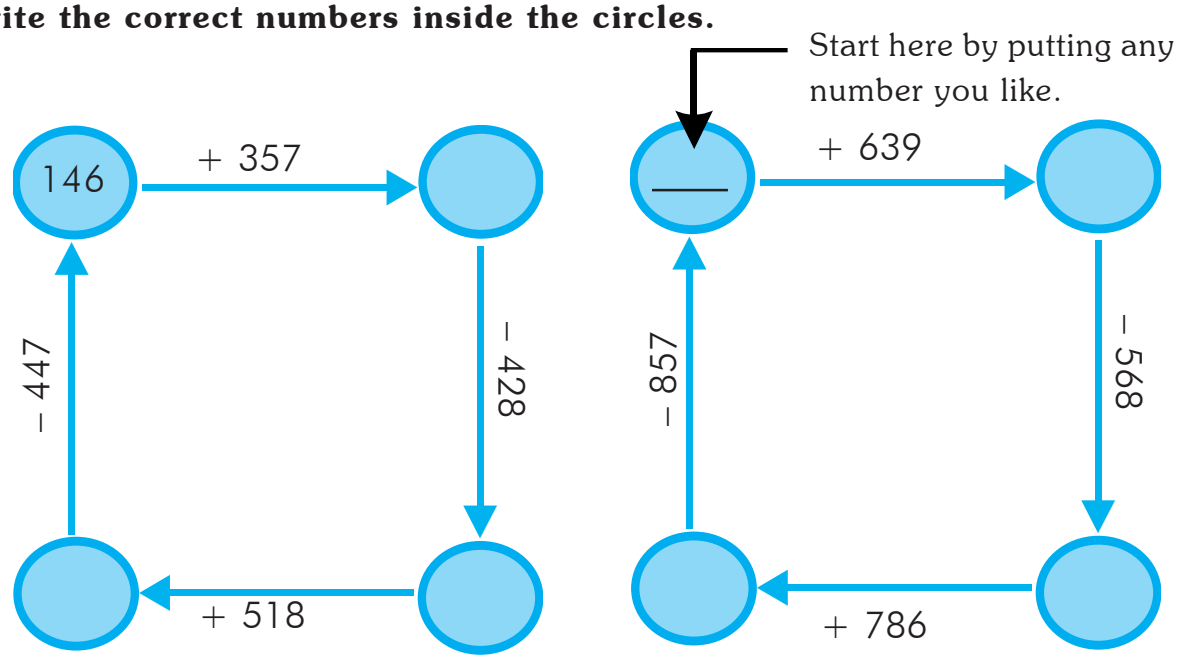
Notebook Exercise

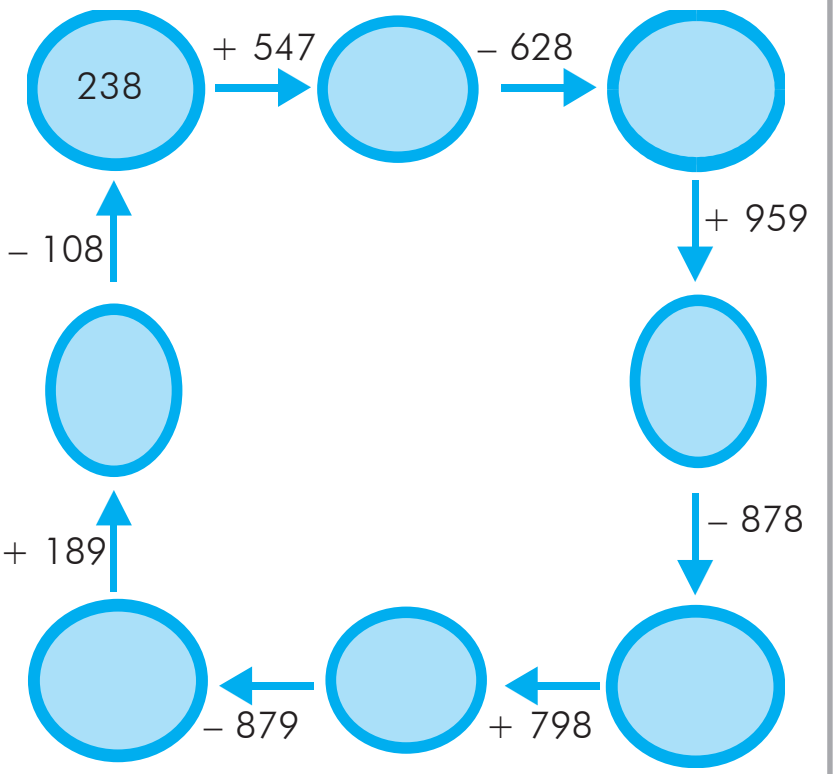
Try reversing and adding for these numbers and see how many steps you need to do to get a palindrome number: 11 18 27 39 65 78

Which is the number for which you needed to do the most steps?
How many steps did you need?

Number chakra

Write the correct numbers inside the circles.





Find the missing digits.

	H	T	O
	4	5	_
+	_	_	4
	8	9	6

	Th	H	T	O
	3	4	5	_
+	_	5	_	7
	7	_	6	5

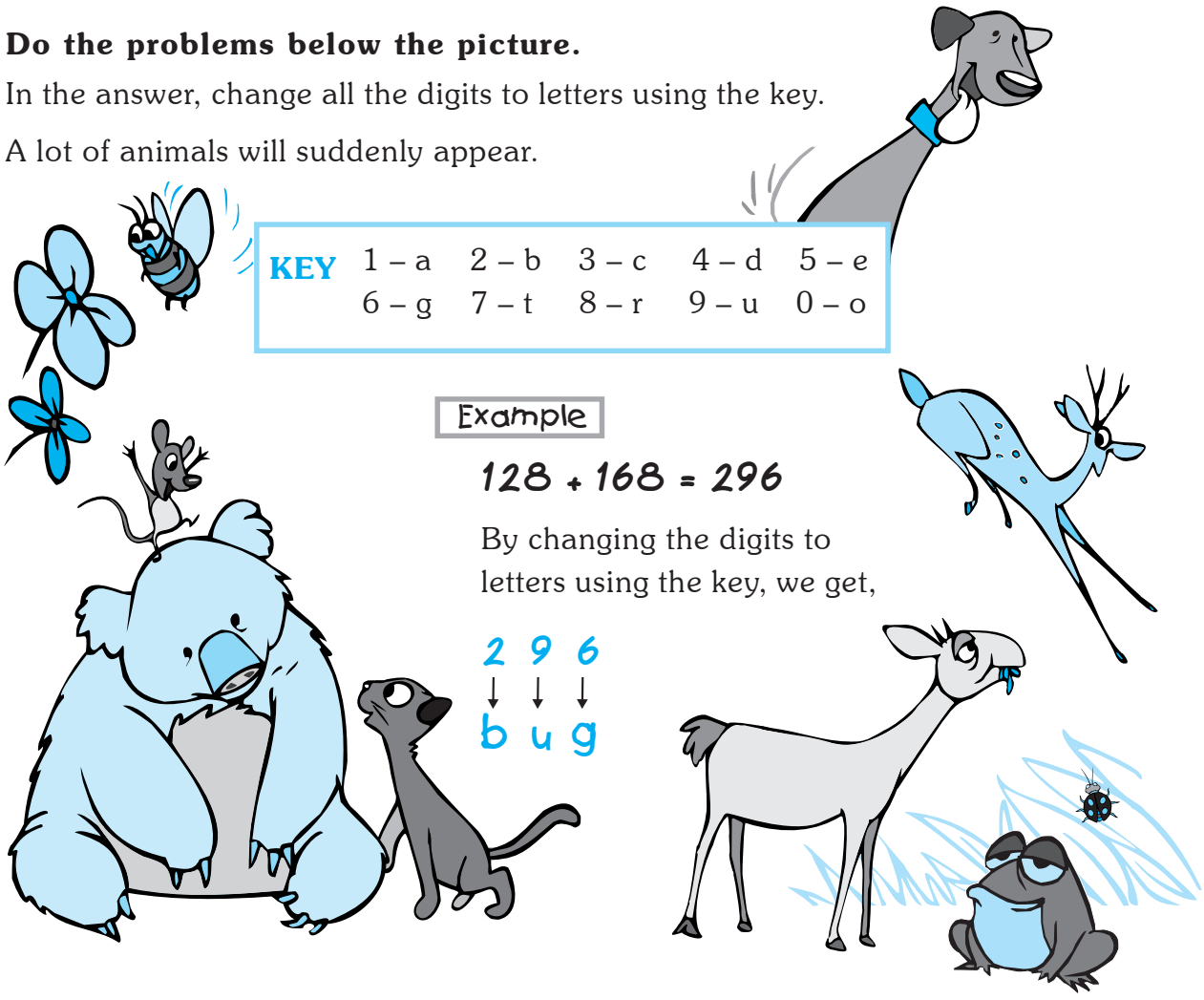
	Th	H	T	O
	8	4	5	_
+	_	5	_	7
	1	0	_	0 0

Sum fun

Do the problems below the picture.

In the answer, change all the digits to letters using the key.

A lot of animals will suddenly appear.



KEY					
	1 – a	2 – b	3 – c	4 – d	5 – e
	6 – g	7 – t	8 – r	9 – u	0 – o

Example

128 + 168 = 296

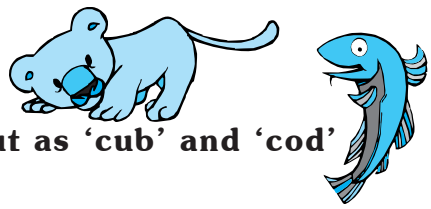
By changing the digits to letters using the key, we get,

2 9 6
↓ ↓ ↓
b u g

H T O	H T O	H T O	H T O
1 2 3	2 0 9	1 6 4	9 3 4
+ 1 3 2	+ 1 0 8	+ 2 4 2	– 1 1 7

Th H T O	Th H T O	Th H T O	Th H T O
5 2 7 9	8 6 3 7	5 8 3 9	4 6 0 0
+ 7 3 8	– 1 6 2 3	– 1 2 8 1	– 2 0 8 2

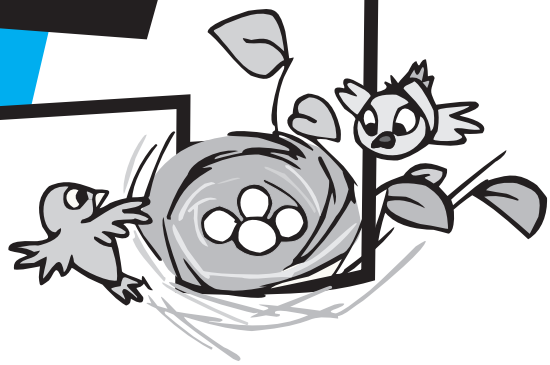
Sum more fun



Make two problems so that the answers come out as 'cub' and 'cod'

Numbers in the world

Unit 5



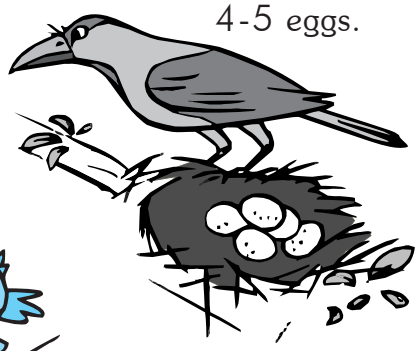
EGG CLUTCHES

Many animals lay eggs. The eggs hatch after a while and the baby animals come out.
A batch of eggs that are laid and hatched together is called a '**clutch**'. Some animals lay a small clutch with only a few eggs. Others have large clutches with many eggs.

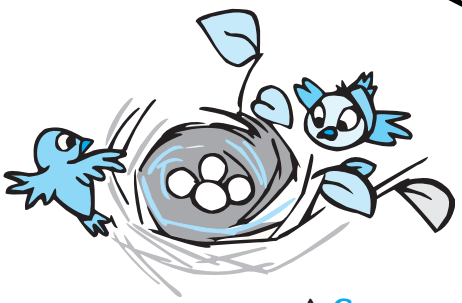
Birds

Birds make a nest to lay eggs. In the breeding season, they lay about one egg a day till they have a full batch or clutch.

A **Crow** clutch has 4-5 eggs.



The **Common White-Backed Vulture** clutch contains only one egg!

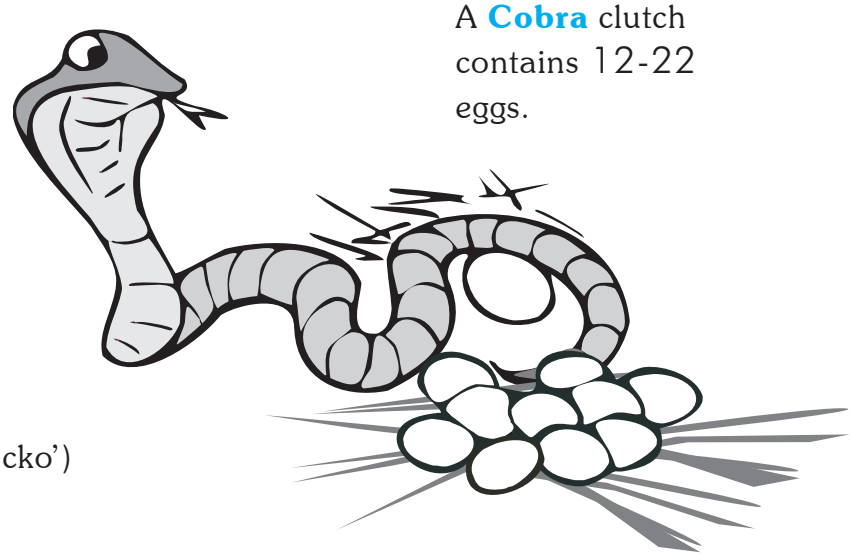


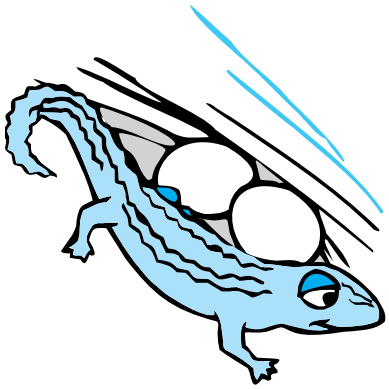
A **Sparrow** clutch has 3-5 eggs.

Reptiles

These animals are reptiles.They lay eggs too.

A **Cobra** clutch contains 12-22 eggs.



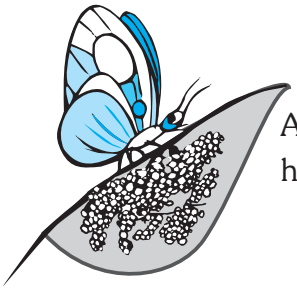


The house **Lizard** (also called 'Gecko') has two eggs in a clutch.

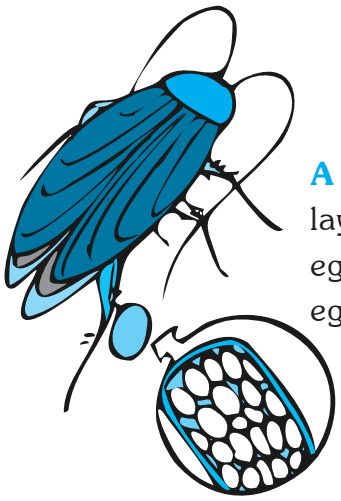
The **Common Marsh Crocodile** lays 3-40 eggs in a pitcher shaped hole in the sand.

Insects

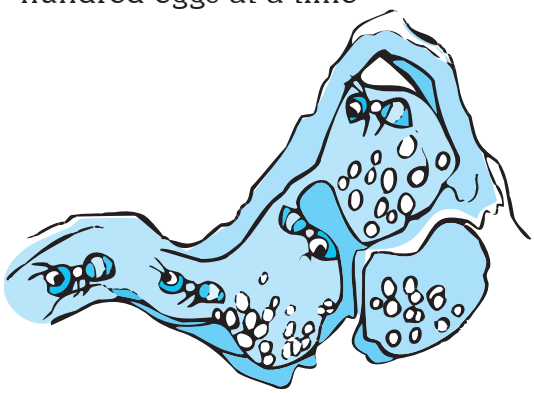
Many insects lay eggs too.
Here are some of them.



A **Butterfly** lays a few hundred eggs at a time

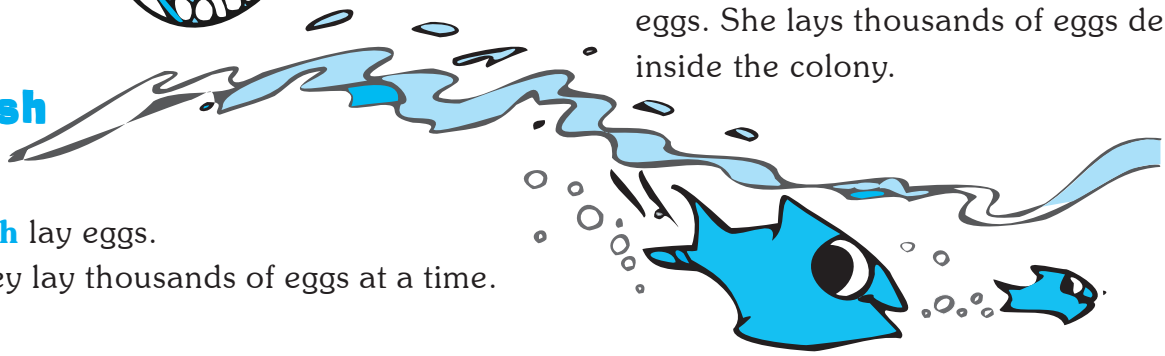


A Cockroach lays 12-28 eggs inside an egg case.



A colony of **Ants** has only one queen. The job of the queen ant is to lay eggs. She lays thousands of eggs deep inside the colony.

Fish



Fish lay eggs.
They lay thousands of eggs at a time.

Parvin found a clutch of 20 eggs. Which of the animals on this page might have laid the eggs?

Lucy found two eggs in a cupboard. Which animal do you think laid the eggs?

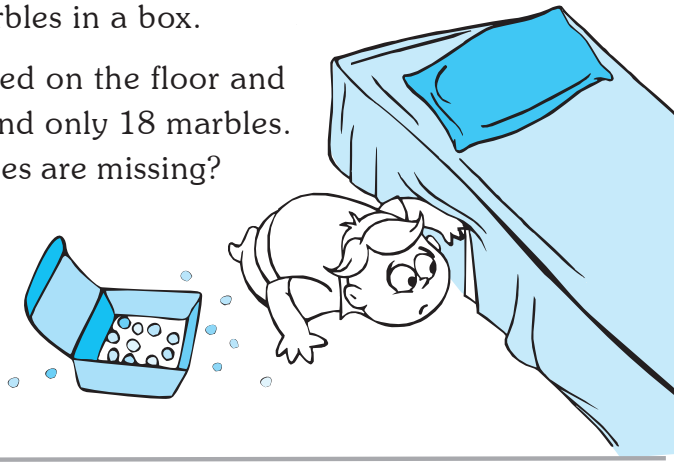
About how many lizard clutches will have the same number of eggs as a cobra clutch?

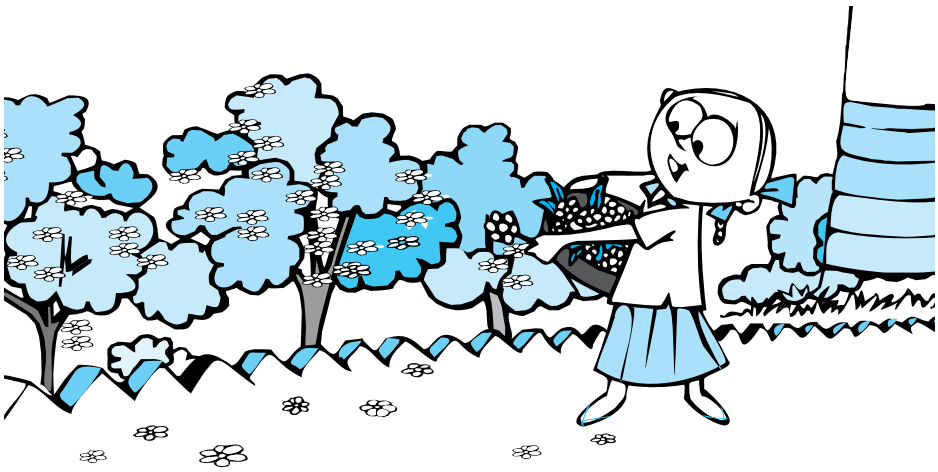
A crocodile laid 12 eggs. Baby crocodiles hatched out of only half of the eggs. Half of the baby crocodiles died. How many grew to be big crocodiles?

Number stories

Tuttu had 25 marbles in a box.

The marbles spilled on the floor and he managed to find only 18 marbles. How many marbles are missing?

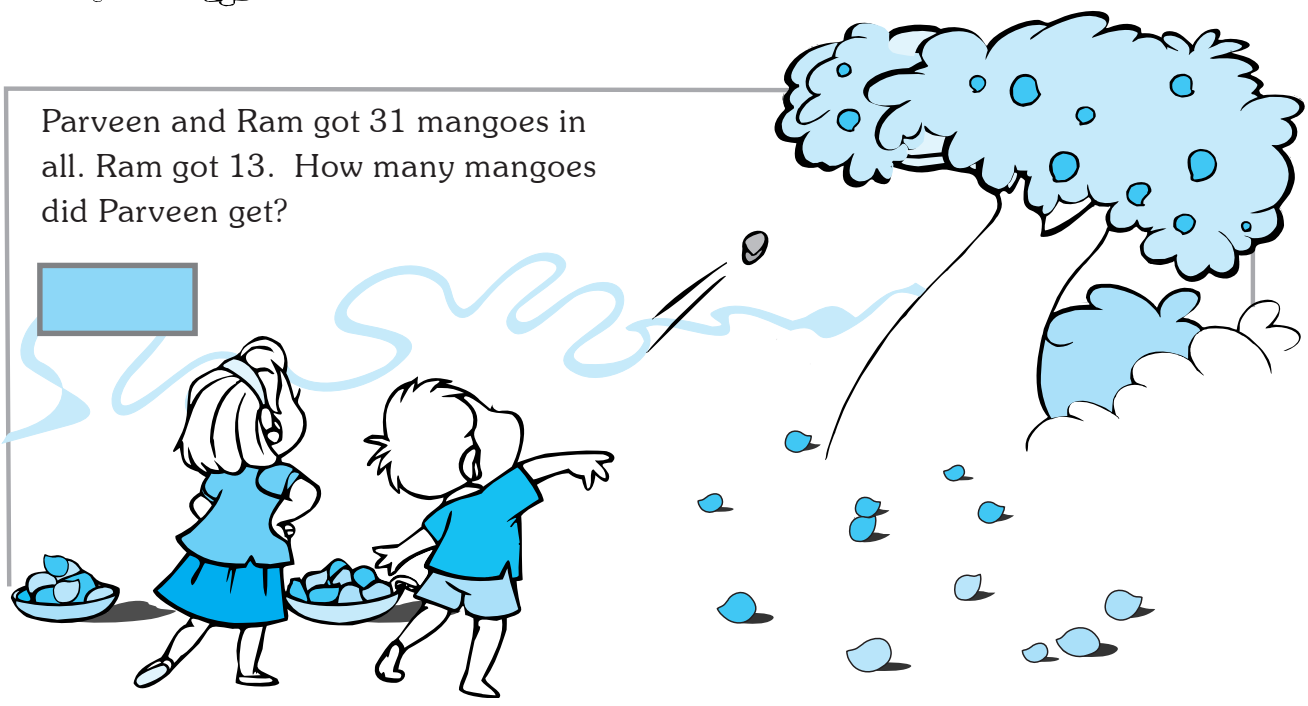




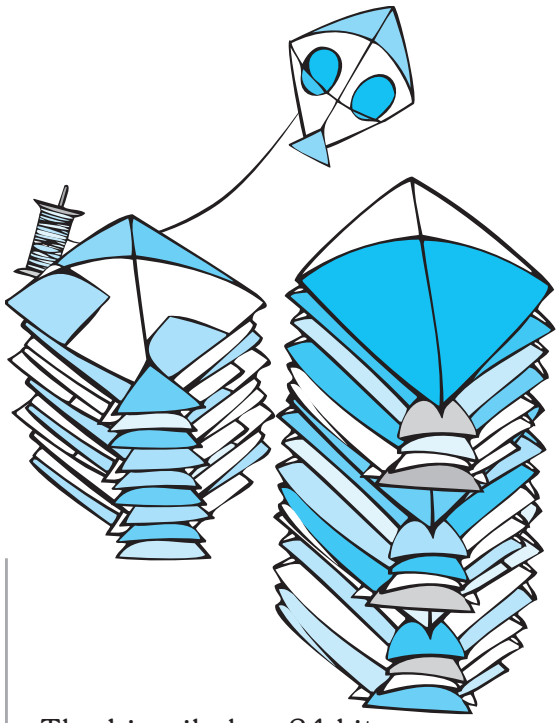
22 jasmine flowers on the bush and 8 flowers on the ground.

How many flowers altogether?

Parveen and Ram got 31 mangoes in all. Ram got 13. How many mangoes did Parveen get?

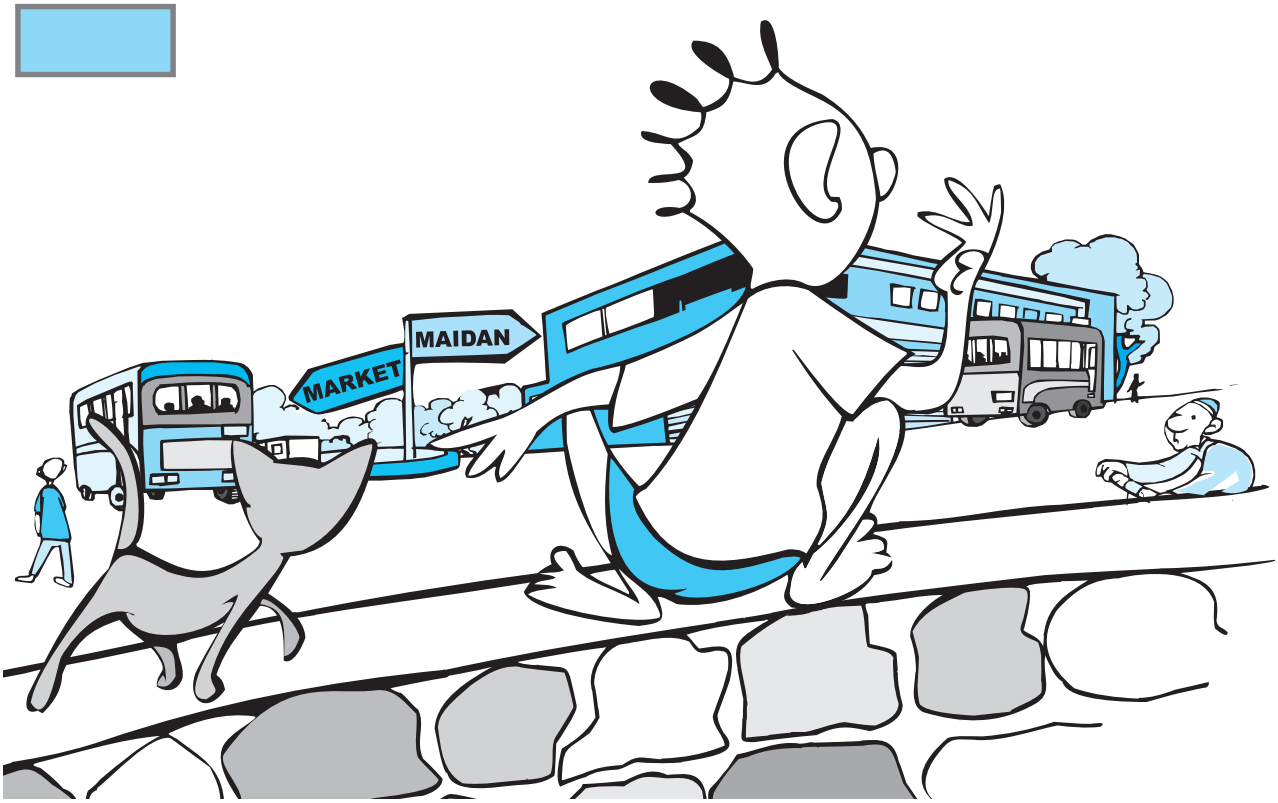


26 sardines in all.
9 on the slab.
How many sardines in the basket?



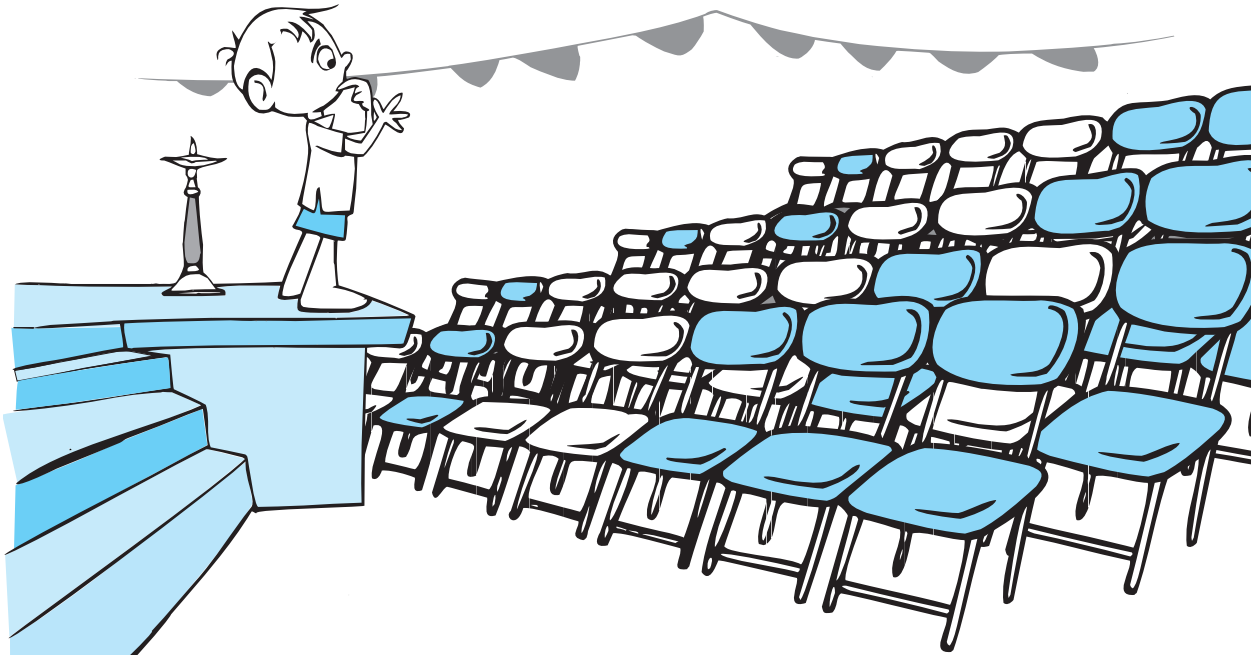
The big pile has 24 kites.
The small pile has 12 kites.
How many kites in all?

15 buses going towards the market. 17 buses going towards the maidan.
How many buses did Eti count?



The gents 'Q' had 19 people, the ladies 'Q' had 14 people.

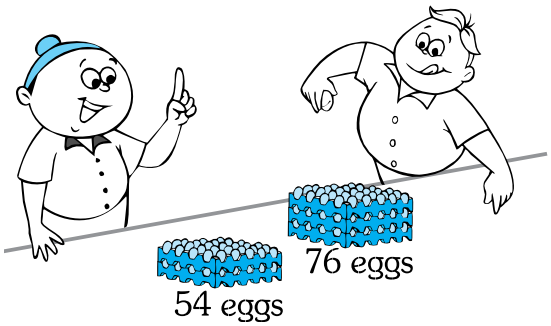
How many people were waiting to buy tickets?



Ram counted the chairs arranged for the function. There were 45 chairs in all: some coloured, some white. Then he counted only the white chairs. There were 19 white chairs. How many coloured chairs were there?

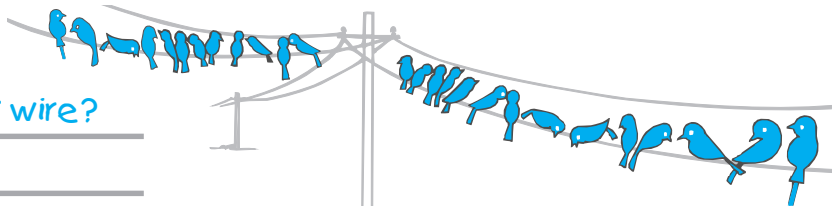
Picture stories

Look at these pictures. Answer the questions for the first picture. Make your own questions for the remaining pictures and answer them.



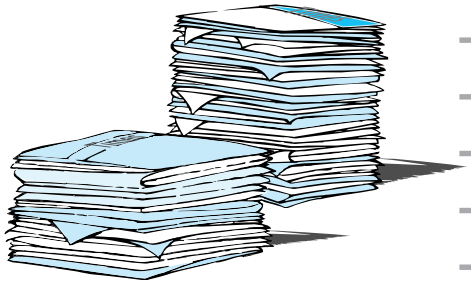
1. Who has more eggs?

2. How many eggs in all?

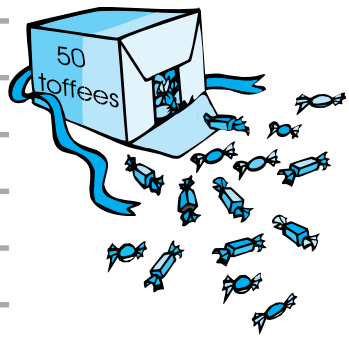


1. How many birds on the first wire?

35 Newspapers

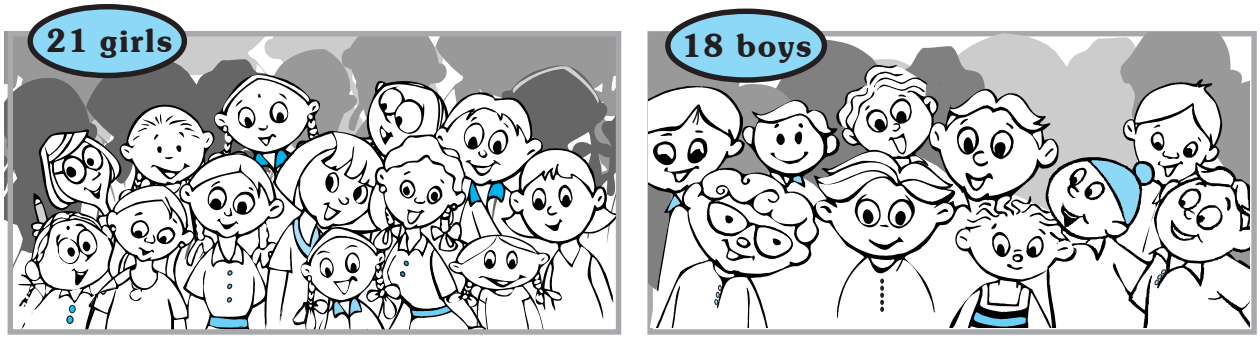


18 Newspapers



Word problems 1

Look at the picture. How many children are there in all?



After looking at the picture Geeta wrote statements in Hindi in her notebook.

21 ladkiyan, 18 ladke,
total bachhe kitne?

She then drew a diagram

21 + 18 = ?

number of girls | number of boys | The question mark means that you have to find the total.

And found the answer

21 + 18 = 39

And wrote

There are 39 children in all.

Read this problem.

A flower pot has flowers of two colours. There are 26 white and 14 coloured flowers.

How many flowers are there in all?

Write statements in your mother tongue. (Use the English alphabet.)

Here is a diagram to show the problem.

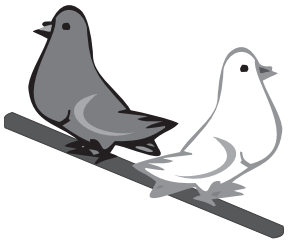
What does the number inside the first circle mean?

What does the number inside the second circle mean?

What does the question mark mean?

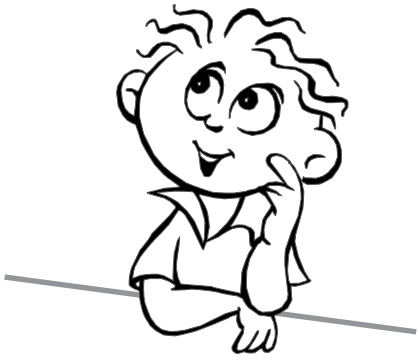
Find and write the answer to the problem.

Rohit has two kinds of pigeons: 17 white pigeons and 21 grey pigeons. How many pigeons does he have in all?



Write statements in your mother tongue.

Now show the problem using a diagram.



Find and write the answer to the problem.

Look at this diagram.

1. Make a word problem for the diagram using these words: textbooks, notebooks. Write the answer to your problem.

2. Make another word problem for the diagram using the words: half-pants, full-pants. Write the answer to your problem.

3. Make your own word problem for the diagram and write the answer.

Make your own word problem for this diagram and write the answer.

Notebook Exercise

Write statements in your mother tongue, draw diagrams and solve these problems.

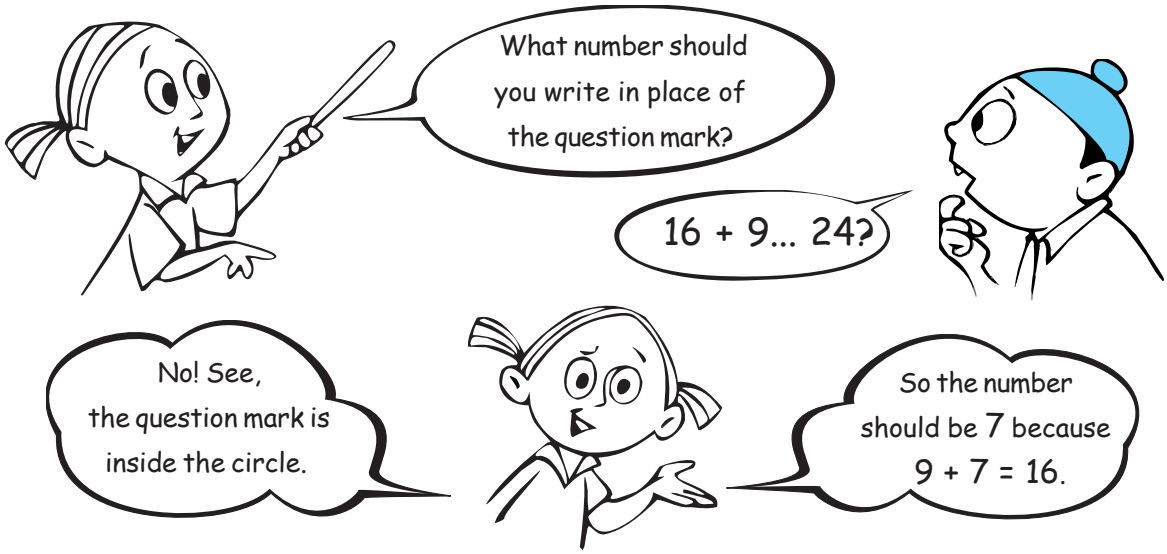
1) At the bus stop Geeta counted 9 red buses and 11 green buses. How many buses in all did she count?

2) In a small lane there were two kinds of houses. 17 houses had tiled roofs and 16 houses had RCC roofs. How many houses were in the lane?

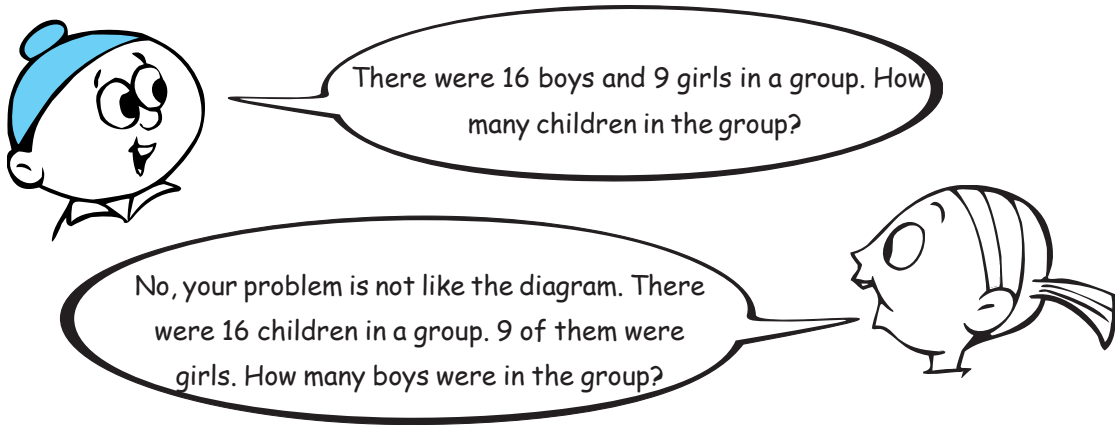
3) The balloon seller has balloons in three colours: 9 yellow balloons and 12 red balloons and 13 blue balloons. How many balloons in all does he have?

Word problems 2

Look at this diagram carefully.



Lucy and Chunindar make a word problem for the diagram.



Why do you think Lucy's problem is correct?

Write statements in your mother tongue for Lucy's problem.
(Use the English alphabet.)

What is the answer to Lucy's problem?

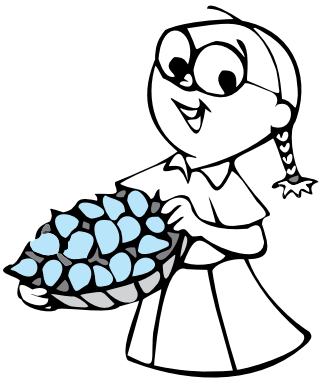
Read Lucy's and Chunindar's problems again carefully. Understand the difference between them.

Read this problem.

Rani had 15 mangoes and some guavas. She had 25 fruits (mangoes and guavas) in all. How many guavas did she have?

Write statements for the problem.

Here is a diagram to show the problem.



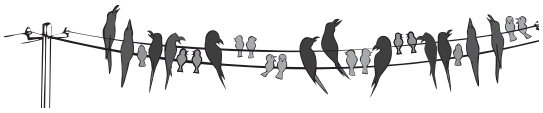
$$15 \quad + \quad ? \quad = \quad 25$$

What does the number inside the first circle mean?

What does the question mark inside the second circle mean?

What does the number after the '=' sign mean?

Find and write the answer to the problem.



There were 39 birds sitting on the wire. 23 of them were crows. The rest were sparrows. How many sparrows were sitting on the wire?

Write statements for the problem.

Now show the problem using a diagram.

Find and write the answer to the problem.

One day standing at the bus stop Lucy counted all the buses. There were 23 buses.
9 were double decker buses and the remaining were single decker buses.

How many single decker buses were in the bus stop?

Write statements:

Now show the problem using a diagram.

Find and write the answer to the problem.

Look at this diagram.

16 + ? = 27

1. Make a word problem for the diagram using these words: red pencils, blue pencils. Write the answer to your problem.

2. Make another word problem for the same diagram using the words: cricket balls, tennis balls. Write the answer to your problem.

3. Make a word problem for the diagram using your own words and write the answer.

Solve these problems. Write statements, draw diagrams and find the answer for each problem.

1. Chetan was selling newspapers. He had 23 English newspapers and 38 Marathi newspapers. How many papers did he have in all?
2. 50 children attended the scout camp. 18 were boys. How many girls attended the camp?
3. Lucy went to a bookshop. She bought a story book for Rs 65 and a puzzle book for Rs 85. How much did Lucy spend at the shop?
4. On Sunday, the circus had two shows and sold a total of 500 tickets. 193 tickets were sold for the afternoon show. How many tickets were sold for the evening show?
5. Parvin bought a kg of oil and a kg of soap for Rs 100. The cost of 1 kg of soap is Rs 37. How much does 1 kg of oil cost?
6. Dildar was riding a motorbike. The weight of the motorbike was 117 kg. Dildar's weight was 67 kg. What is the combined weight of the motorbike and Dildar?

Make your own problems for the diagrams using the words given and find the answers.

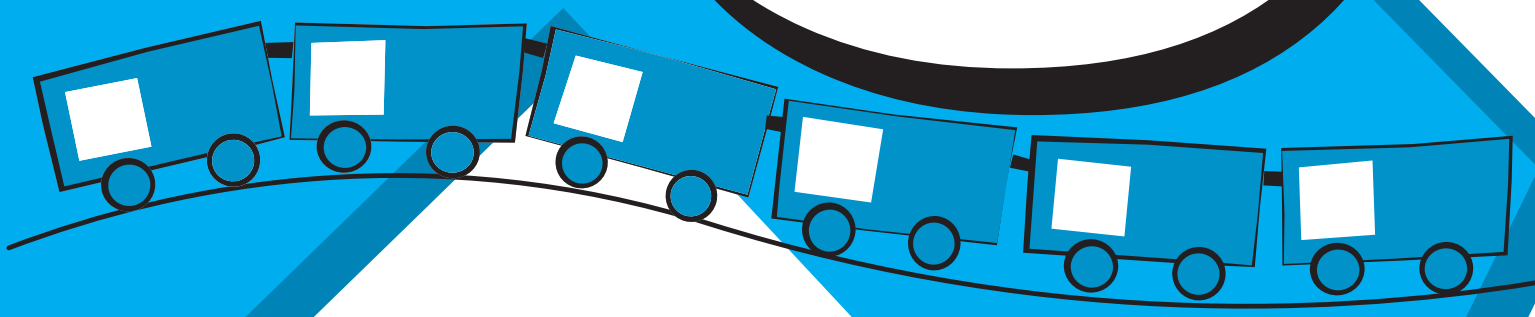
1. Duck eggs, hen eggs

2. Plastic kites, paper kites

3. Use your own words.

Multiplication

Unit 6



Making Groups

Listen to Tikoo uncle
Clapping claps for you.

Move around in a circle
When the claps stop, so do you.

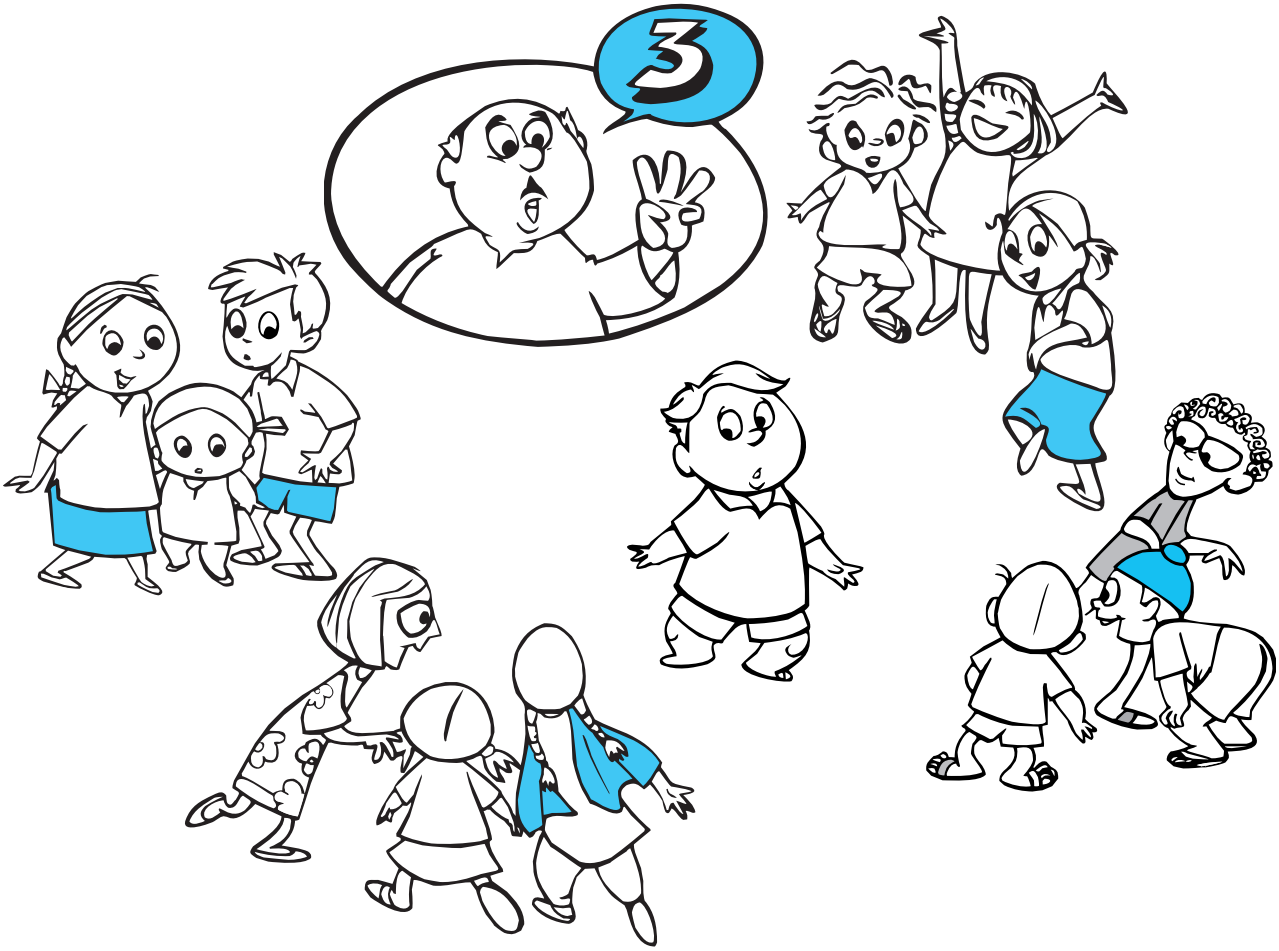
Now form groups of the number I shout
Hurry or you will be left out.

Play another round of the game,
but the number may not be the same.

Play the game in the poem.

Choose a leader. Move in a circle while the leader claps her hands. The leader stops clapping and calls out a number.

Make groups of the number she calls out.



How many children in the picture formed groups?

4 groups of 3.

3 + 3 + 3 + 3

4 times 3

4 × 3 = 12

'4 × 3' means **'4** times **3'**

Multiplication means add the same number so many times.

In this game, you must form equal groups. That is, each group must have the same number of children.

Check if the groups in the picture are all equal groups.

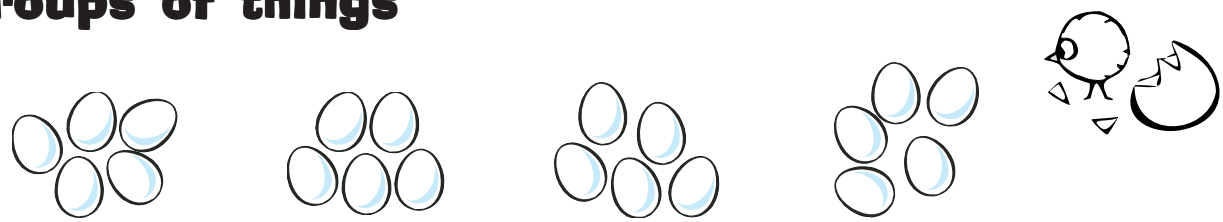
How many children **remained** outside the groups?_____

After you make equal groups, whatever remains over is the **remainder**.

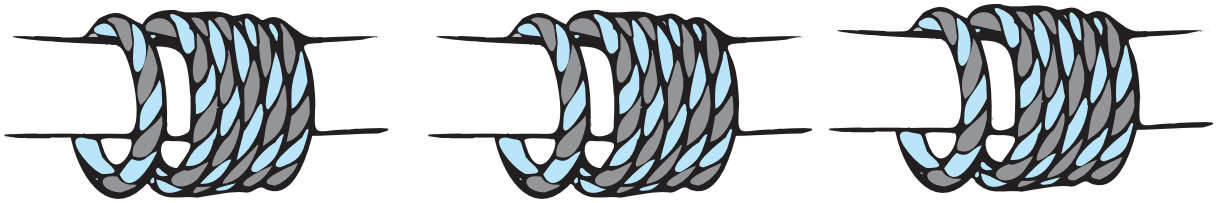
Know these words

groups, equal groups, remainder

Groups of things



4 groups of 5 eggs each.	5 + 5 + 5 + 5 = 20	4 × 5 = 20	20 eggs in all.



Fill up the table.

Draw the picture and fill up the table.

5 groups of 2 flowers each.			

Draw a picture to show the difference between these two phrases.

3 groups of 5 apples each

5 groups of 3 apples each

Notebook Exercise

Make other pairs of phrases like these. Draw pictures to show the difference.

Multiplication tables with dots

Table of 2

Three twos are six

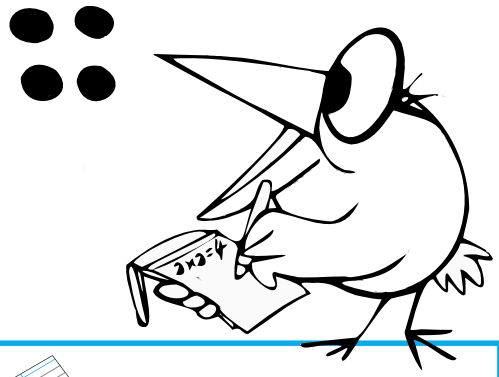
1	• •	2	1 x 2 = 2
2	• •	4	2 x 2 = 4
3	• •	6	3 x 2 = 6
4		___	4 x 2 = ___
5		___	5 x 2 = ___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___

Table of 3

1	• • •	3	1 x 3 = 3
2		6	2 x 3 = 6
3		___	___
4		___	___
5		___	___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___

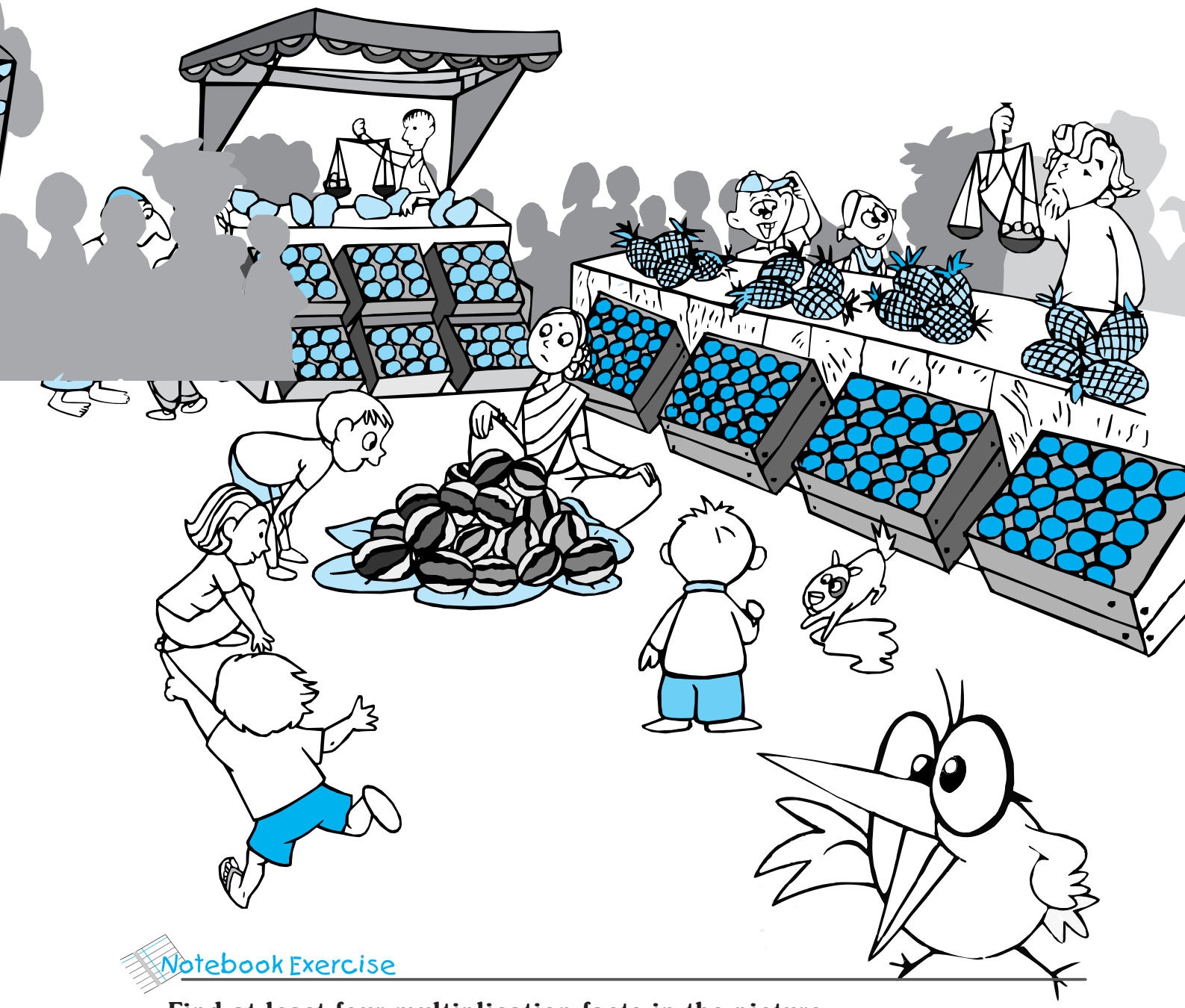
Table of 4

1	• • • •	4	1 x 4 = 4
2		8	2 x 4 = 8
3		___	___
4		___	___
5		___	___
6		___	___
7		___	___
8		___	___
9		___	___
10		___	___



Notebook Exercise

Make the tables of 5, 6, 7, 8, 9 and 10 with dots.



Notebook Exercise

Find at least four multiplication facts in the picture.

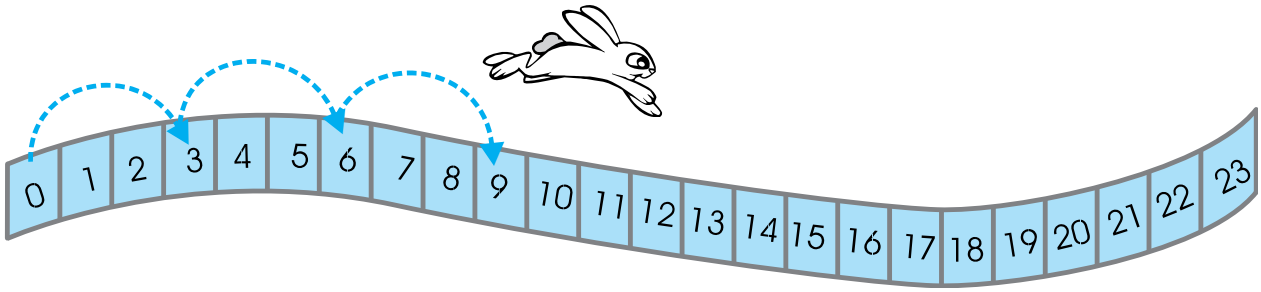
Make a table in your notebook like this.

Name of object	Multiplication fact	Write in words	Total
Pineapples on the left	$3 \times 4 = 12$	3 lots of 4 pineapples each	12 pineapples in all

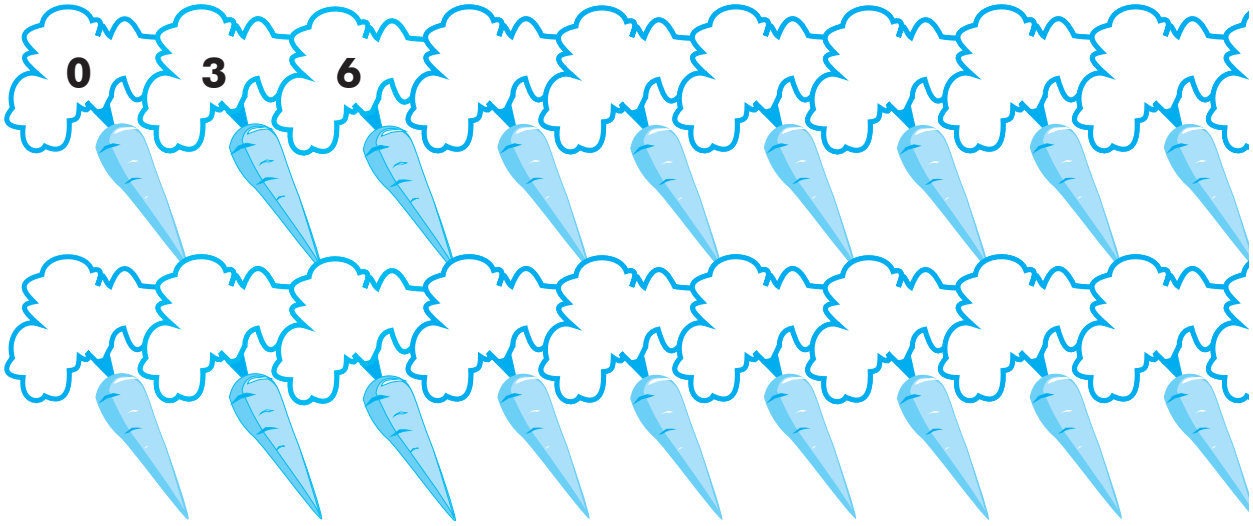
Can you find more multiplication facts?

Animal jumps

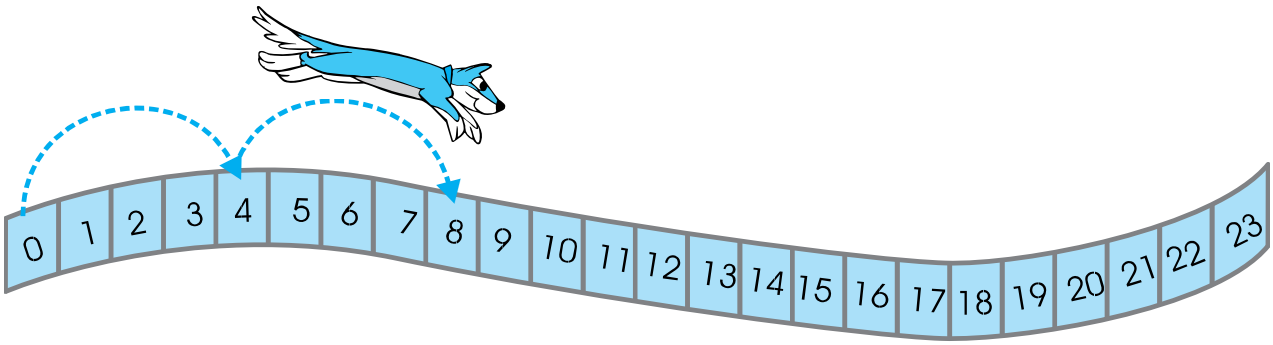
The rabbit jumps 3 steps at a time.



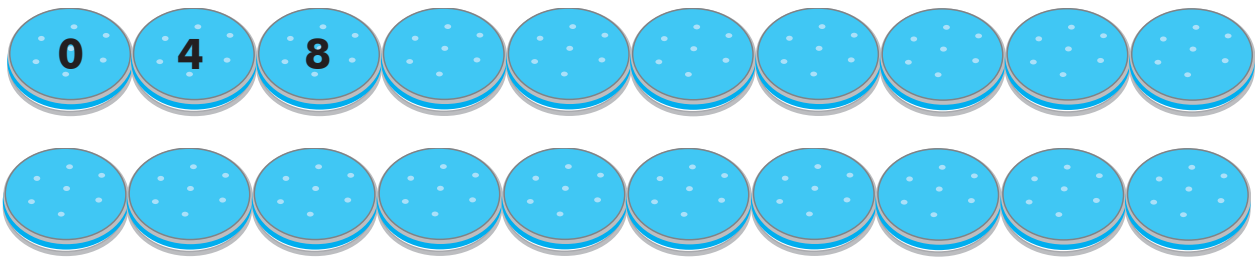
Which numbers will the rabbit touch?



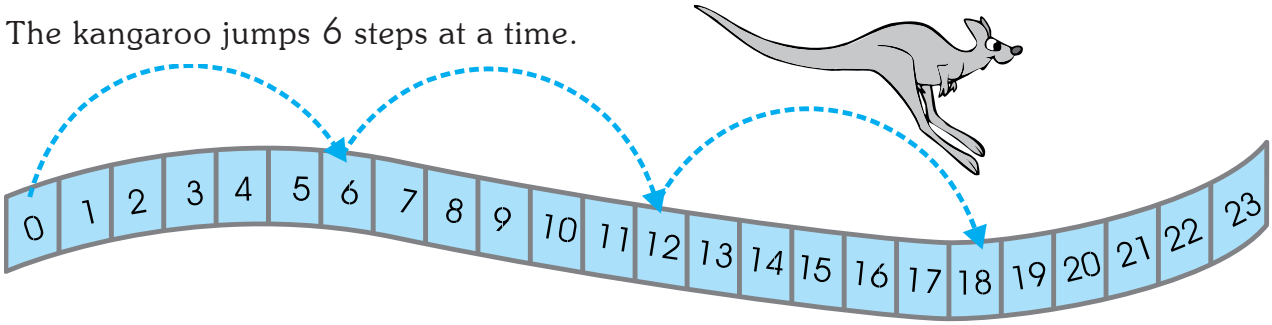
The dog jumps 4 steps at a time.



Which numbers will the dog touch?



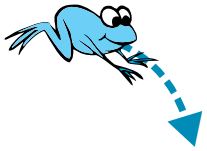
The kangaroo jumps 6 steps at a time.



Which numbers will the Kangaroo touch?

0 **6** **12**

The frog jumps 5 steps at a time.



Which numbers will the frog touch?

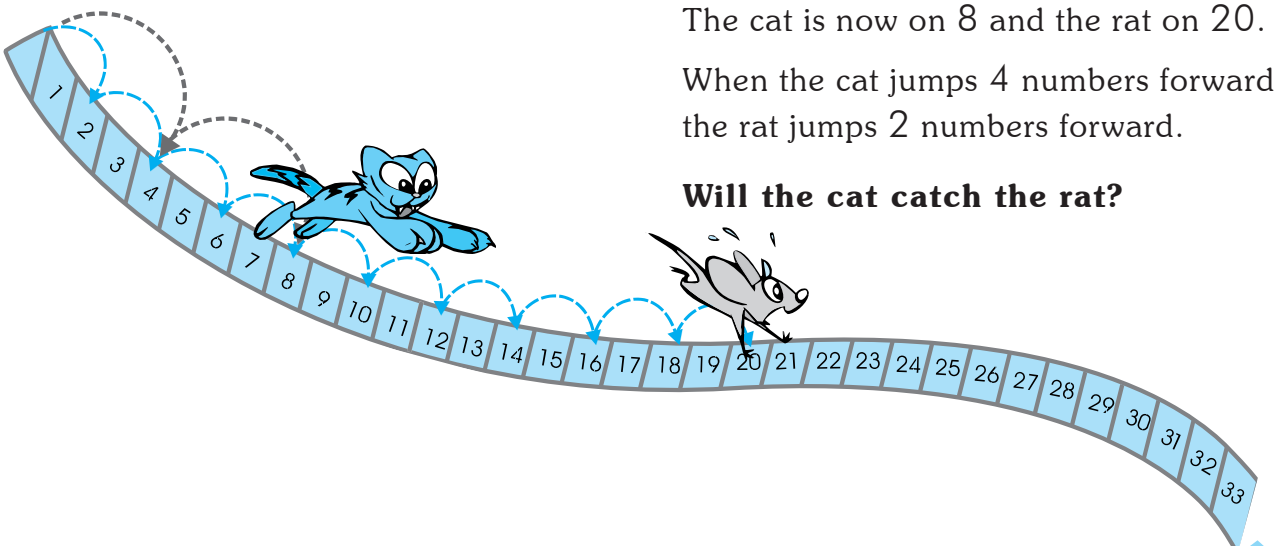
0 **5** **10**

If the cat and the rat land on the same number, the cat will catch the rat.

The cat is now on 8 and the rat on 20.

When the cat jumps 4 numbers forward, the rat jumps 2 numbers forward.

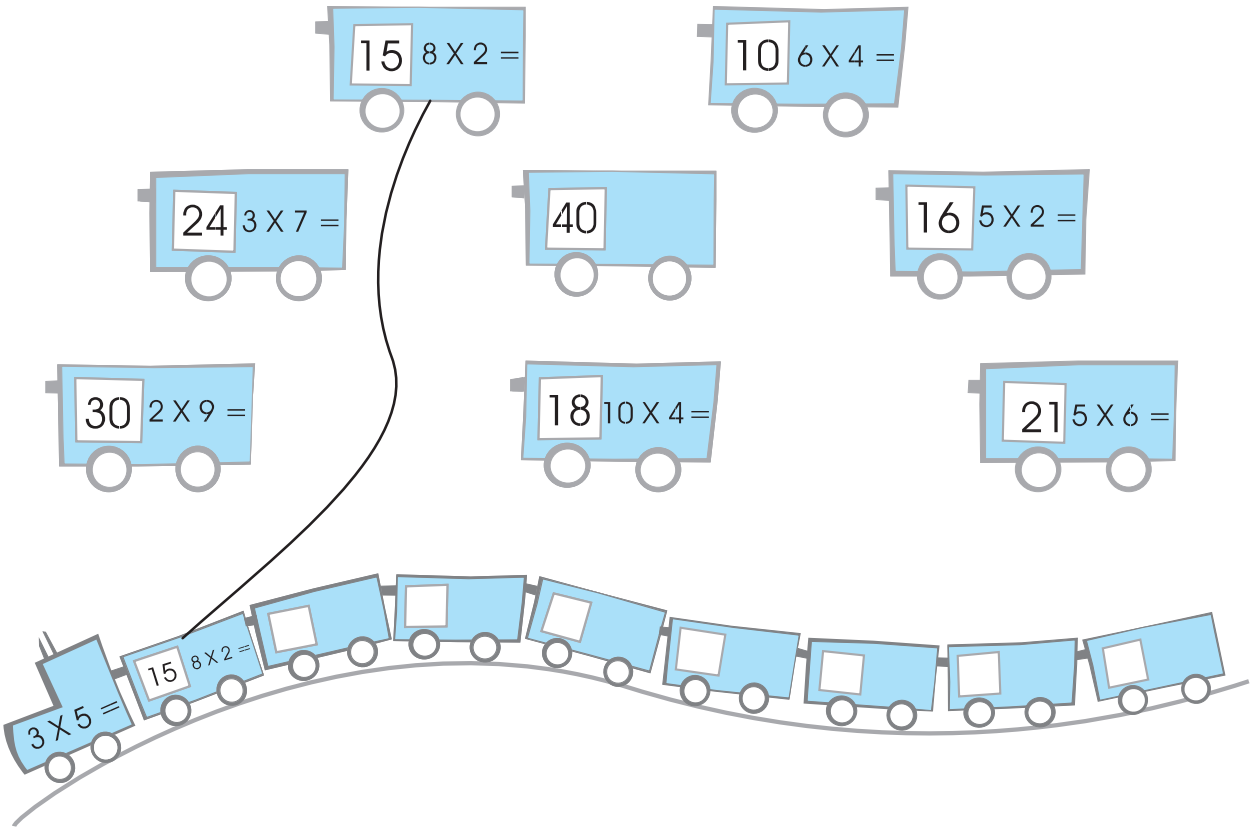
Will the cat catch the rat?



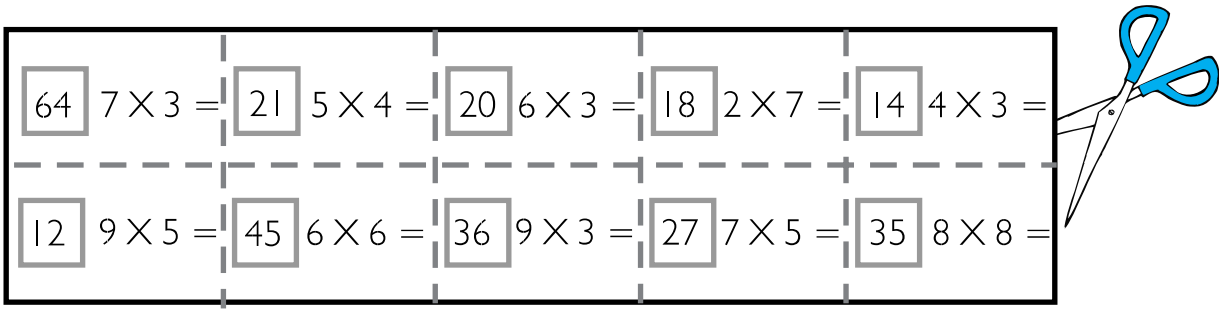
Linking the chain

Arrange the bogies of the train so that the answer to each multiplication fact appears on the bogie next in the line.

Draw lines to show where each bogie must be placed.



On a sheet of paper, copy the figure shown below. Cut and make ten cards. You can play different games with these cards. Some of these games are described on the next page.



Classroom Game

Shuffle the cards and distribute them among ten children.

Have one of the children read out the question on his card. The child who has the correct answer on her card stands up. She then reads the question on her card. Continue and complete the chain.

GAME FOR TWO

Shuffle and put the cards facing down. Keep one card facing up to start the chain. Take turns to pick up a card. If it matches put it in the chain and score a point. Otherwise put the card facing down again. Continue till the chain is complete.

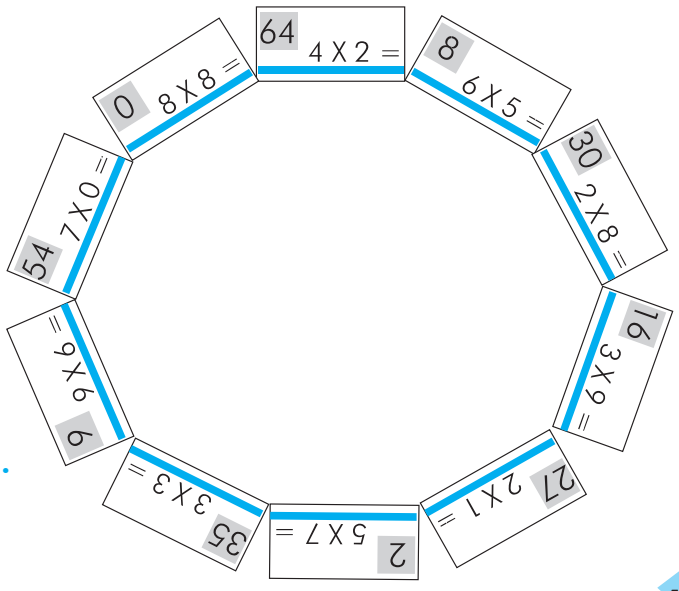
Complete the chain.

14 4 X 3 = | 12 9 X 5 =

Make your own set of chain cards.

Think, Think !

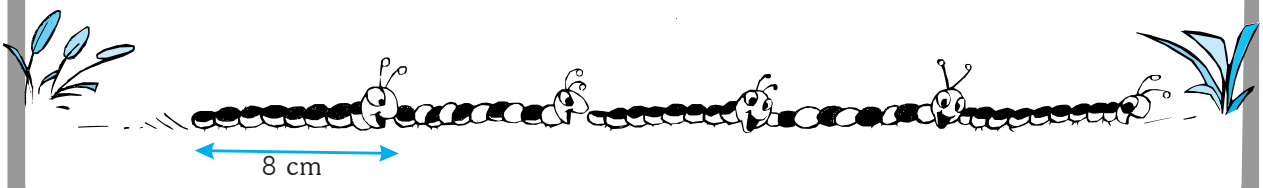
Why did Eti arrange the cards in a chain like this?



Learn the multiplication tables.
Practice recalling the tables.

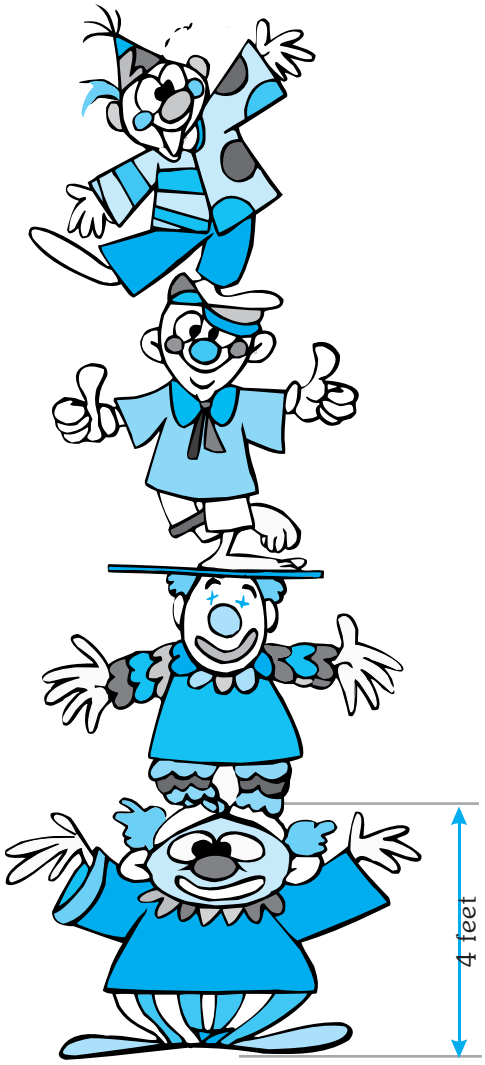
Tall stories

Each worm is 8 centimeters long. How long is the worm line?

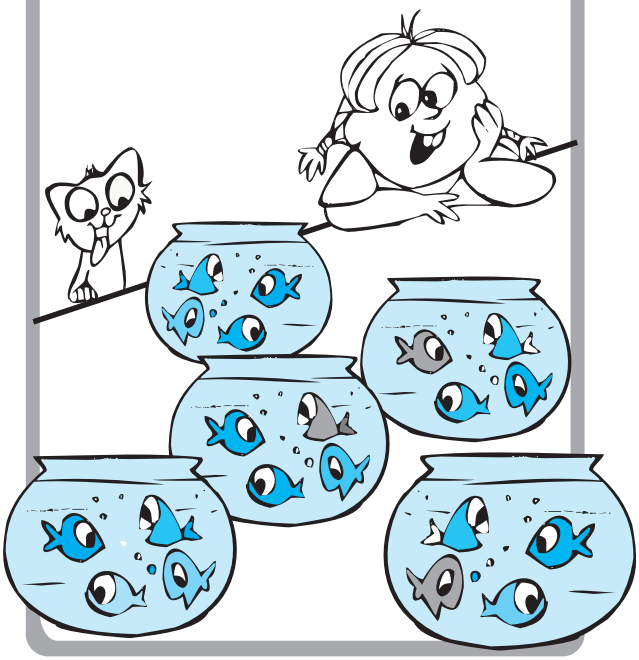


Each clown is 4 feet tall.

How tall is the pillar of clowns?



Parveen filled 5 bottles with water. In each bottle she put 4 fish. How many fish did she put in all?

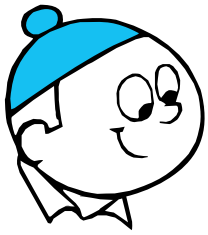


Complete the picture for each story.

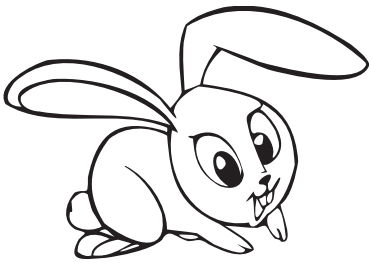
Write the multiplication fact and find the answer.

Chunindar put 5 cups on the table. In each cup he put 3 marbles.

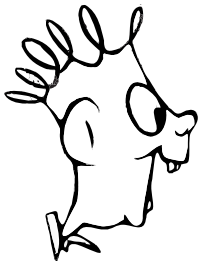
How many marbles did he put in all?



The rabbit ate 4 carrots on Sunday, 4 carrots on Monday,
4 carrots every day for the whole week.
How many carrots did he eat that week?



Eti counted 9 cars lined up on the road.
Each car had two people sitting inside.
How many people altogether?



Notebook Exercise

Complete the multiplication facts.

Make your own stories for each fact.

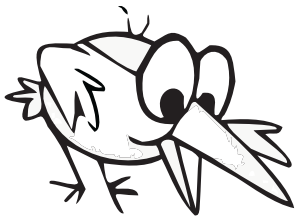
$7 \times 7 =$ $8 \times 5 =$ $9 \times 8 =$

The 10×10 dot grid

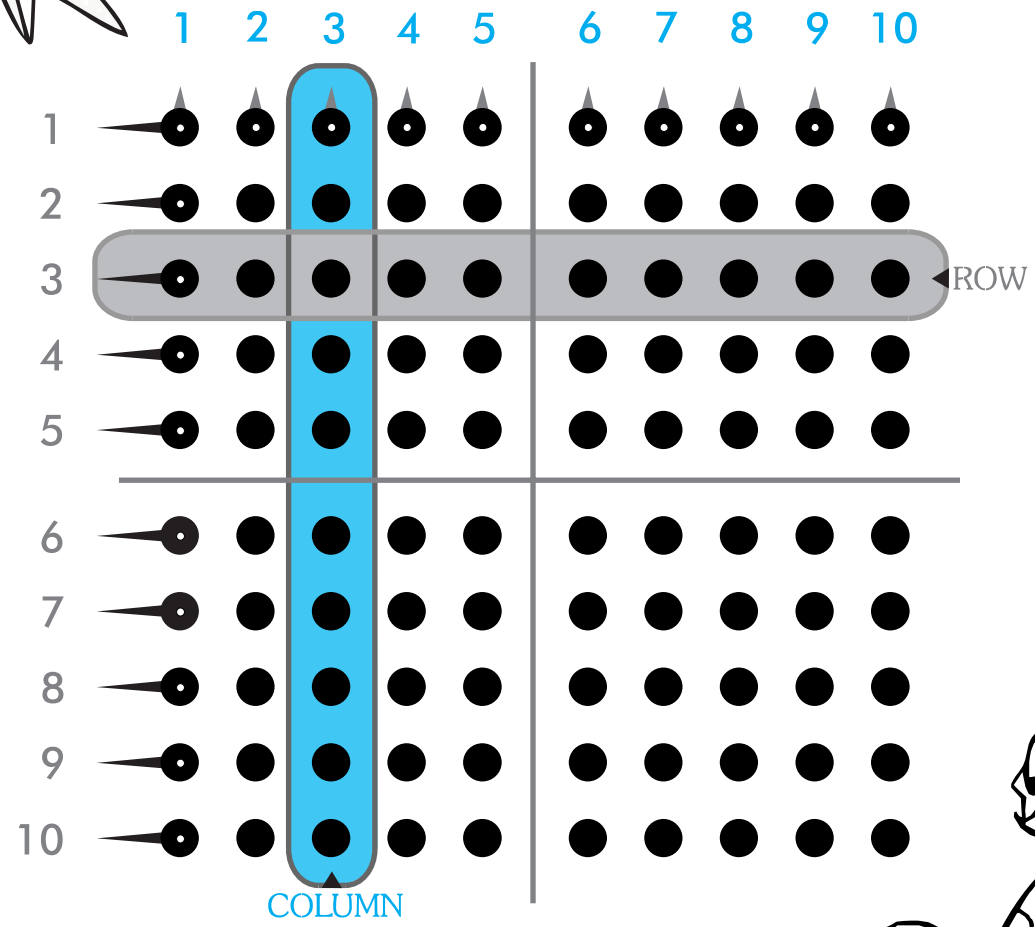
The 10 ×10 dot grid has many dots arranged in a square pattern.

Guess how many dots there are._____

The dots are arranged in rows and columns. Rows are horizontal and columns are vertical.



Each row and each column has a leader. The row leaders have long noses. The column leaders have short noses.



How many rows are there in the dot grid?

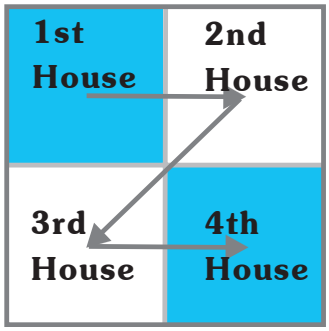
How many columns are there in the dot grid?

Circle the dot which is both a row leader and a column leader.

Make a 10 × 10 dot grid in your notebook.

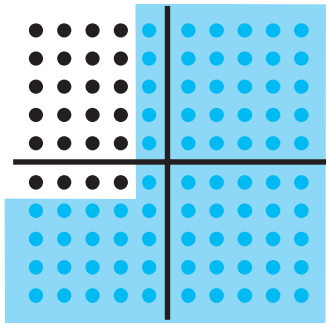
The 10 × 10 dot grid has four houses.
The houses are numbered in a 'Z' pattern.

Guess how many dots there are in each house.



How many rows and how many columns are shown?

Count the rows by counting the row leaders.
Count the columns by counting the column leaders.



_____ rows and _____ columns contain _____ dots.

Multiplication fact: 6 × 4 = 24

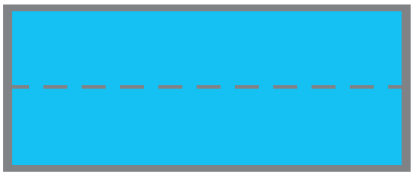
Classroom Activity

You can show different multiplication facts by using an L-mask to cover the dot grid.

How to make an L-mask:

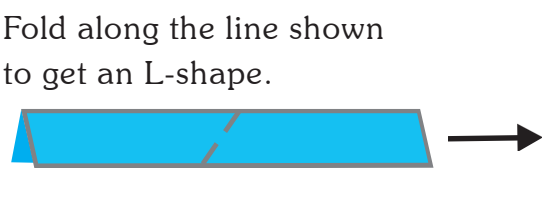
1 Tear out a page from on old magazine or notebook.

Fold the paper in half along its length.



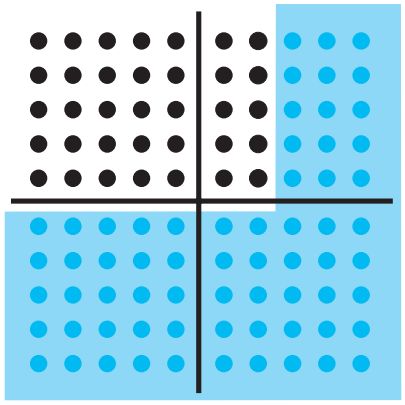
2 Fold it once more.

3 Fold along the line shown to get an L-shape.

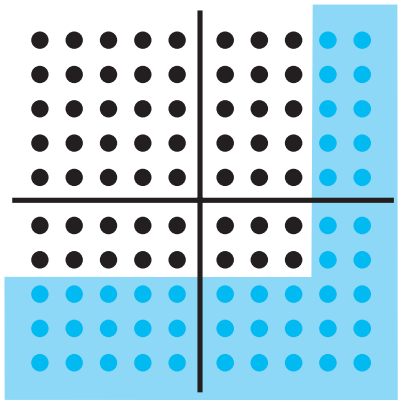


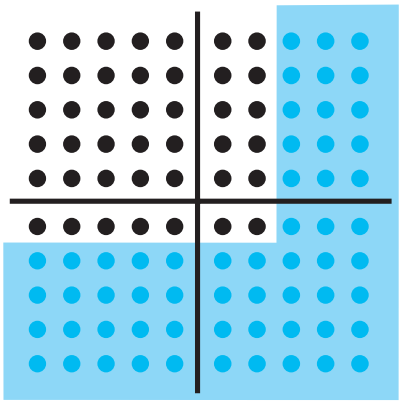
Make sure your 'L' is straight and not bent.

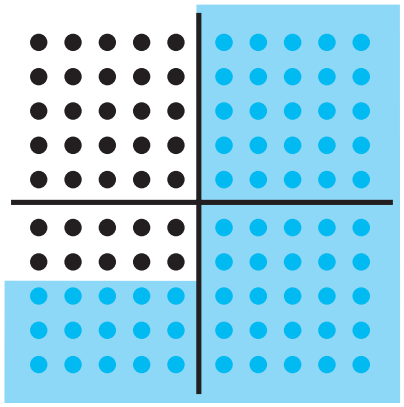
Write the multiplication facts shown on the dot grid.

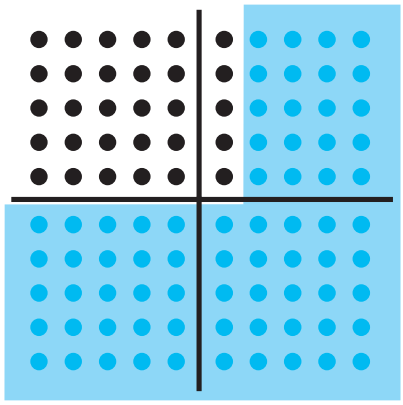


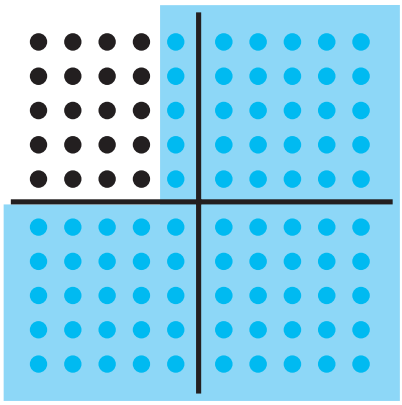
5×7

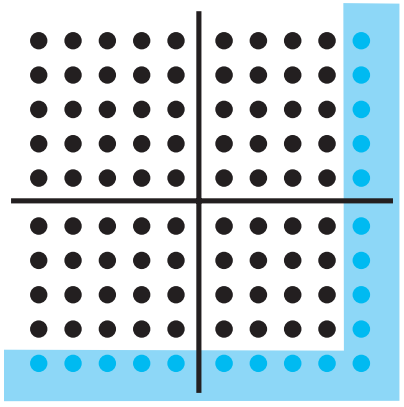


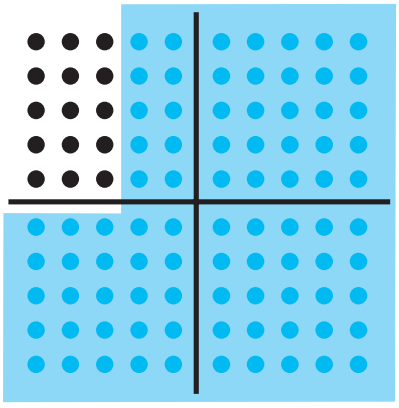


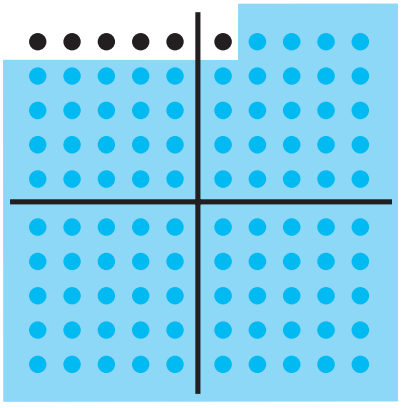




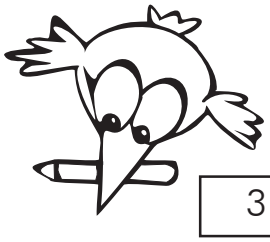




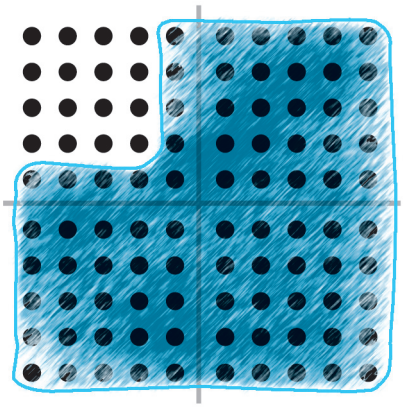




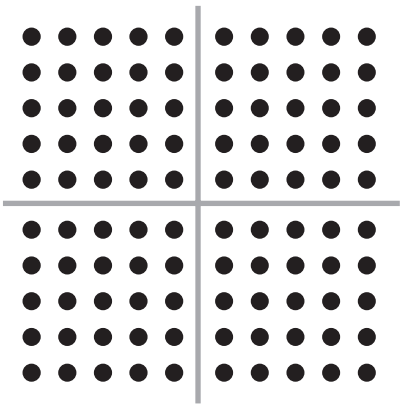
Show the multiplication fact on the dot grid.



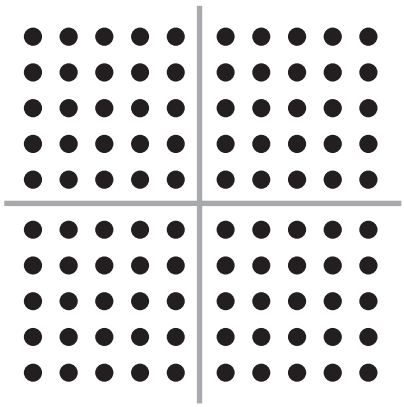
4 × 4



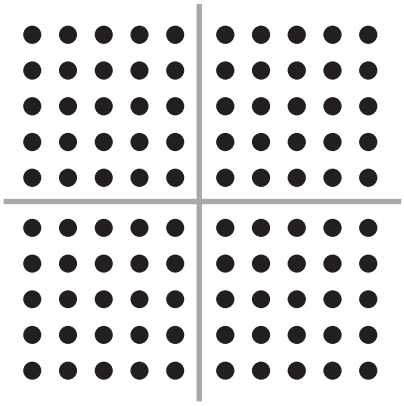
5 × 7



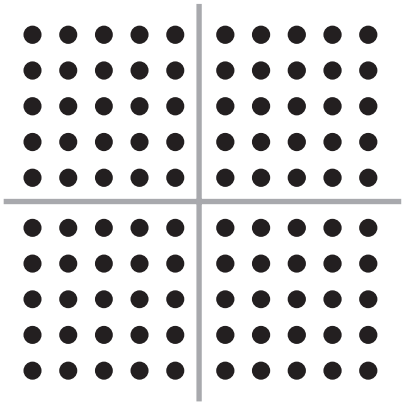
3 × 6



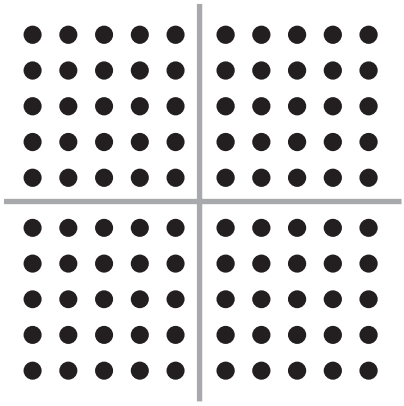
6 × 6



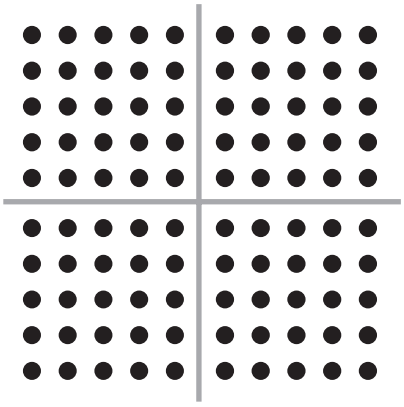
6 × 8



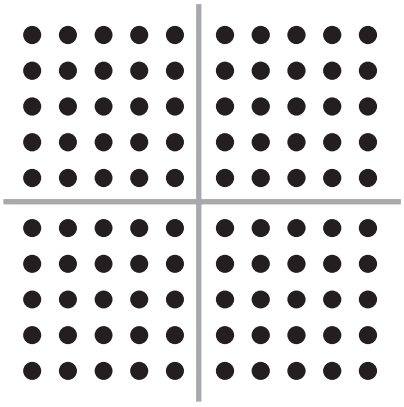
8 × 9



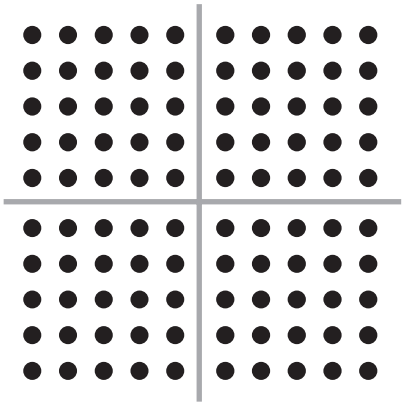
7 × 7



9 × 2

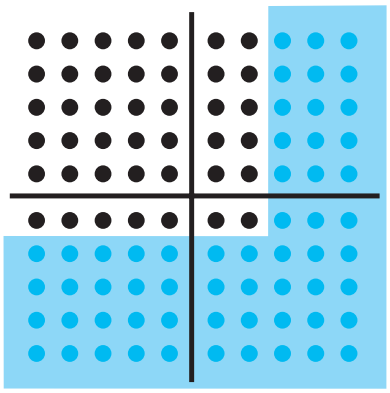


3 × 8

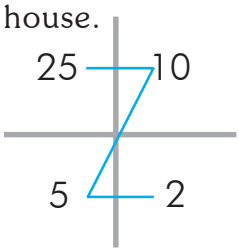


Write the multiplication fact shown and multiply on the dot grid.

6×7



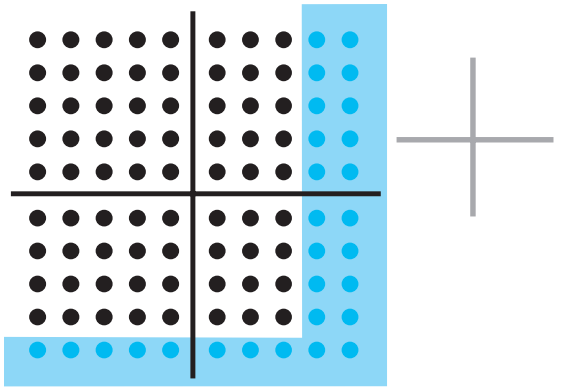
Write the number of dots in each house.

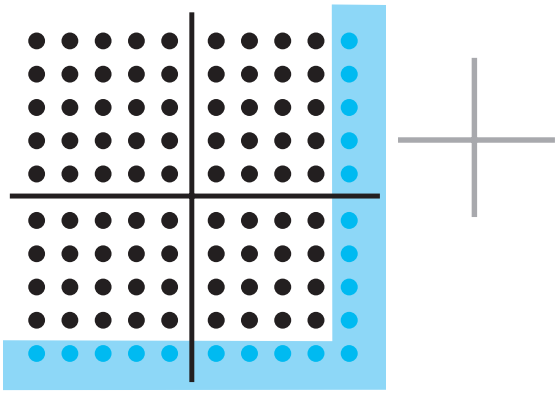


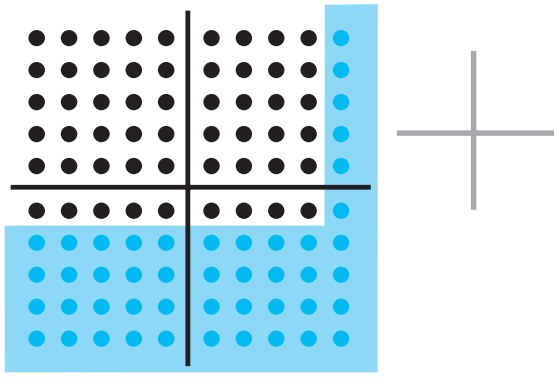
Add all the numbers.

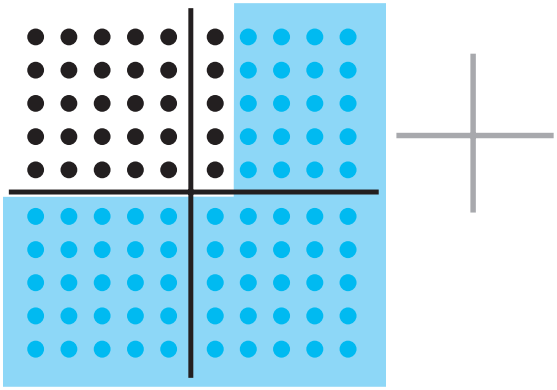
$25 + 10 + 5 + 2 = 42$

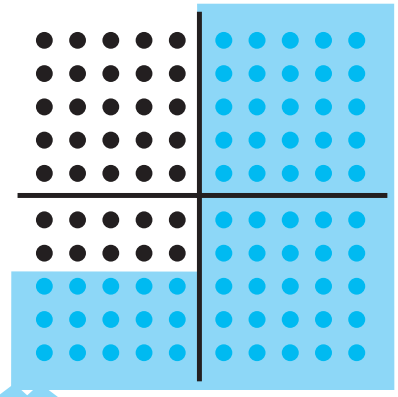
$6 \times 7 = 42$

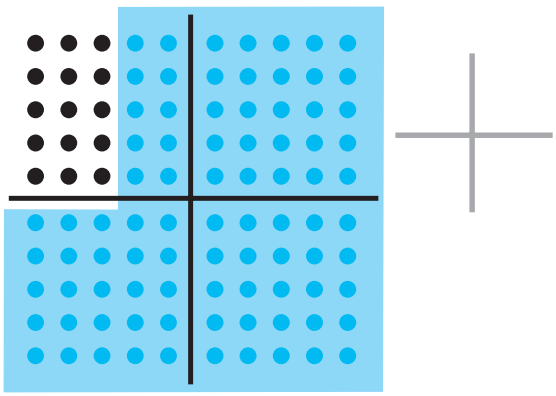




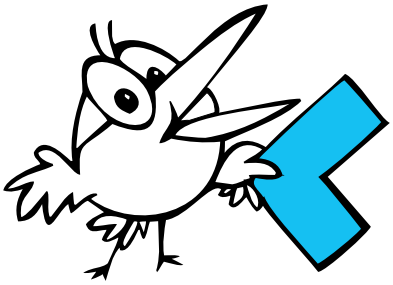






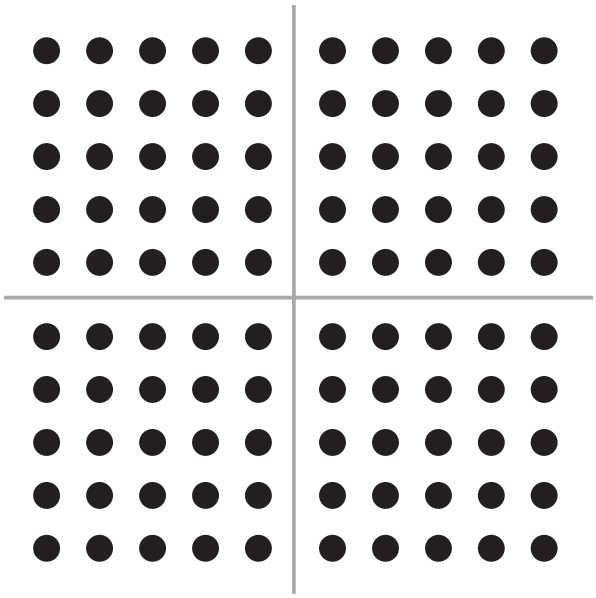


Multiply on the dot grid.



Use the L-mask to cover the dot grid for each problem.

Or you can draw lines with a pencil and then rub them out.



6 × 6

6 × 7

6 × 8

5 × 9

8 × 9

3 × 7

8 × 4

5 × 7

8 × 2

7 × 9

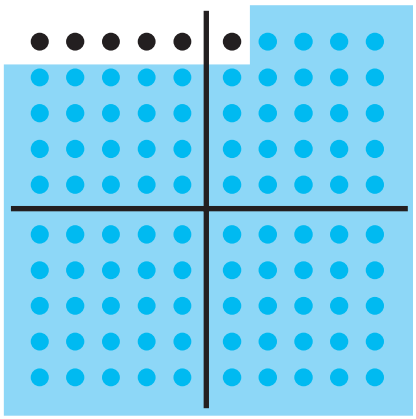
Multiplying by one and zero

Multiply on the dot grid using the L-mask or by drawing lines.

$6 \times 1 =$ $1 \times 6 =$

$8 \times 1 =$ $1 \times 3 =$

$10 \times 1 =$ $1 \times 7 =$



Multiply:

$11 \times 1 =$ $1 \times 44 =$

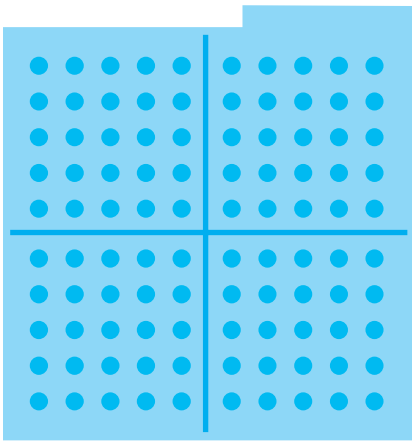
$28 \times 1 =$ $1 \times 75 =$

$1 \times 100 =$ $1 \times 1000 =$

Now try and multiply 0×3 on the dot grid.

What happens? Can you see any dots?

$0 \times 3 = 0$

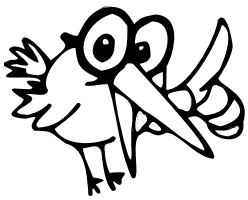


Multiply:

$0 \times 5 =$ $0 \times 23 =$

$7 \times 0 =$ $0 \times 75 =$

$10 \times 0 =$ $254 \times 0 =$



Any number multiplied by one gives the same number.

Any number multiplied by zero gives zero.

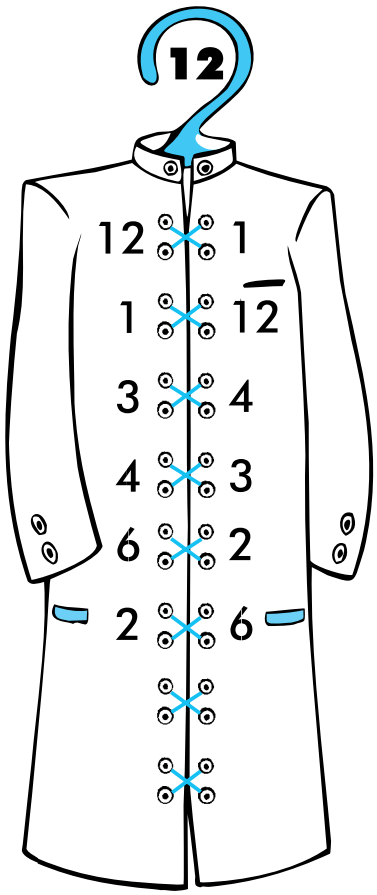
Notebook Exercise

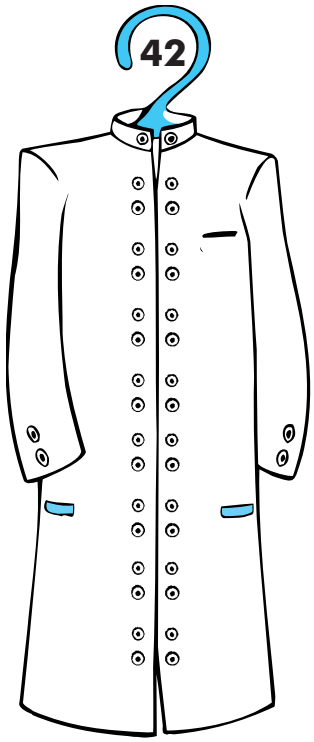
Multiply

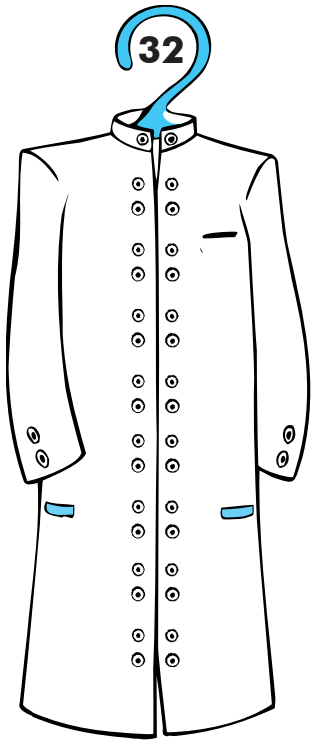
$98 \times 1 =$	$1 \times 371 =$	$0 \times 24 =$	$11 \times 1 =$
$0 \times 16 =$	$100 \times 0 =$	$1 \times 0 =$	$0 \times 0 =$

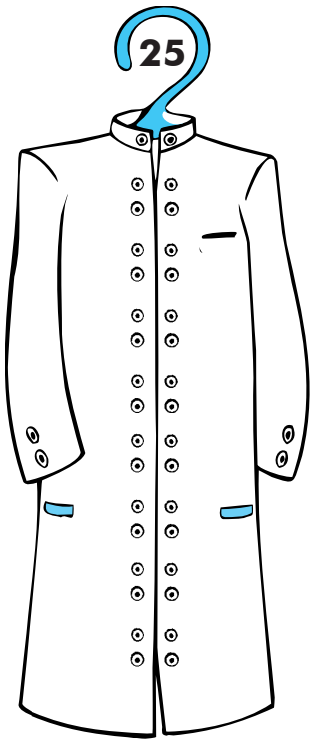
Multiplication facts

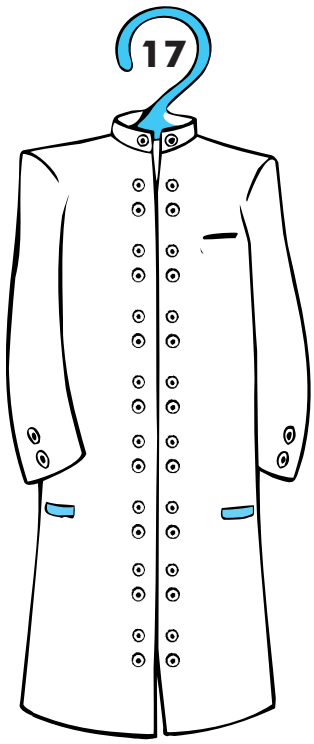
Write down the multiplication facts for these numbers.











A **factor** of a number appears in the multiplication fact for that number.

For example, for the number 12, 3×4 is a multiplication fact. So 3 and 4 are factors of 12.

You can find all the factors of 12 by finding all the multiplication facts for 12: 1, 2, 3, 4, 6 and 12.

Notebook Exercise

Find at least 2 factors for these numbers: 16, 15, 10, 9, 25, 17

Find all the factors of these numbers: 10, 14, 19, 18, 24, 36

The multiplication chart race

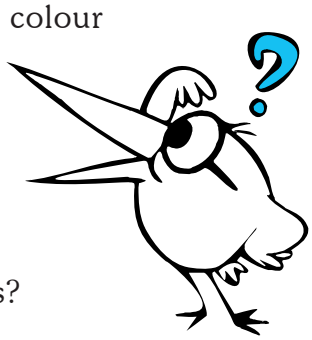
Fill each square on the chart by multiplying the row number and the column number.

Fill up the multiplication chart as quickly as you can.

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

On the multiplication chart shade all the even numbers with one colour and the odd numbers with a different colour.

How many odd numbers are there in the chart? ___



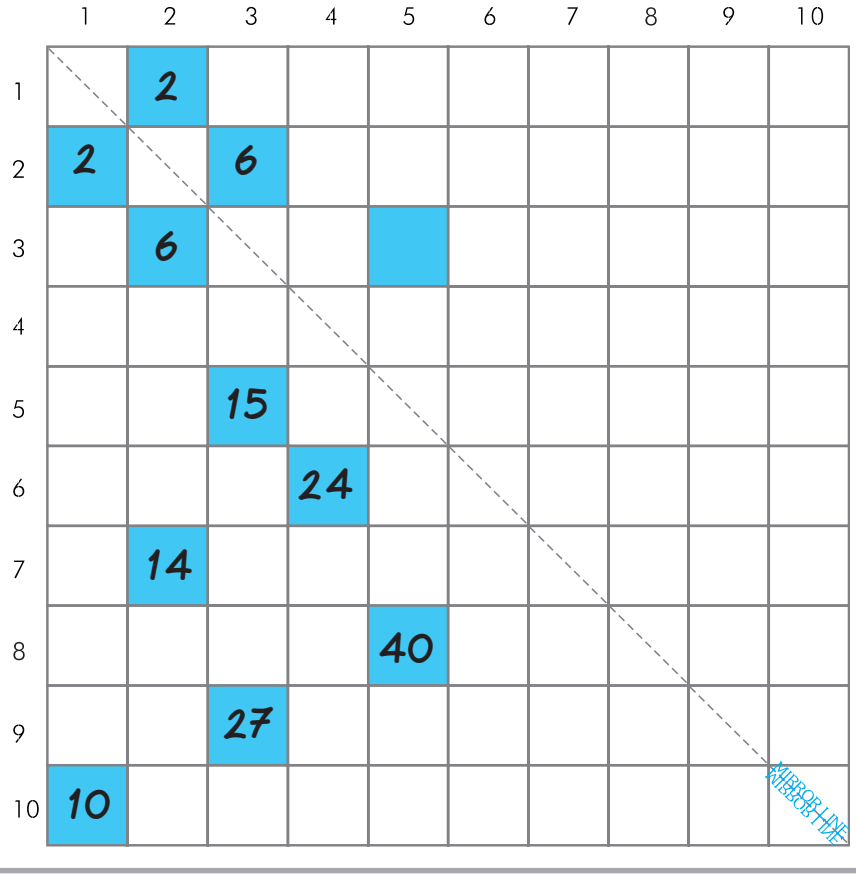
Think, Think!

Why do you get so many even numbers and so few odd numbers?

Mirror patterns

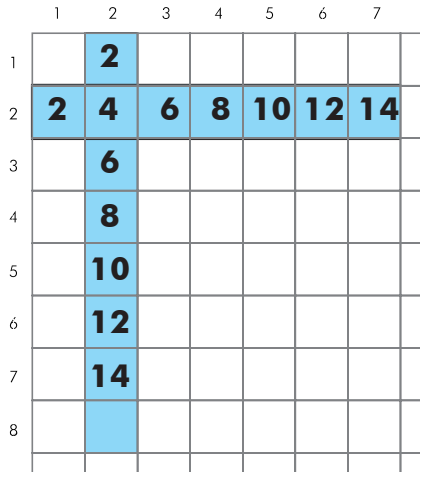
Some squares on the multiplication chart are shaded. Shade the squares which are their reflections about the mirror line. (Three reflected squares are already shaded.)

Fill the correct number in the shaded squares.



Think, think!

Why do the mirror images of the squares contain the same number?
Fill some more numbers on the chart and find their mirror images.
Which numbers on the chart don't have a mirror image?



The numbers which appear in the 2nd row are the same as the numbers which appear in the 2nd column.

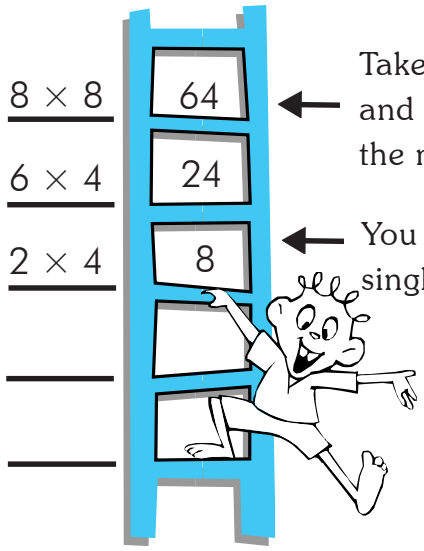
Think why this happens.

Is this true for the 3rd row and the 3rd column?
Is this true for other rows and columns?

Multiplication ladders

Go down the multiplication ladder!

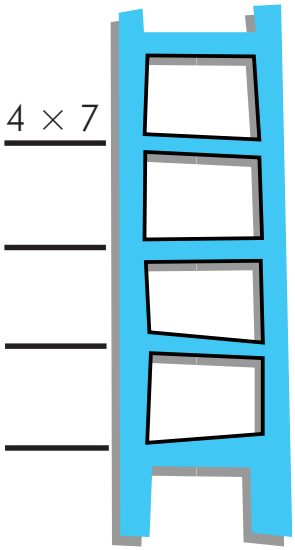
Start with a multiplication fact.

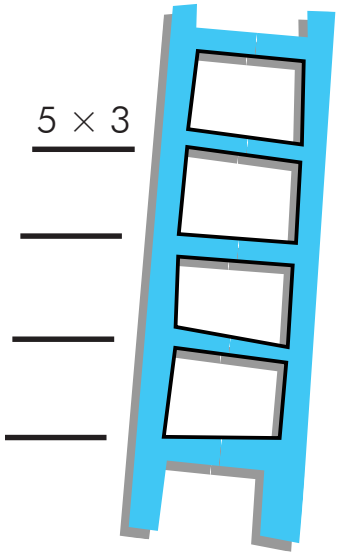


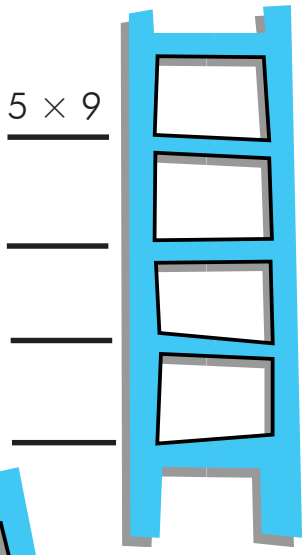
Take the digits in 64 and multiply them in the next step.

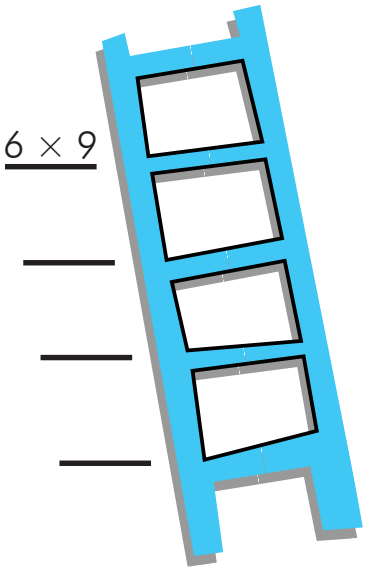
You have come to a single digit. So stop!

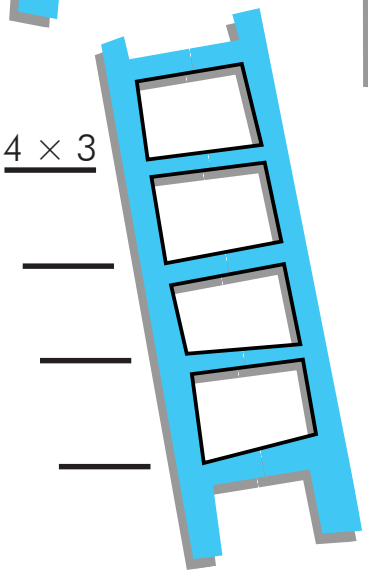
You went down three steps of the ladder.











Find a multiplication fact which gives four steps on the multiplication ladder.

Asking why

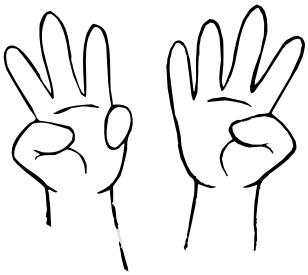
Add

4 + 3 = ____ 12 + 7 = ____

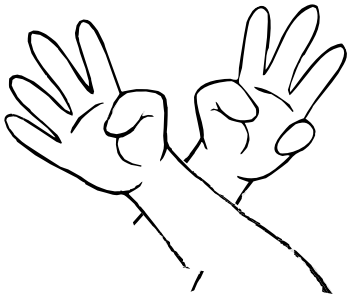
3 + 4 = ____ 7 + 12 = ____

Why do you get the same answer when you turn the numbers around?

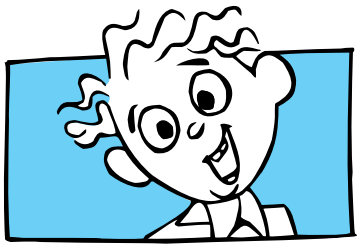
Javed explained it like this.



3 + 4

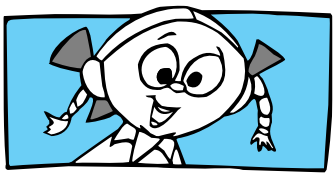


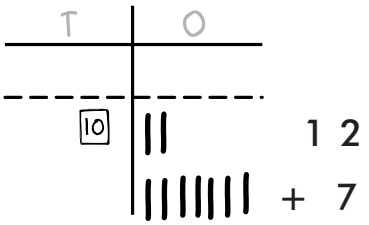
4 + 3

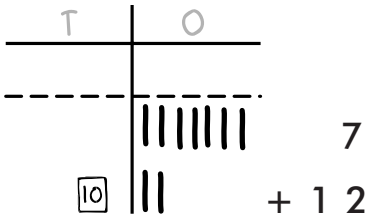


Both are the same.

Rani explained it by drawing matchsticks.







Both are the same!

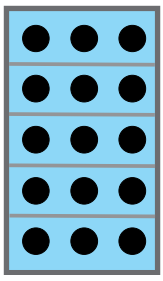
Multiply

5 × 3 = ____ 6 × 4 = ____

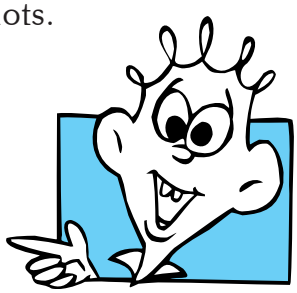
3 × 5 = ____ 4 × 6 = ____

Why do you get the same answer when you turn the numbers around?

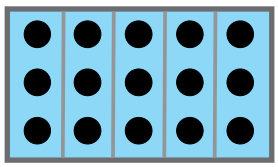
Eti explained it by drawing dots.



5 × 3

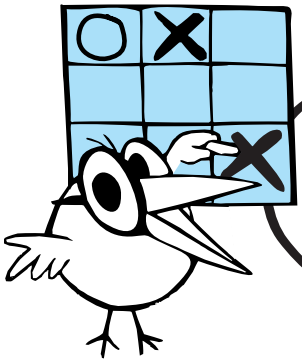


There are 15 dots.
Both are the same!



3 × 5

Tic tac times



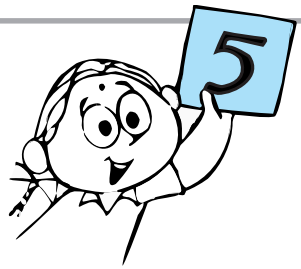
This game is like tic-tac-toe (or dots and crosses).

The winner tries to get three squares or numbers in a line.
You can get a number by choosing a factor and multiplying it with your opponent's factor.

Numberboard

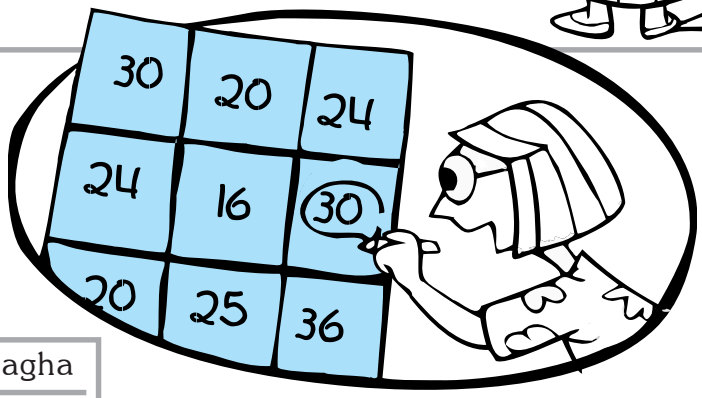
30	20	24
24	16	30
20	25	36

Play with these factors:

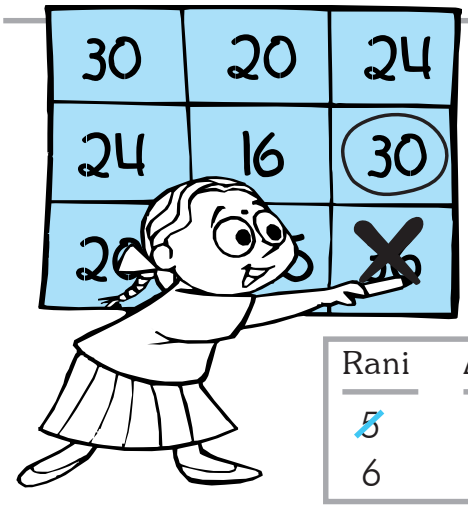


Rani chooses the factor 5 to start the game.

Rani	Anagha
5	6

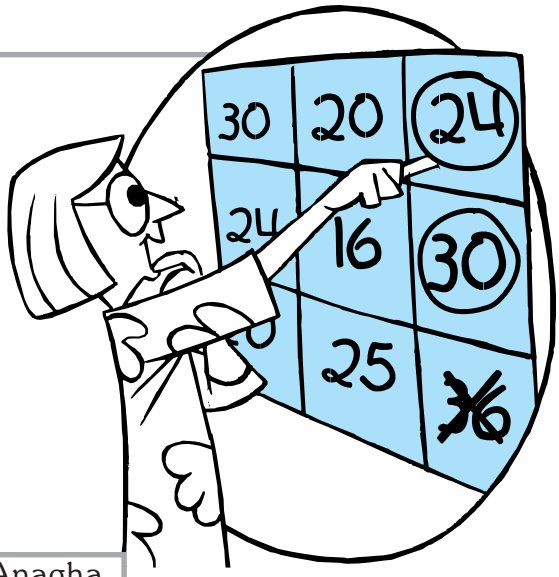


Anagha chooses 6. So she gets 30 (5 × 6).



Rani	Anagha
~~5~~ 6	6

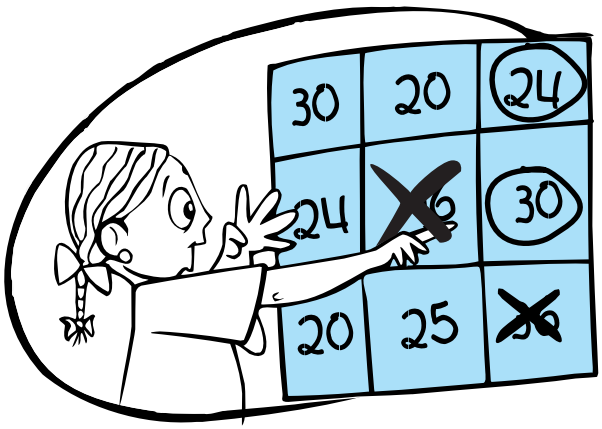
Rani now chooses 6.
So she gets 36 (6 × 6).

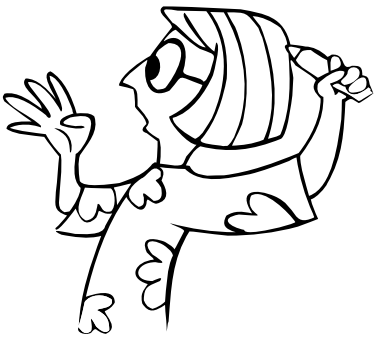


Rani	Anagha
~~5~~ 6	~~6~~ 4

Anagha chooses 4.
She gets 24 (6 × 4).

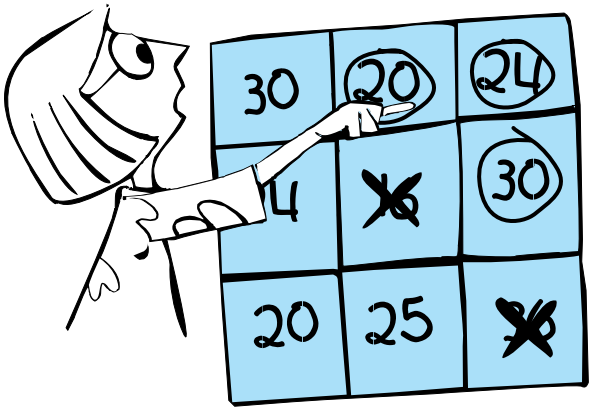
Rani	Anagha
~~5~~	~~6~~
~~6~~	4
4	





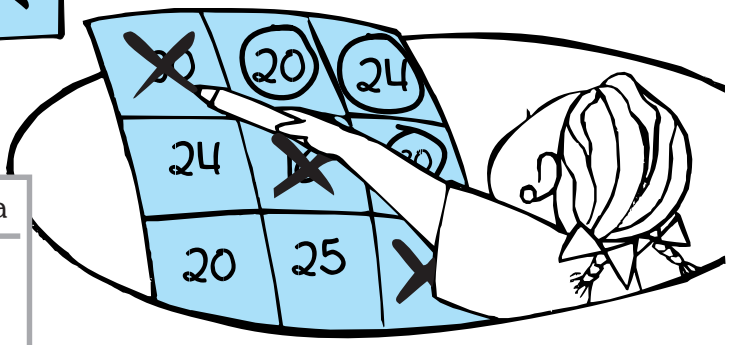
Rani chooses 4 and gets 16.

Anagha cannot choose 4 again because $4 \times 4 = 16$ is not free.



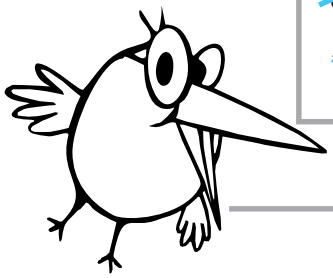
So she chooses 5. She gets 20.

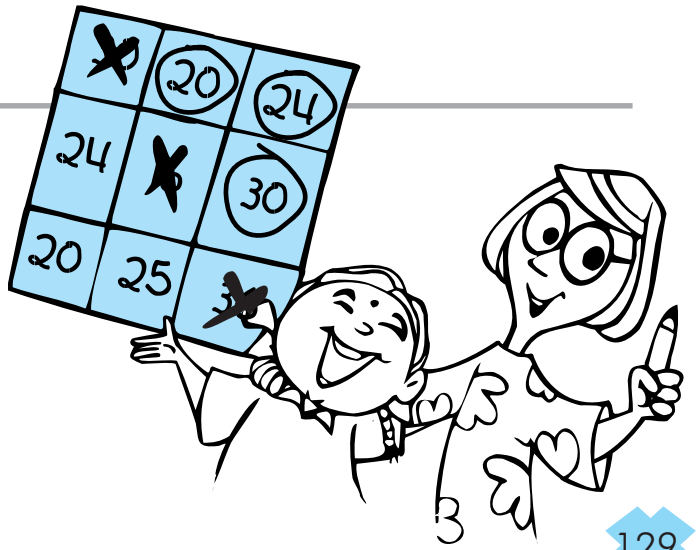
Rani	Anagha
~~5~~	~~6~~
~~6~~	~~4~~
4	5



Rani	Anagha
~~5~~	~~6~~
~~6~~	~~4~~
~~4~~	5
6	

Rani chooses 6 and wins!





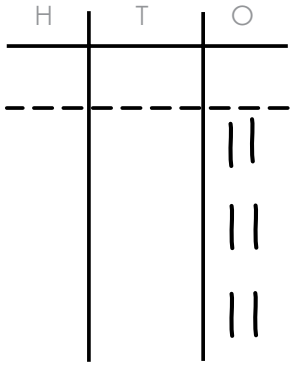
You must choose a factor so that you can put a circle or a cross on an empty square.

The game can end in a draw or can even hang! (When a player cannot choose a factor to get a number which is free.)

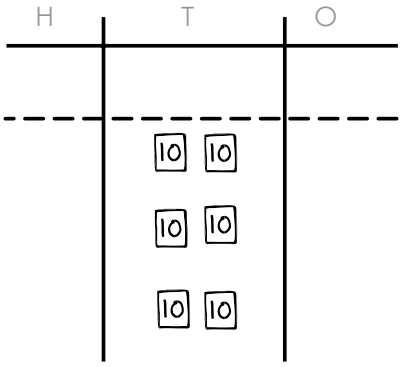
Multiplying tens and hundreds

Look carefully and understand the connection between multiplying ones, tens and hundreds.

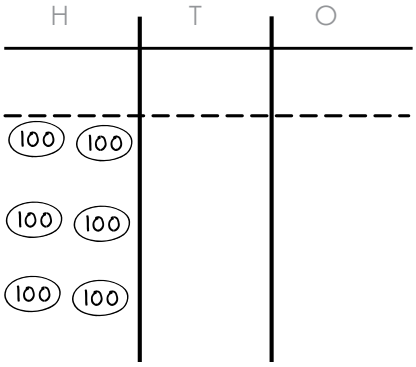
$3 \times 2 = 6$



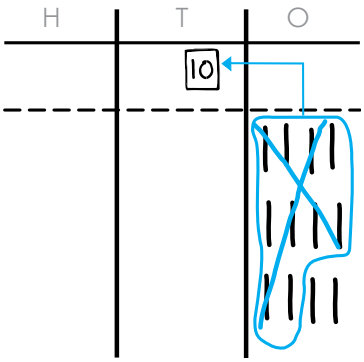
$3 \times 20 = 60$



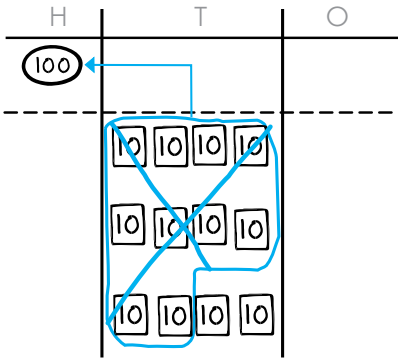
$3 \times 200 = 600$



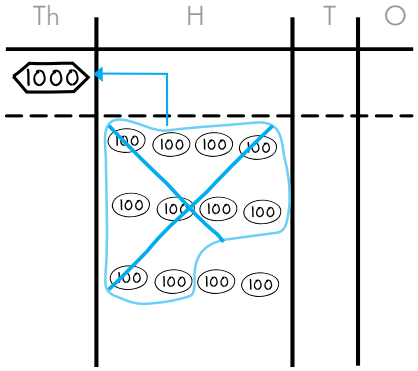
$3 \times 4 = 12$



$3 \times 40 = 120$



$3 \times 400 = 1200$



Multiply

$3 \times 3 =$	$2 \times 4 =$	$4 \times 3 =$	$6 \times 4 =$
$3 \times 30 =$	$2 \times 40 =$	$4 \times 30 =$	$6 \times 40 =$
$3 \times 300 =$	$2 \times 400 =$	$4 \times 300 =$	$6 \times 400 =$
$5 \times 7 =$	$5 \times 6 =$	$3 \times 7 =$	$4 \times 7 =$
$5 \times 70 =$	$50 \times 6 =$	$3 \times 70 =$	$40 \times 7 =$
$5 \times 700 =$	$500 \times 6 =$	$3 \times 700 =$	$400 \times 7 =$

Learn these patterns

$5 \times 10 =$	$3 \times 20 =$	$4 \times 70 =$	$4 \times 100 =$
$10 \times 6 =$	$5 \times 30 =$	$90 \times 4 =$	$100 \times 3 =$
$7 \times 10 =$	$40 \times 6 =$	$40 \times 9 =$	$6 \times 100 =$
$0 \times 10 =$	$8 \times 50 =$	$8 \times 40 =$	$100 \times 8 =$
$10 \times 8 =$	$9 \times 20 =$	$40 \times 8 =$	$9 \times 100 =$
$9 \times 10 =$	$0 \times 40 =$	$70 \times 9 =$	$10 \times 100 =$
$10 \times 10 =$	$8 \times 60 =$	$70 \times 10 =$	$100 \times 0 =$

$4 \times 300 =$

$200 \times 3 =$

$2 \times 800 =$

$700 \times 0 =$

$4 \times 600 =$

$5 \times 500 =$

$600 \times 7 =$

$8 \times 400 =$

$700 \times 8 =$

$9 \times 500 =$

$10 \times 500 =$

T O	T O	H T O
_ _	_ _	_ _ _
4	4 0	4 0 0
× 6	× 6	× 6
2 4		

T O	T O	H T O
_ _	_ _	_ _ _
5	5 0	5 0 0
× 7	× 7	× 7

T O	T O	H T O
_ _	_ _	_ _ _
8	8 0	8 0 0
× 6	× 6	× 6

Multiplying two-digit numbers

32 × 3

Split 32 into 30 and 2.

30 and 2

× 3

90 and 6 = 96

32 × 3 = 96

36 × 4

30 and 6

× 4

120 and 24 = 144

36 × 4 = 144

Multiply

43 × 2

37 × 5

63 × 5

54 × 6

Notebook Exercise

Multiply

39 × 8 54 × 6 49 × 7 23 × 9 78 × 9

Multiplying three-digit numbers

134 × 2

Split 134 into 100 and 30 and 4.

100 and 30 and 4

× 2

200 and 60 and 8 = 268

134 × 2 = 268

Multiply

321 × 3

---

346 × 4

300 and 40 and 6

× 4

1200 and 160 and 24 = 1384

1200
+ 160
+ 24
1384

346 × 4 = 1384

Multiply

456 × 3

265 × 4

Multiplication – the short method

example

23 × 3

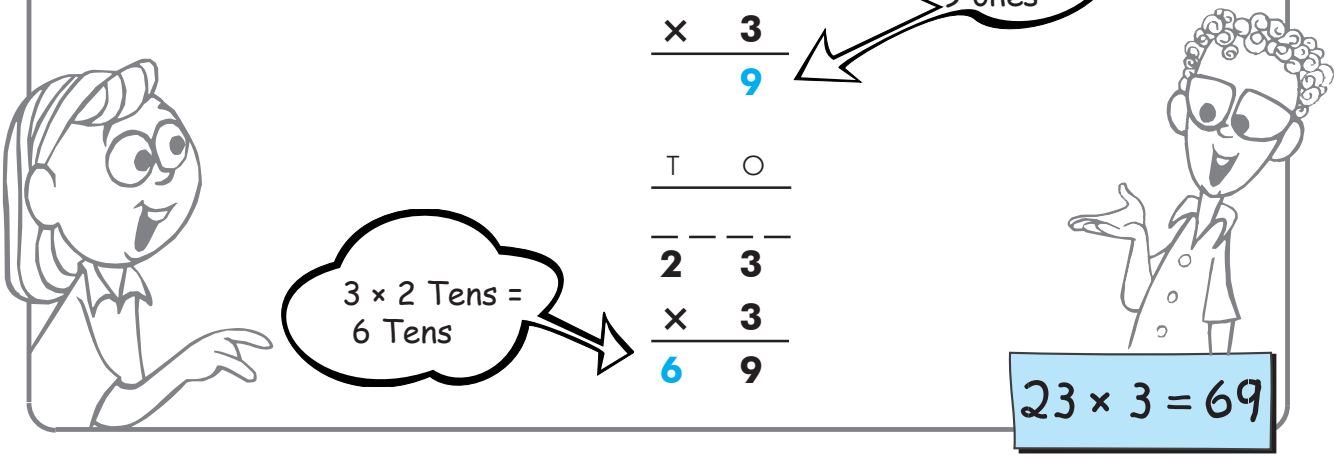
Space for carry over

T	O
2	3
×	3
	9

3 × 3 Ones = 9 ones

T	O
2	3
×	3
6	9

3 × 2 Tens = 6 Tens



23 × 3 = 69

example

36 × 4

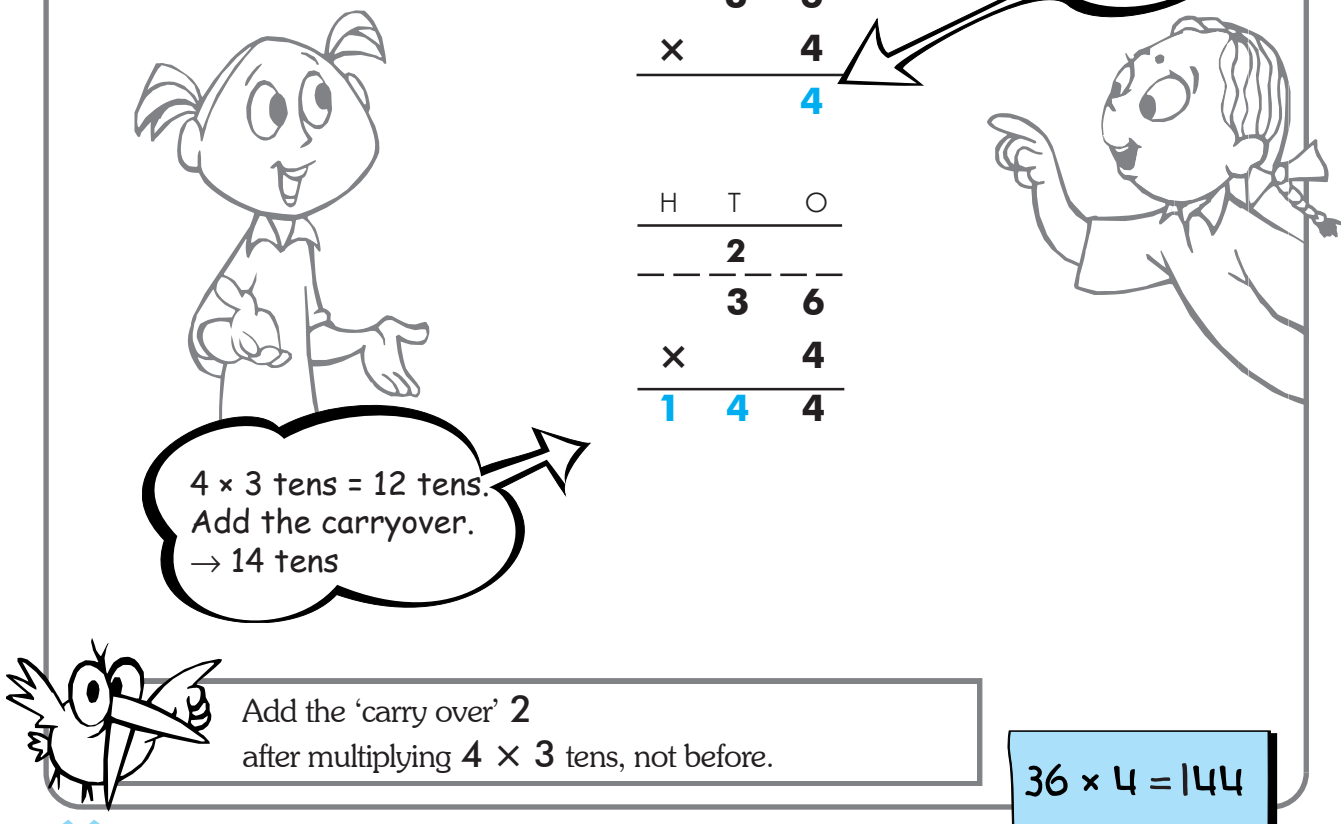
Space for carry over

H	T	O
	2	
	3	6
×		4
		4

4 × 6 Ones = 2 tens and 4 Ones

H	T	O
	2	
	3	6
×		4
1	4	4

4 × 3 tens = 12 tens. Add the carryover. → 14 tens



Add the 'carry over' 2 after multiplying 4 × 3 tens, not before.

36 × 4 = 144

Multiply by both the long and the short method.

34 × 2

47 × 4

342 × 2

254 × 3

Multiply only by the short method.

T	O
3	4
×	2

T	O
3	5
×	2

T	O
5	3
×	2

T	O
4	6
×	3

T	O
6	4
×	4

T	O
5	6
×	5

T	O
9	8
×	5

T	O
6	7
×	6

T	O
7	7
×	8

T	O
8	7
×	9

H	T	O
2	1	3
×		3

H	T	O
3	4	2
×		2

H	T	O
1	0	4
×		2

H	T	O
4	0	3
×		3

H	T	O
3	1	5
×		2

H	T	O
3	1	0
×		4

H	T	O
4	3	5
×		3

H	T	O
3	6	8
×		2

H	T	O
1	3	4
×		4

H	T	O
1	3	4
×		5

H	T	O
3	4	5
×		4

H	T	O
4	6	2
×		6

H	T	O
5	6	9
×		5

H	T	O
6	7	6
×		7

H	T	O
8	3	6
×		8

Learn these patterns

$10 \times 20 =$	$30 \times 20 =$	$20 \times 90 =$	$10 \times 300 =$
$10 \times 40 =$	$30 \times 30 =$	$50 \times 50 =$	$10 \times 600 =$
$60 \times 10 =$	$40 \times 20 =$	$50 \times 80 =$	$400 \times 10 =$
$30 \times 10 =$	$60 \times 40 =$	$70 \times 60 =$	$100 \times 10 =$
$10 \times 10 =$	$50 \times 30 =$	$80 \times 60 =$	$700 \times 10 =$
$70 \times 10 =$	$30 \times 70 =$	$90 \times 60 =$	$10 \times 400 =$
$10 \times 80 =$	$40 \times 60 =$	$70 \times 90 =$	$800 \times 10 =$
$90 \times 10 =$	$80 \times 40 =$	$90 \times 90 =$	$10 \times 500 =$
$100 \times 10 =$	$90 \times 30 =$	$90 \times 100 =$	$10 \times 1000 =$

$400 \times 20 =$	$2 \times 1000 =$	$8 \times 1000 =$	$5 \times 5000 =$
$200 \times 30 =$	$1000 \times 1 =$	$1000 \times 9 =$	$7 \times 4000 =$
$500 \times 20 =$	$0 \times 1000 =$	$10 \times 1000 =$	$2000 \times 9 =$
$40 \times 800 =$	$1000 \times 0 =$	$2 \times 4000 =$	$9000 \times 4 =$
$500 \times 30 =$	$1000 \times 3 =$	$3000 \times 3 =$	$4000 \times 9 =$
$500 \times 60 =$	$1000 \times 5 =$	$2000 \times 1 =$	$6000 \times 7 =$
$700 \times 30 =$	$4 \times 1000 =$	$0 \times 4000 =$	$8 \times 8000 =$
$50 \times 700 =$	$6 \times 1000 =$	5000×0	$9 \times 5000 =$
$80 \times 600 =$	$1000 \times 7 =$	$6000 \times 3 =$	$10 \times 5000 =$

Notebook Exercise

Multiply by splitting into hundreds, tens and ones.

24 × 5	36 × 7	243 × 5	619 × 3
558 × 6	376× 8	459 × 7	736 × 9

Do these multiplication problems also by the short method.

Write down the multiplication facts for these numbers:

36, 27, 18, 16, 23, 44

Find all the factors of 10, 20, 32, 42, 28, 23.

Strike out the numbers which are not factors of 18.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Strike out the numbers which are not factors of 24.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

Multiply on the dot grid.

6 × 5 3 × 8 5 × 9 7 × 7 8 × 6 9 × 8.

Learn these multiplication facts.

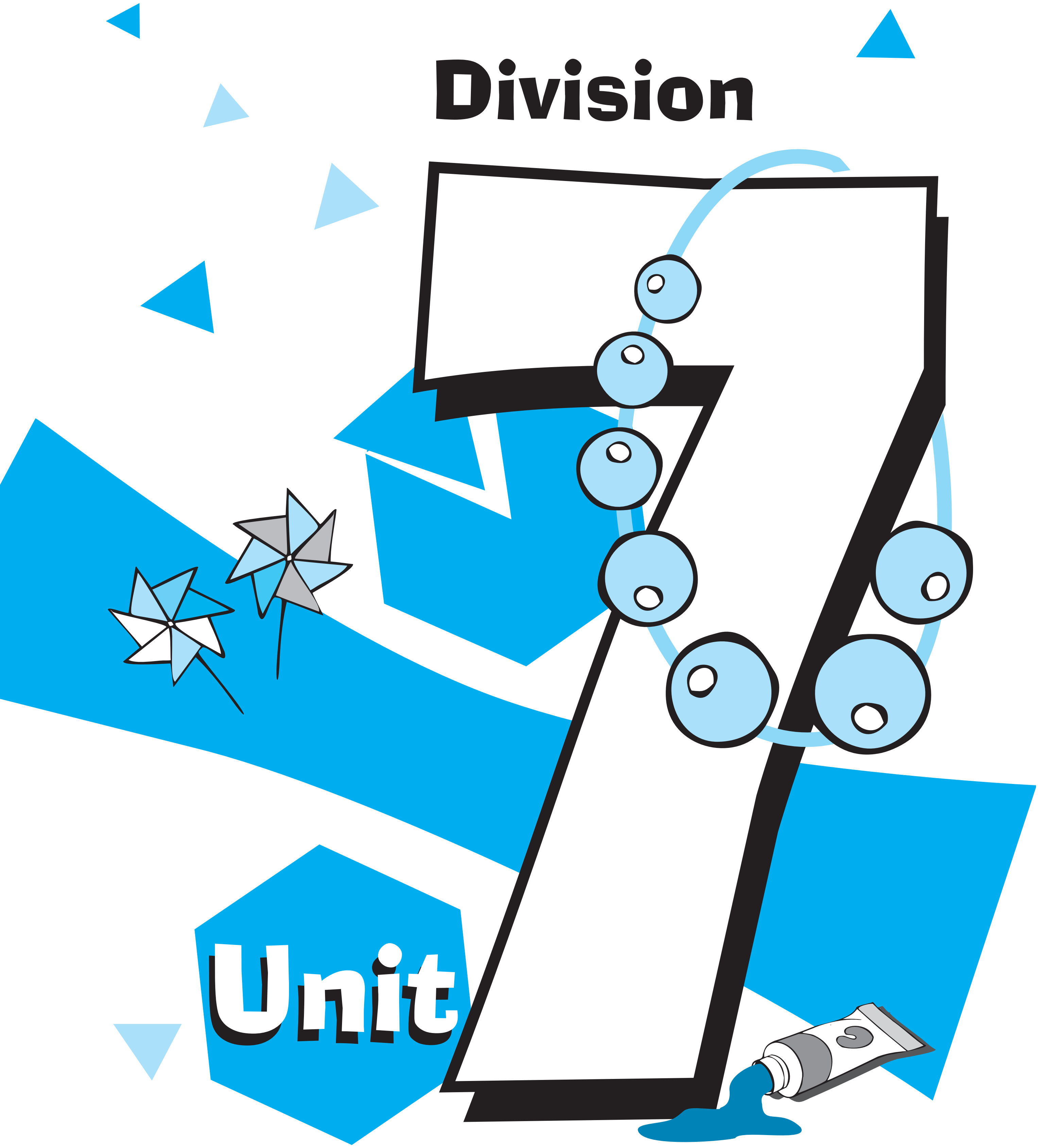
5 × 5 =	4 × 4 =	6 × 6 =	3 × 3 =
9 × 9 =	8 × 8 =	7 × 7 =	10 × 10 =

Write a story problem for each of these multiplication facts.

6 × 5 = 3 × 7 = 5 × 4 = 8 × 7 =

Division

Unit 7



Making groups

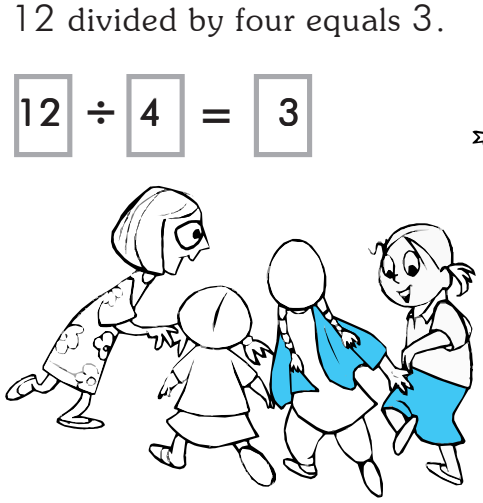
Here are children playing the groups game.

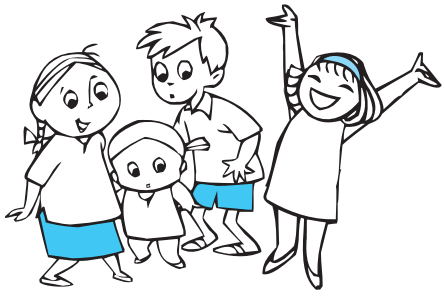
Count how many children.

12 children make groups of 4. How many groups did they make? Three groups.

12 divided by four equals 3.

12 ÷ 4 = 3





÷ means ‘ divided by’

Make groups of 3 and write the division fact.

$\square \div 3 = \square$

The answer tells you how many groups you can make.

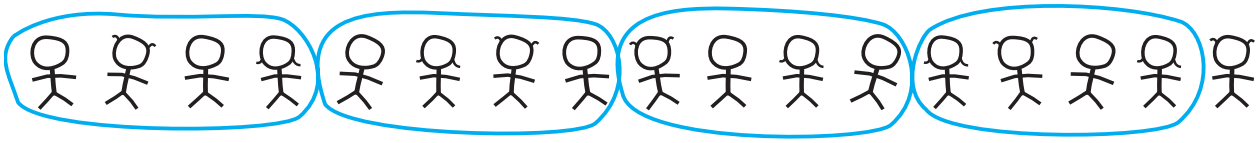
Make groups of 6 and write the division fact.

$\square \div \square = \square$

Example

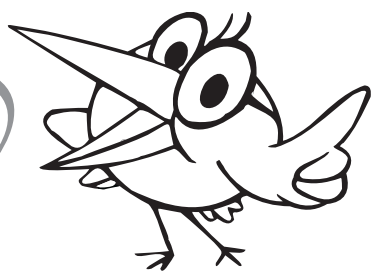
Sometimes when you make equal groups, you get a remainder.

Make groups of 4 and write the division fact.



$17 \div 4 = 4$ **R** 1

R 1 means 'remainder one'. One child remains over.



Notebook Exercise

In your notebook draw groups of children to show these division facts.

9 ÷ 3 11 ÷ 3 15 ÷ 5 20 ÷ 3

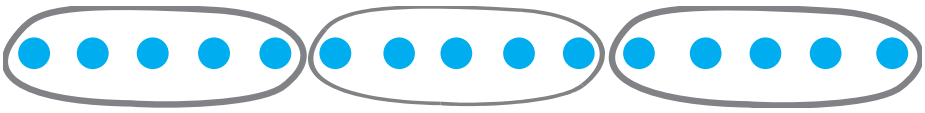
Dividing on the dotted line

You can divide on a line of dots by making equal groups.

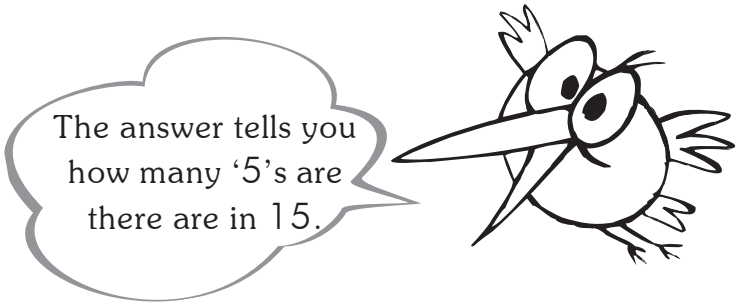
Example 15 ÷ 5

Draw 15 dots and make groups of 5 dots.

Count how many groups.



15 ÷ 5 = 3



Sometimes some dots remain over.

Example 20 ÷ 3

6 groups and 2 dots remain over.

20 ÷ 3 = 6 R 2

6 **R** 2 means 6 remainder 2.

Notebook Exercise

Divide on a line of dots.

6 ÷ 2	8 ÷ 4	10 ÷ 5	15 ÷ 5	15 ÷ 3	5 ÷ 2
7 ÷ 2	7 ÷ 3	8 ÷ 3	10 ÷ 4	11 ÷ 5	14 ÷ 3

How many '2's are there in 8?

How many '4's are there in 16?

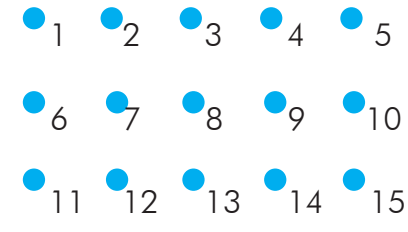
How many '5's are there in 20?

How many '10's are there in 30?

Another way of dividing dots:

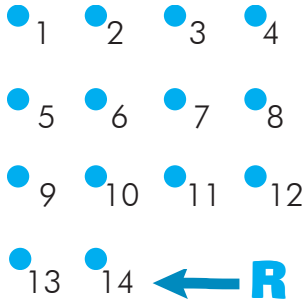
Example $15 \div 5$

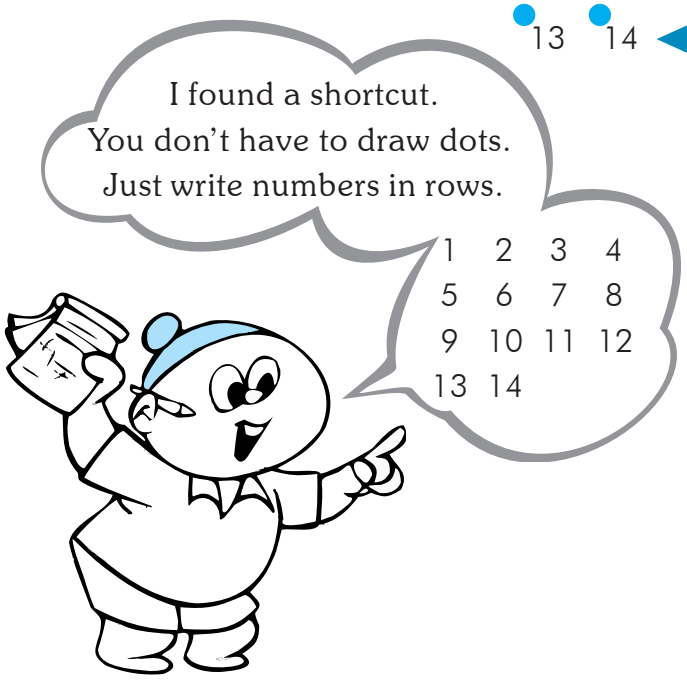
Draw the dots in rows of 5.
Count how many rows.
$15 \div 5 = 3$

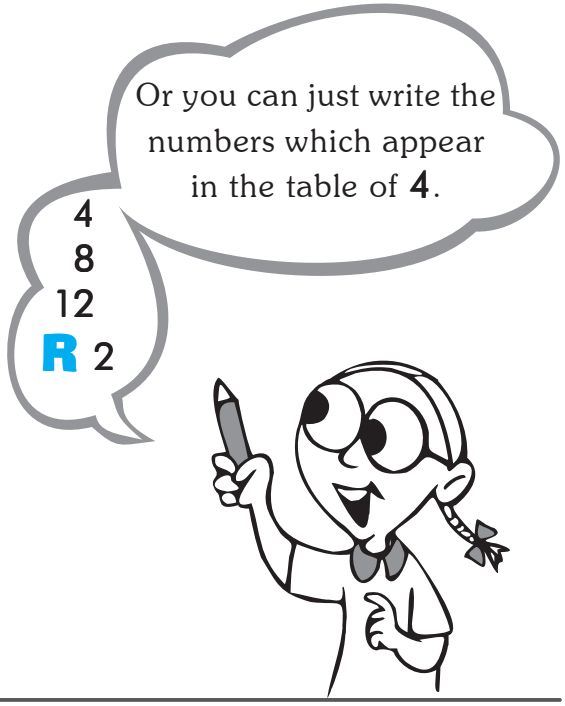


Example $14 \div 4$

$14 \div 4 = 3$ **R** 2







Notebook Exercise

Divide by making dots in rows.

$8 \div 2$	$6 \div 3$	$10 \div 2$	$13 \div 4$	$15 \div 4$	$16 \div 4$
$18 \div 6$	$20 \div 4$	$24 \div 3$	$16 \div 5$	$22 \div 7$	$36 \div 9$

Finding the opposite

Do you remember how Eti Soppo found the opposites of adddition facts?

Complete the addition fact and write the opposite subtraction facts.

Example

3 + 7 = 10

10 – 7 = 3

10 – 3 = 7

4 + 7 = ___

7 + 9 = ___

One day Eti's teacher gave him a multiplication problem: 4 x 2 = ____

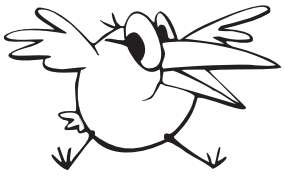
As usual Eti wanted to write the opposite.

The opposite of multiplication is _____

Eti wrote down two opposites for 4 x 2 = 8.

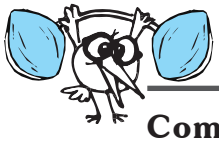
Opposite **1**. 8 ÷ 4 =

Opposite **2**. 8 ÷ 2 =



The opposite of + is _____

The opposite of × is _____



EXERCISE

Complete the multiplication fact and write down the opposite division facts.

3 × 8 = 7 × 5 = 5 × 8 = 6 × 7 =

8 × 6 = 9 × 7 = 8 × 8 = 13 × 1 =

Use the tables to divide

You can use the multiplication tables for division.

Example

20 ÷ 4 = ____ You can write this as 4 × ? = 20

Say the table of 4 till you come to 20.

4 × 0 = 0
4 × 1 = 4
4 × 2 = 8
4 × 3 = 12
4 × 4 = 16
4 × 5 = 20

4 × 5 = 20
So 20 ÷ 4 = 5

Divide using the tables.

First write the multiplication fact below the problem, then write the answer.

Examples

10 ÷ 2 = 5
2 × 5 = 10

42 ÷ 6 =

36 ÷ 4 =

25 ÷ 5 =

28 ÷ 4 = __
4 × __ = 28

56 ÷ 7 =

48 ÷ 8 =

81 ÷ 9 =

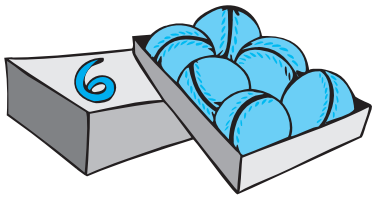
Divide and write only the answer.

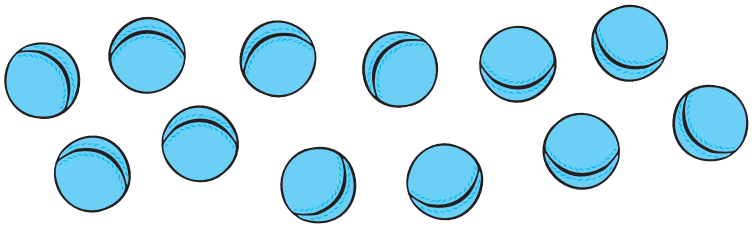
12 ÷ 2 =	12 ÷ 3 =	18 ÷ 3 =	20 ÷ 4 =
18 ÷ 2 =	24 ÷ 4 =	24 ÷ 6 =	21 ÷ 3 =
35 ÷ 5 =	45 ÷ 5 =	28 ÷ 4 =	36 ÷ 6 =
30 ÷ 6 =	18 ÷ 6 =	42 ÷ 7 =	32 ÷ 8 =
40 ÷ 8 =	56 ÷ 8 =	45 ÷ 9 =	36 ÷ 9 =

Filling boxes

How many boxes can you fill with these balls?

Hint: It is easy to find how many boxes by making groups.

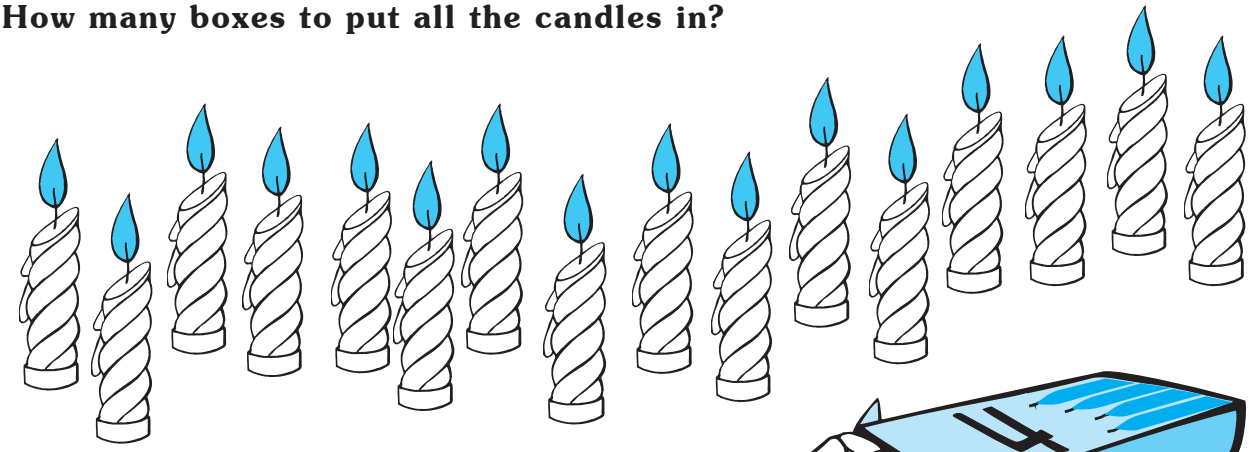


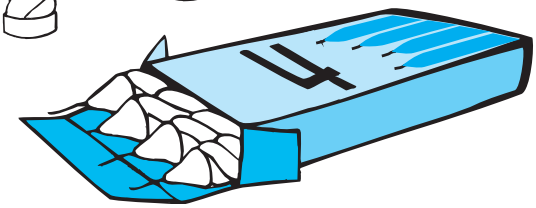


□ ÷ □ = □

Don't forget to write the division fact.

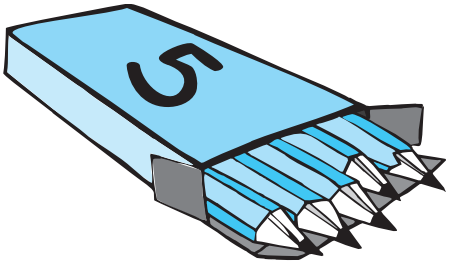
How many boxes to put all the candles in?

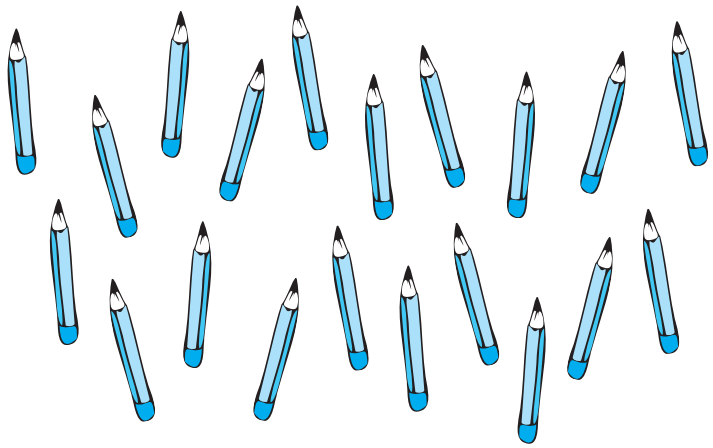




□ ÷ □ = □

How many boxes to put all the pencils in?

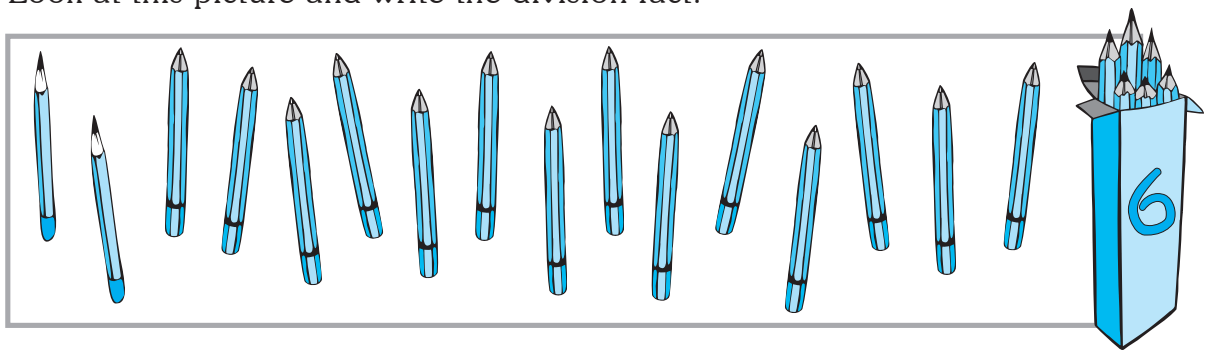




□ ÷ □ = □

An extra box

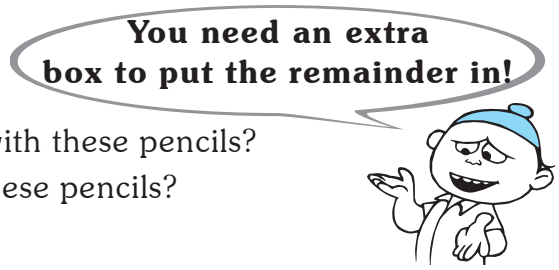
Look at this picture and write the division fact.



Notice that there is a remainder for the division fact.

How many pencils remain over?

□ ÷ □ = □



Read these two questions carefully.

(a) How many boxes can you completely fill with these pencils?

(b) How many boxes do you need to put all these pencils?

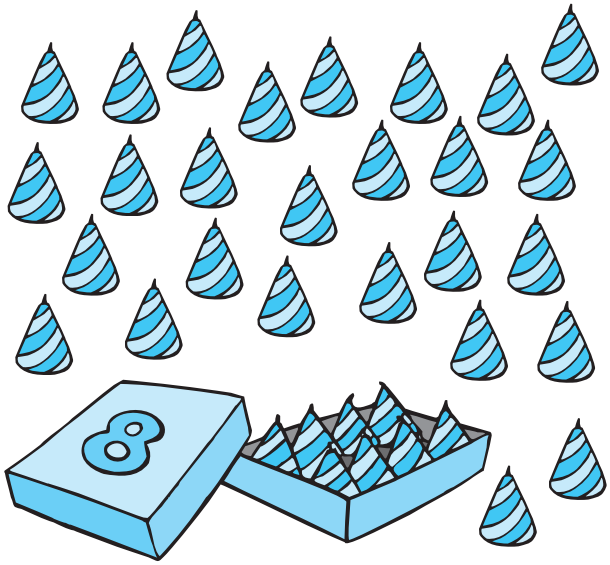
Are the answers to (a) and (b) the same?

If there was no remainder would the answers be the same?

Look at the picture below. Can you write down the division fact for the picture?

For this problem write down two questions like (a) and (b) in the previous picture.

Find whether the answers are different or the same.



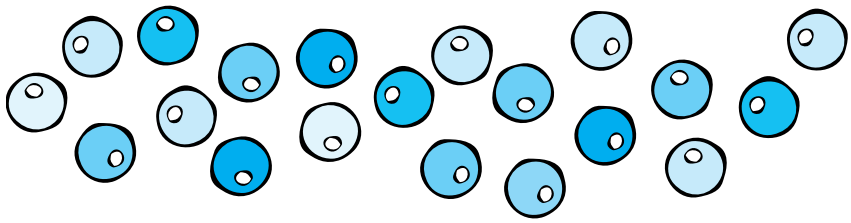
□ ÷ □ = □

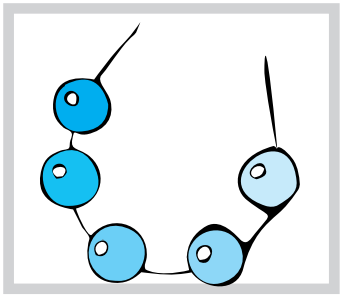
Picture stories

Write a division word problem for each picture.

Also write the division fact and the answer to the problem.

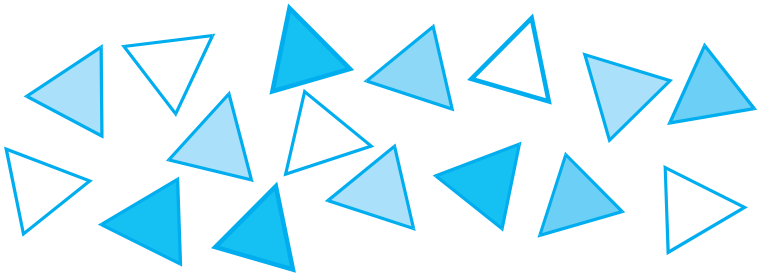
Example

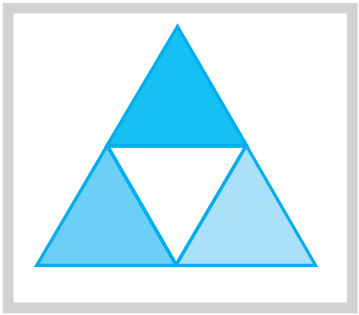




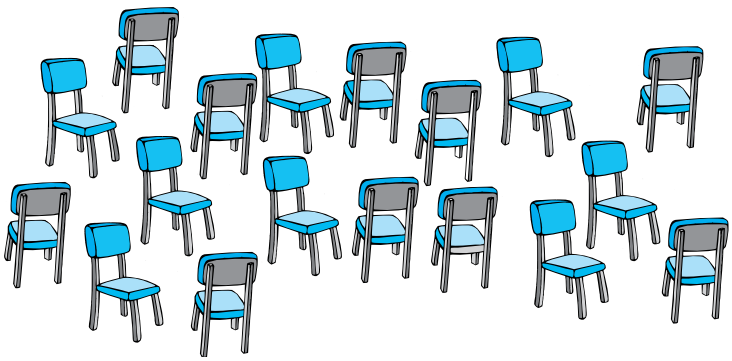
Each necklace has 5 beads. How many necklaces can you make from 20 beads?

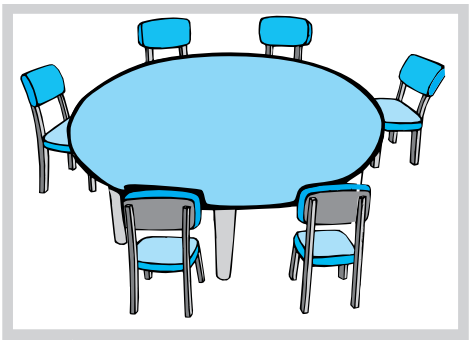
20 ÷ 5 = 4



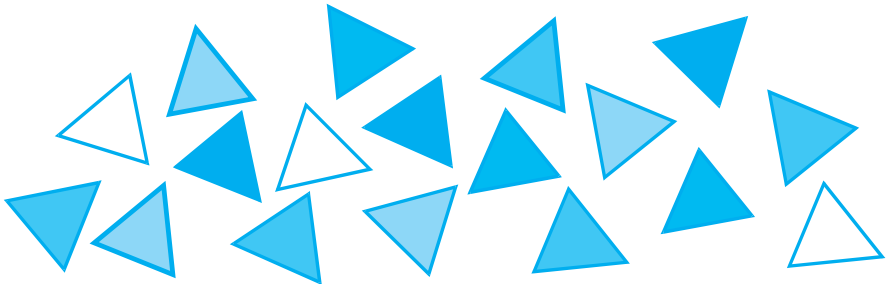


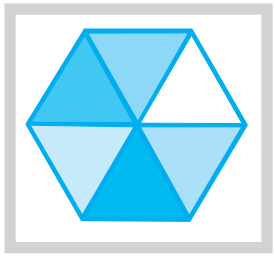
____ ÷ ____ = ____





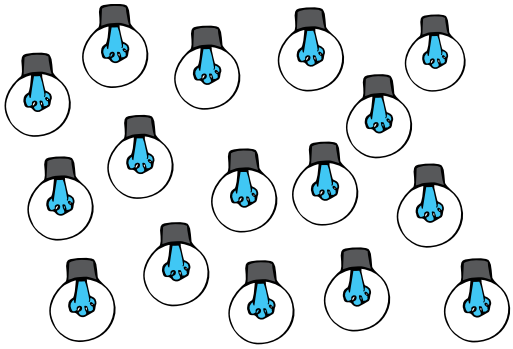
____ ÷ ____ = ____

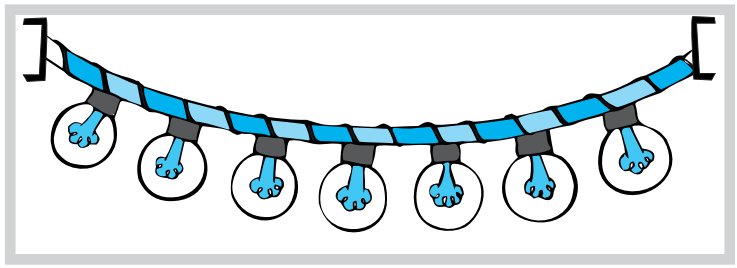


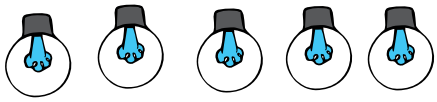


_____ ÷ _____ = _____

_____

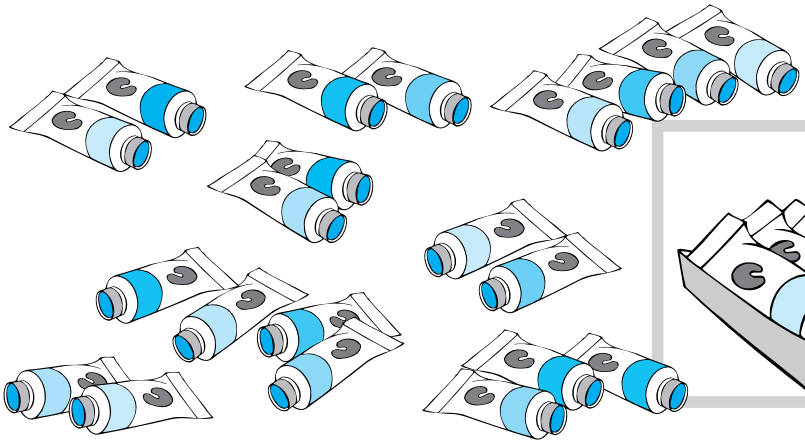


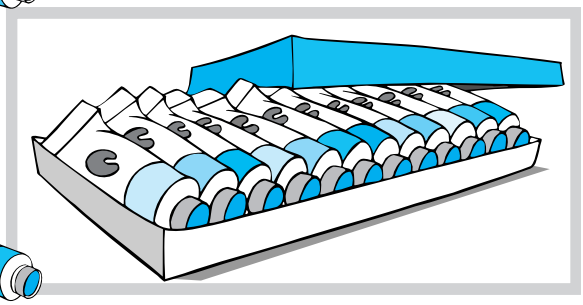




_____ ÷ _____ = _____

_____





_____ ÷ _____ = _____

_____

Sharing

Dividing is sharing equally.

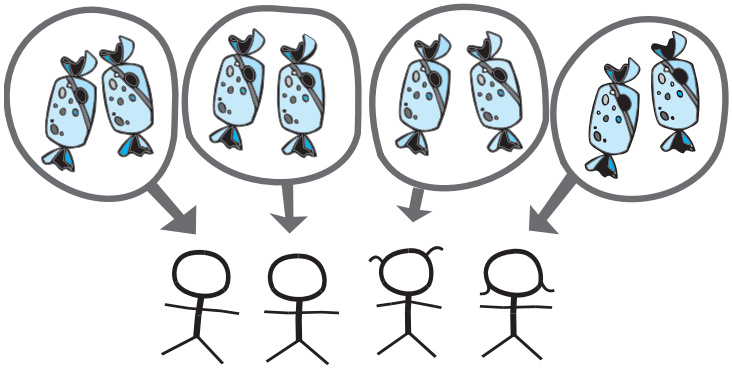
You can use division facts to share equally.

Share 8 toffees among 4 children equally.

Division fact $8 \div 4 = 2$

Each child gets 2 toffees.

Check the answer by drawing rings and sharing.
Do all the children get an equal share?

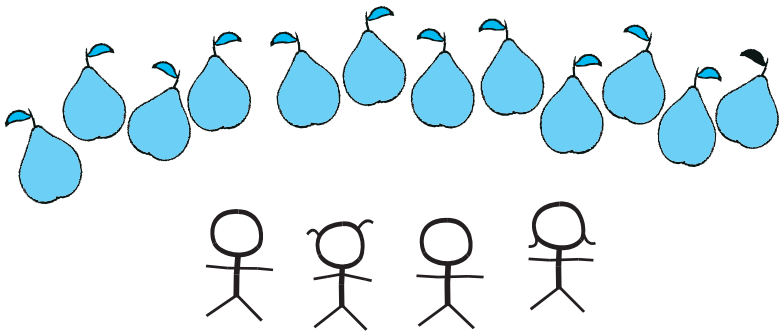


Use division facts to share equally.

Also draw rings and check if all the children get an equal share.

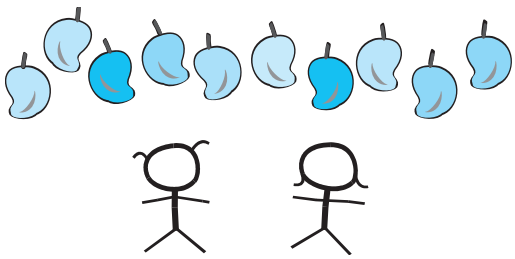
$\square \div \square = \square$

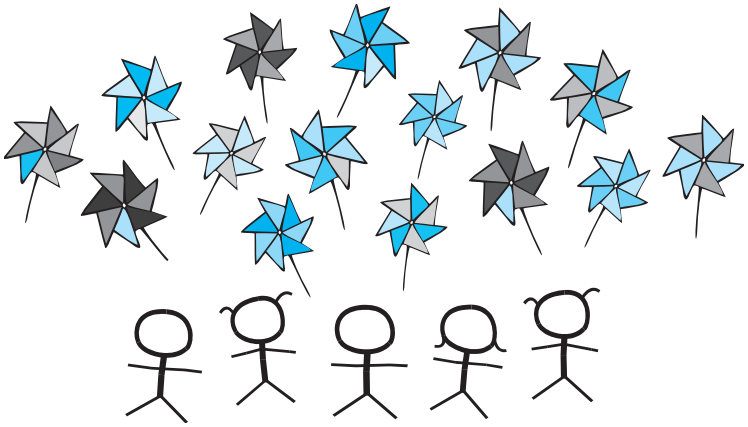
Each child gets____ guavas.



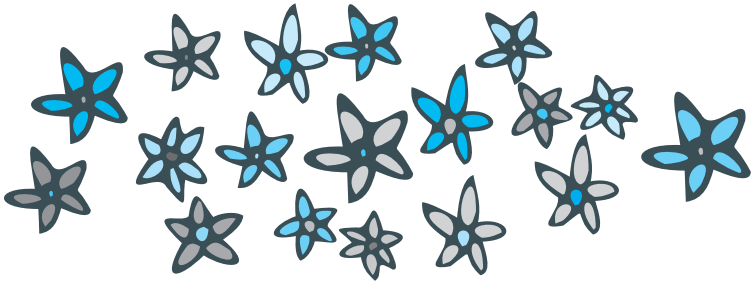
$\square \div \square = \square$

Each child gets____ mangoes.

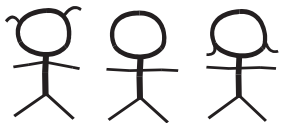




□ ÷ □ = □



□ ÷ □ = □



Draw a picture to show 20 ÷ 4 as an equal sharing problem.

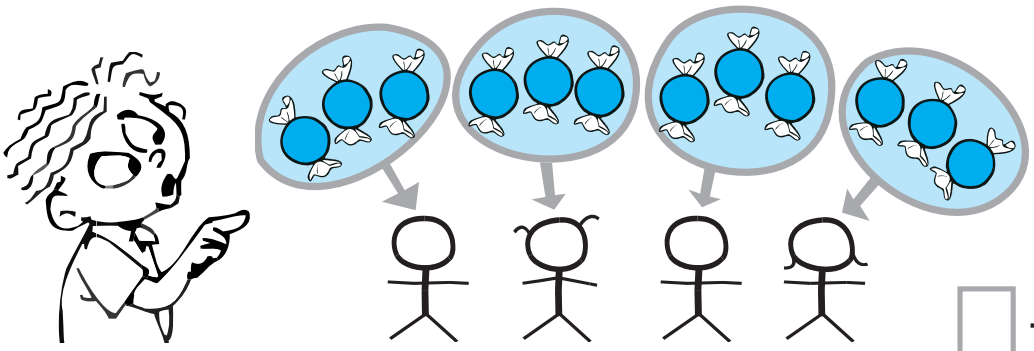
Notebook Exercise

Draw pictures in your notebook to show these division facts as sharing problems.

16 ÷ 2 16 ÷ 4 18 ÷ 6 35 ÷ 7

Two ways of sharing

Javed shared 12 sweets among 4 children like this.

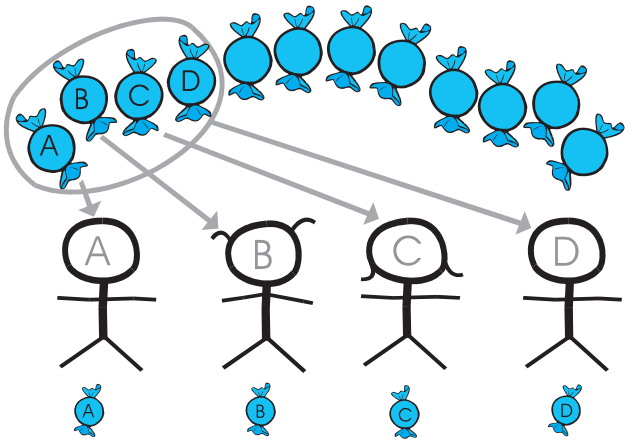


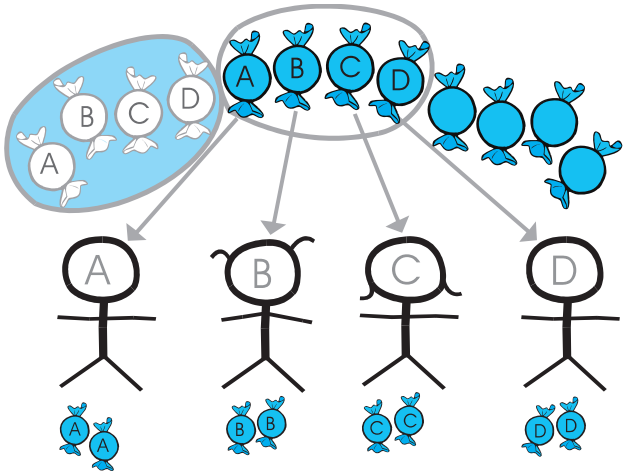
□ ÷ □ = □

Javed made 4 groups. Each group had 3 toffees.

Eti Soppo has found another way of sharing.

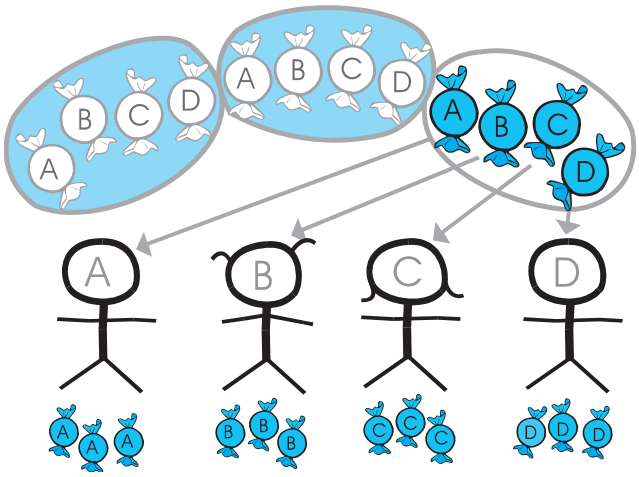
He first made a **group of 4 toffees** and gave one toffee to each child.



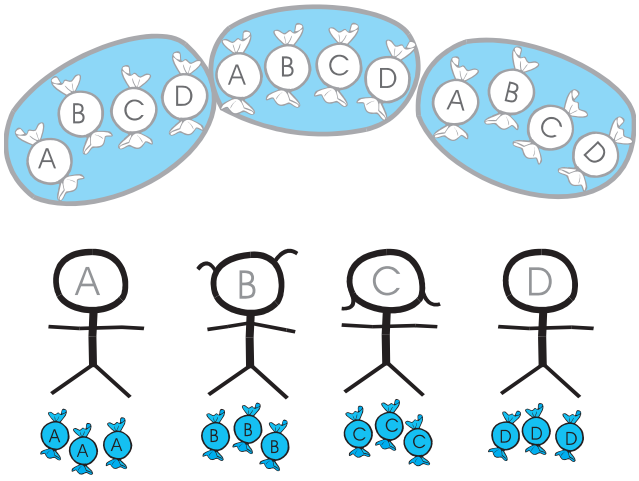


He made another group of 4 and shared out the toffees.

Use actual objects to show this way of sharing. See teacher's book.



He then shared out the last group of 4.



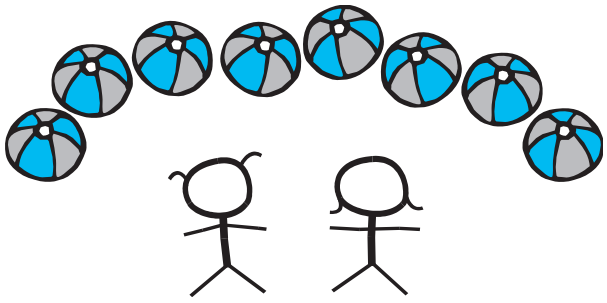
So Eti had shared his toffees out like this:

One group at a time to all the children.

□ ÷ □ = □

What is the difference between Javed's way of sharing and Eti's way of sharing?.

Share these balls out like the way Eti did.



□ ÷ □ = □

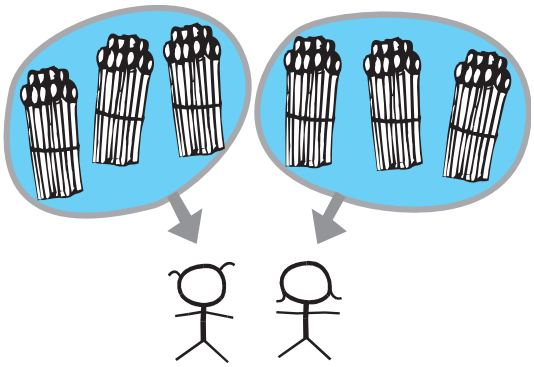
Notebook Exercise

Draw pictures to show sharing for these division facts. Do the sharing like the way Eti did.

6 ÷ 2 6 ÷ 3 15 ÷ 5 21 ÷ 7 36 ÷ 3

Dividing tens

Share these tens equally among all the children.



Each child gets 3 tens.

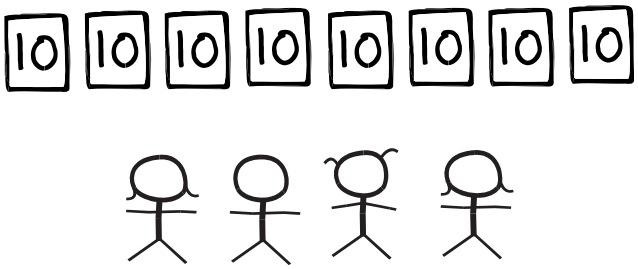
6 tens ÷ 2 = 3 tens

6 tens is 60. 3 tens is 30.

So we write

60 ÷ 2 = 30

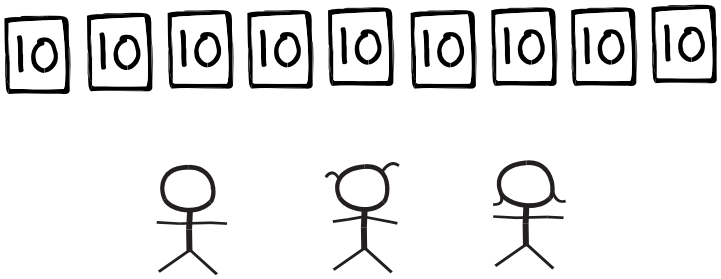
Share these tens equally.



Each child gets____ tens.

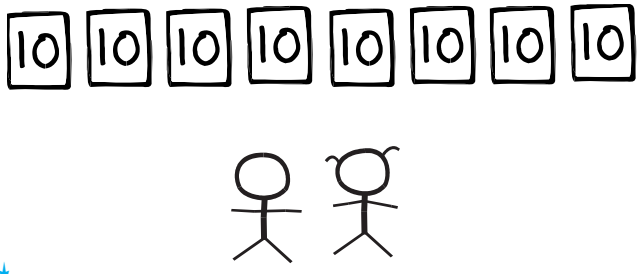
8 tens ÷ 4 = ____ tens

80 ÷ ☐ = ☐



____ tens ÷____ = ____tens

☐ ÷ ☐ = ☐



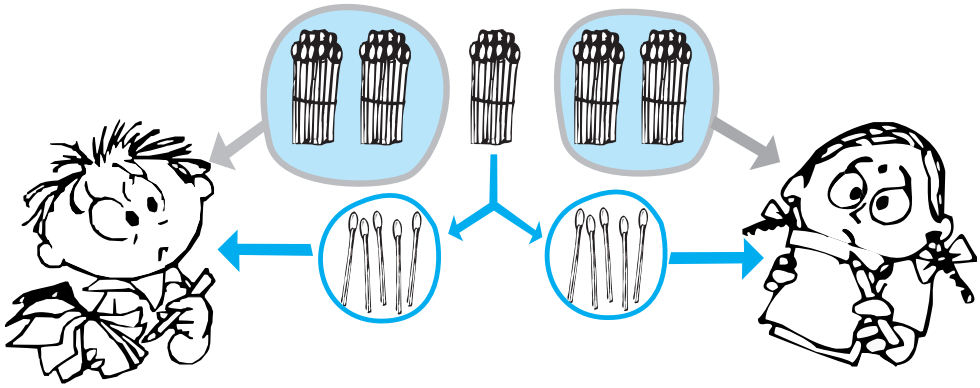
____ tens ÷____ = ____tens

☐ ÷ ☐ = ☐

Use actual matchstick bundles for these pages.

Sometimes you need to open a bundle of ten to get 10 ones.

Share 5 tens equally among two children.

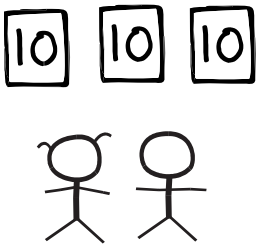


When a bundle of ten is left over
you must open it and share the ones.

5 tens ÷ 2 = 2 tens and 5 ones

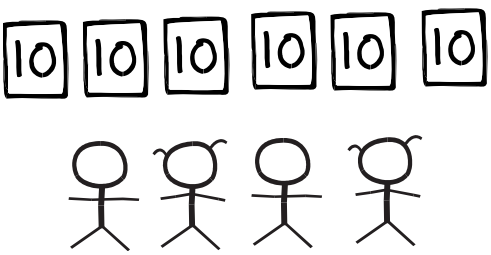
50 ÷ 2 = 25

Share these tens equally.



____ tens ÷ 2 = ____ tens and ____ ones

□ ÷ □ = □

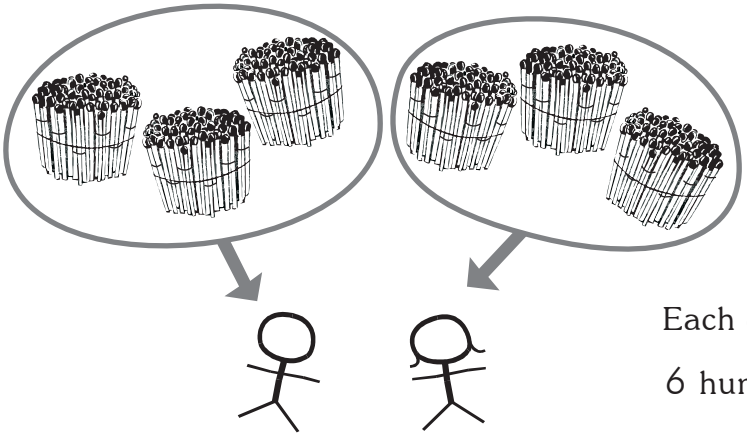


____ tens ÷ 4 = ____ tens and ____ ones

□ ÷ □ = □

Dividing hundreds

Share these hundreds equally.*



Each child gets 3 hundreds.

6 hundreds ÷ 2 = 3 hundreds

600 ÷ 2 = 300

Share these hundreds equally.

100 100 100 100 100 100 100 100 100

Each child gets hundreds.

9 hundreds ÷ 3 = hundreds

900 ÷ ☐ = ☐

100 100 100 100 100 100 100 100

hundreds ÷ = hundreds

☐ ÷ ☐ = ☐

100 100 100 100 100 100 100 100 100 100

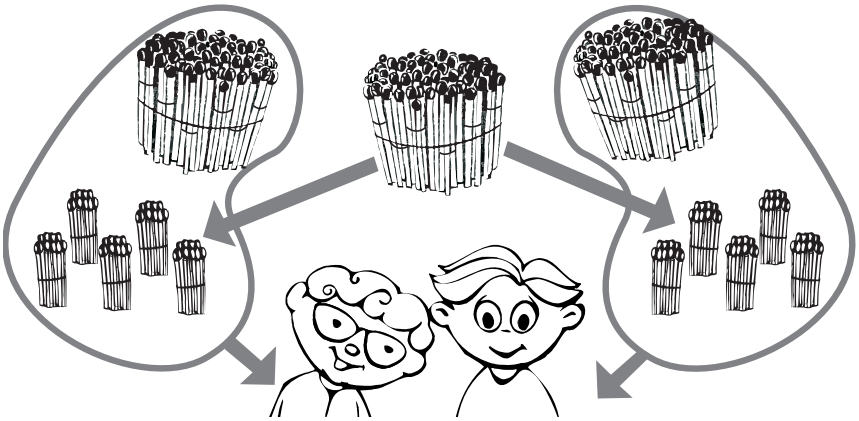
hundreds ÷ = hundreds

☐ ÷ ☐ = ☐

* Use actual matchstick bundles for these pages.

When a hundred bundle is left over, you must open it to get 10 tens.

Share these hundreds equally.

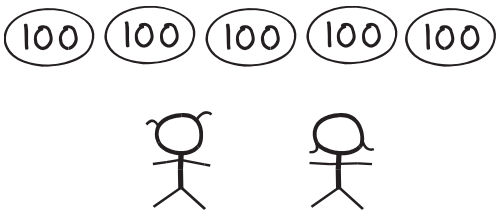


Each child gets 1 hundred and 5 tens.

3 hundreds ÷ 2 = 1 hundred and 5 tens

300 ÷ 2 = 150

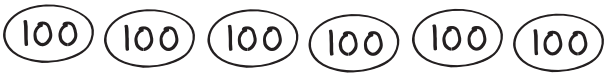
Share these hundreds equally.



Each child gets ____ hundreds and ____ tens.

____ hundreds ÷ ____ = ____ hundreds and ____ tens

____ ÷ ____ = ____



____ hundreds ÷ ____ = ____ hundreds and ____ tens

____ ÷ ____ = ____

____ hundreds ÷ ____ = ____ hundreds and ____ tens and ____ ones.

____ ÷ ____ = ____

Notebook Exercise

Divide on a line of dots.

24 ÷ 6 32 ÷ 4 28 ÷ 7 36 ÷ 6 18 ÷ 9

Complete and write the opposite division facts.

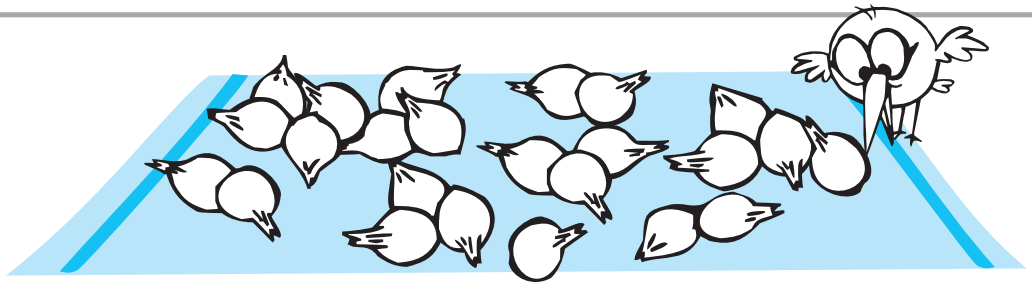
5 × 6 = 3 × 9 = 7 × 6 = 8 × 5 = 8 × 7 =

Write the mulitiplication fact and then write the answer.

35 ÷ 5 = 25 ÷ 5 = 42 ÷ 7 = 64 ÷ 8 = 72 ÷ 8 =

Divide and write only the answer.

28 ÷ 4 = 24 ÷ 4 = 49 ÷ 7 = 54 ÷ 6 = 56 ÷ 8 =



Count the coconuts in the picture and fill in the blanks below.

If you make heaps of 3 coconuts each, you will get _____ heaps.

If you make heaps of 4 coconuts each, you will get _____ heaps.

If you make heaps of 6 coconuts each, you will get _____ heaps.

Notebook Exercise

Write the division fact and find the answer.

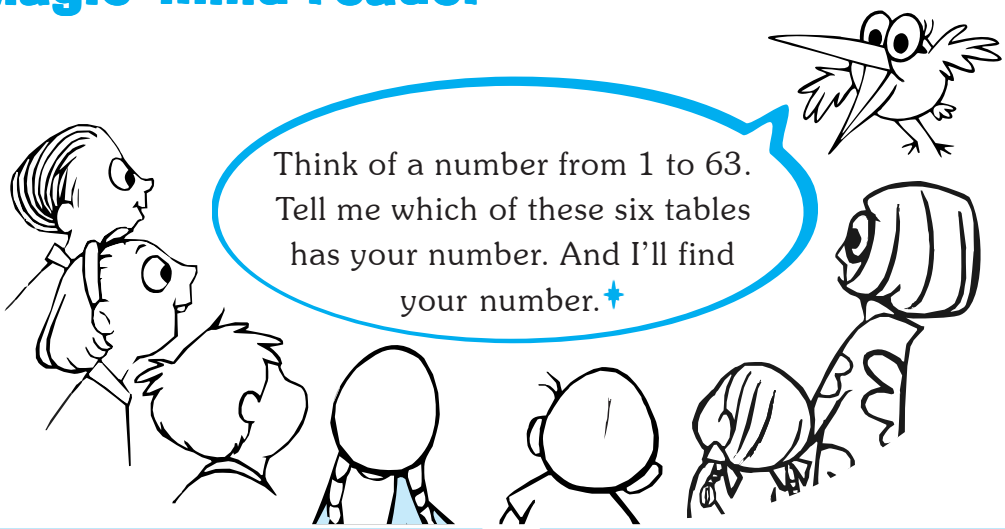
1) Two children share 16 marbles equally. How many will each child get?

2) Three children share 21 exercise books equally. How many will each child get?

Complete each division fact and make up a story problem for each division fact.

18 ÷ 6 = 16 ÷ 4 = 35 ÷ 7 = 45 ÷ 5 =

Magic mind-reader



1	13	25	37	49	61
3	15	27	39	51	63
5	17	29	41	53	
7	19	31	43	55	
9	21	33	45	57	
11	23	35	47	59	

2	14	26	38	50	62
3	15	27	39	51	63
6	18	30	42	54	
7	19	31	43	55	
10	22	34	46	58	
11	23	35	47	59	

4	14	28	38	52	62
5	15	29	39	53	63
6	20	30	44	54	
7	21	31	45	55	
12	22	36	46	60	
13	23	37	47	61	

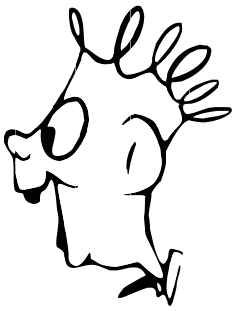
8	14	28	42	56	62
9	15	29	43	57	63
10	24	30	44	58	
11	25	31	45	59	
12	26	40	46	60	
13	27	41	47	61	

16	22	28	50	56	62
17	23	29	51	57	63
18	24	30	52	58	
19	25	31	53	59	
20	26	48	54	60	
21	27	49	55	61	

32	38	44	50	56	62
33	39	45	51	57	63
34	40	46	52	58	
35	41	47	53	59	
36	42	48	54	60	
37	43	49	55	61	

Turn to the next page to see how to find the number.

How to find the number using the magic mind-reader:



Add the first numbers in the tables in which the number appears. For example, if your number appears in the first two tables and the last table, add 1 + 2 + 32 = 35.

35 is the number you thought of.

Perfect your mental addition so that you can impress others with this trick.

Magic squares

Add the numbers in any row or column or diagonal in these two magic squares. What do you find?

8	1	6
3	5	7
4	9	2

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

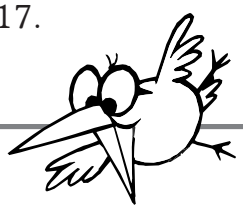
More magic!

There is more magic in this 4 × 4 square.

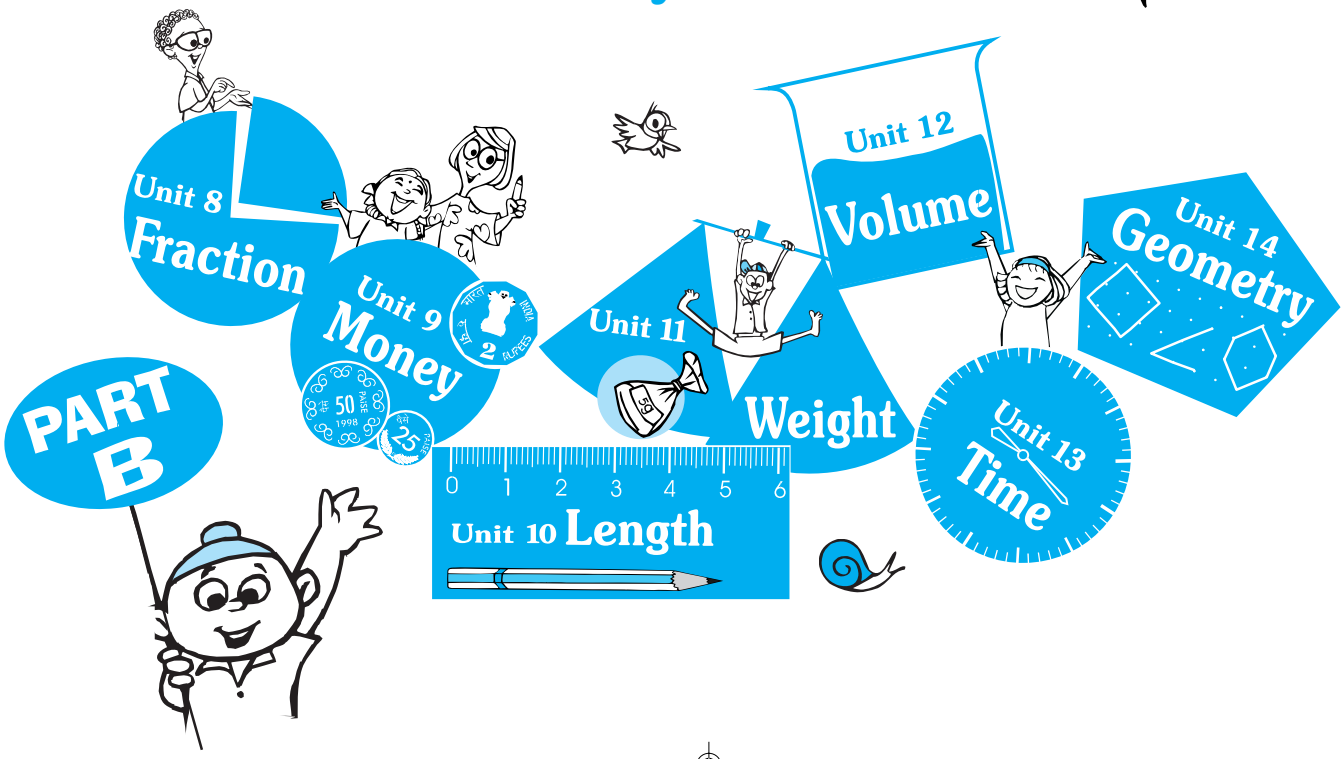
Add the four corner numbers.

Add the four numbers in the centre

Find pairs of numbers which add to 17. See how they are arranged.



Contents of *Maths for Every Child* Part B



Division

Making groups

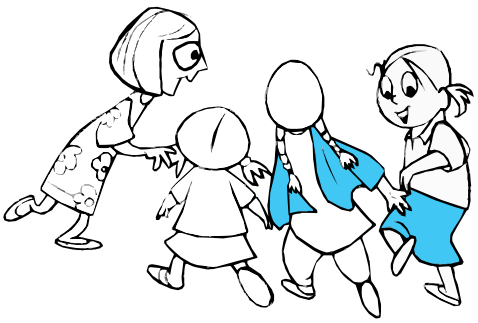
Here are children playing the groups game.

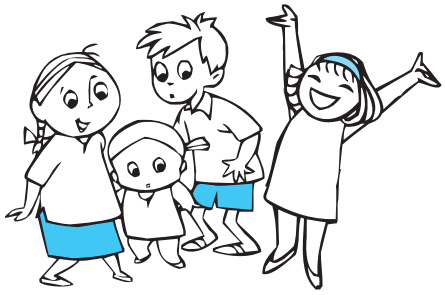
Count how many children.

12 children make groups of 4. How many groups did they make? Three groups.

12 divided by four equals 3.

12 ÷ 4 = 3





÷ means ' divided by'

Make groups of 3 and write the division fact.

$\square \div 3 = \square$

The answer tells you how many groups you can make.

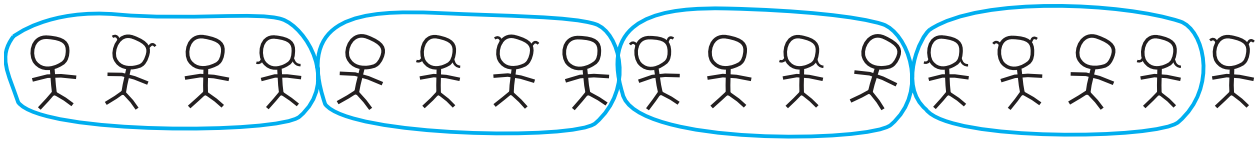
Make groups of 6 and write the division fact.

$\square \div \square = \square$

Example

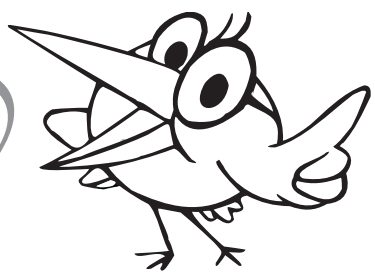
Sometimes when you make equal groups, you get a remainder.

Make groups of 4 and write the division fact.



$17 \div 4 = 4\ \mathbf{R}\ 1$

R 1 means 'remainder one'. One child remains over.



Notebook Exercise

In your notebook draw groups of children to show these division facts.

9 ÷ 3 11 ÷ 3 15 ÷ 5 20 ÷ 3

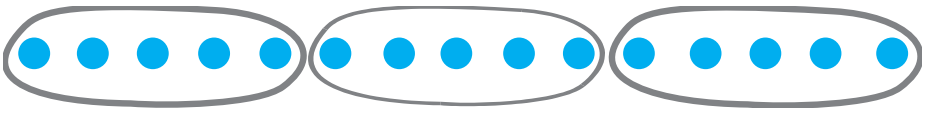
Dividing on the dotted line

You can divide on a line of dots by making equal groups.

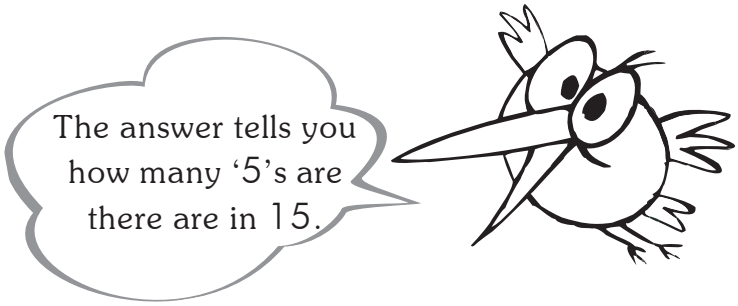
Example 15 ÷ 5

Draw 15 dots and make groups of 5 dots.

Count how many groups.



15 ÷ 5 = 3



Sometimes some dots remain over.

Example 20 ÷ 3

6 groups and 2 dots remain over.

20 ÷ 3 = 6 R 2

6 **R** 2 means 6 remainder 2.

Notebook Exercise

Divide on a line of dots.

6 ÷ 2	8 ÷ 4	10 ÷ 5	15 ÷ 5	15 ÷ 3	5 ÷ 2
7 ÷ 2	7 ÷ 3	8 ÷ 3	10 ÷ 4	11 ÷ 5	14 ÷ 3

How many '2's are there in 8?

How many '4's are there in 16?

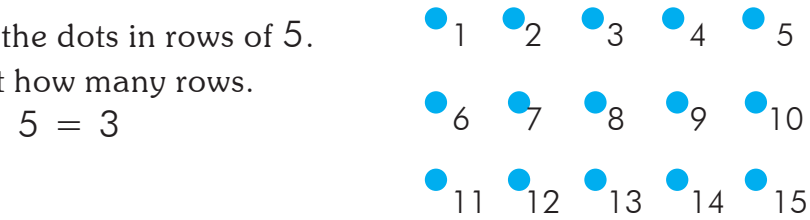
How many '5's are there in 20?

How many '10's are there in 30?

Another way of dividing dots:

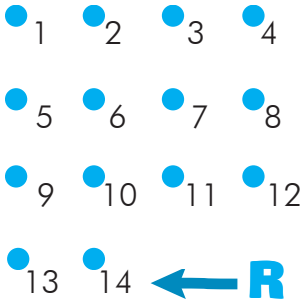
Example $15 \div 5$

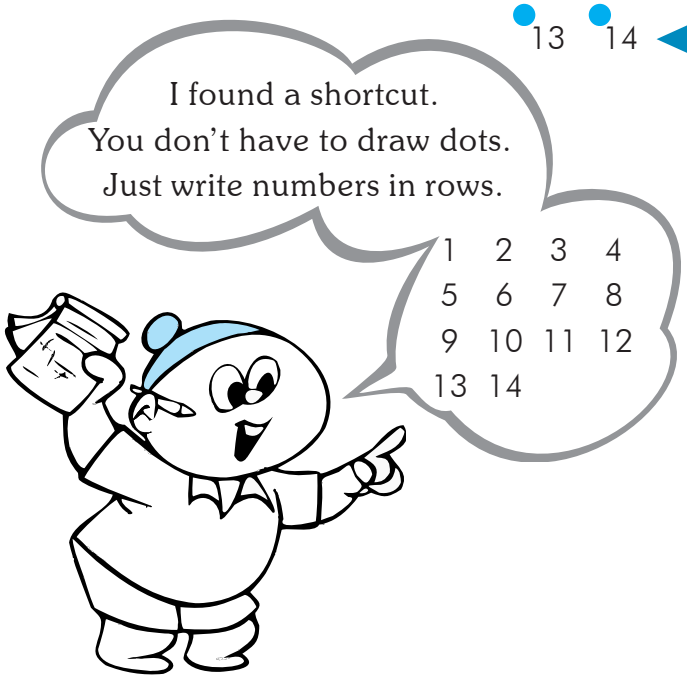
Draw the dots in rows of 5.
Count how many rows.
$15 \div 5 = 3$

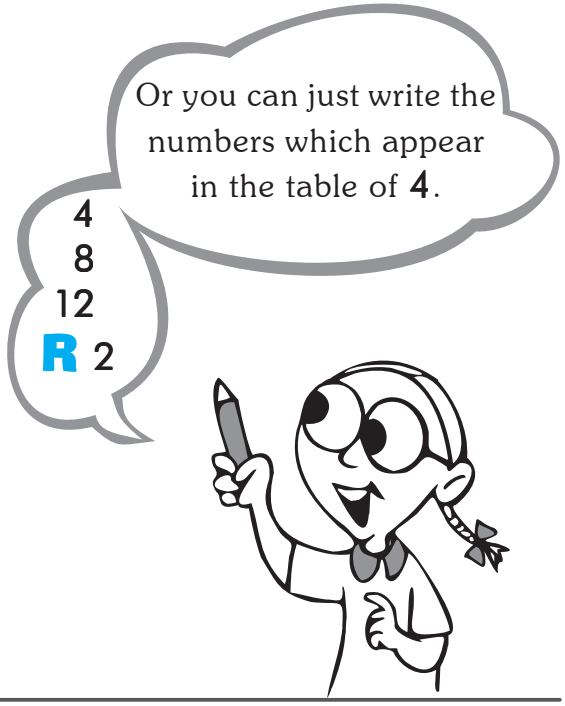


Example $14 \div 4$

$14 \div 4 = 3$ **R** 2







Notebook Exercise

Divide by making dots in rows.

$8 \div 2$	$6 \div 3$	$10 \div 2$	$13 \div 4$	$15 \div 4$	$16 \div 4$
$18 \div 6$	$20 \div 4$	$24 \div 3$	$16 \div 5$	$22 \div 7$	$36 \div 9$

Finding the opposite

Do you remember how Eti Soppo found the opposites of adddition facts?

Complete the addition fact and write the opposite subtraction facts.

Example

3 + 7 = 10

10 – 7 = 3

10 – 3 = 7

4 + 7 = ___

7 + 9 = ___

One day Eti's teacher gave him a multiplication problem: 4 x 2 = ____

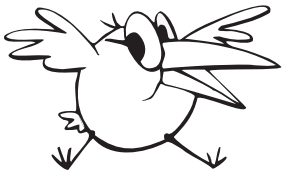
As usual Eti wanted to write the opposite.

The opposite of multiplication is _____

Eti wrote down two opposites for 4 x 2 = 8.

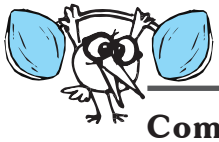
Opposite **1**. 8 ÷ 4 =

Opposite **2**. 8 ÷ 2 =



The opposite of + is _____

The opposite of × is _____



EXERCISE

Complete the multiplication fact and write down the opposite division facts.

3 × 8 = 7 × 5 = 5 × 8 = 6 × 7 =

8 × 6 = 9 × 7 = 8 × 8 = 13 × 1 =

Use the tables to divide

You can use the multiplication tables for division.

Example

20 ÷ 4 = ____ You can write this as 4 × ? = 20

Say the table of 4 till you come to 20.

4 × 0 = 0
4 × 1 = 4
4 × 2 = 8
4 × 3 = 12
4 × 4 = 16
4 × 5 = 20

4 × 5 = 20
So 20 ÷ 4 = 5

Divide using the tables.

First write the multiplication fact below the problem, then write the answer.

Examples

10 ÷ 2 = 5
2 × 5 = 10

42 ÷ 6 =

36 ÷ 4 =

25 ÷ 5 =

28 ÷ 4 = __
4 × __ = 28

56 ÷ 7 =

48 ÷ 8 =

81 ÷ 9 =

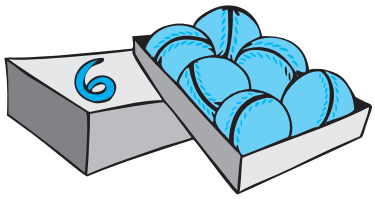
Divide and write only the answer.

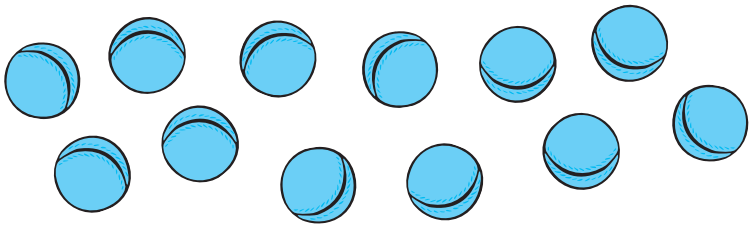
12 ÷ 2 =	12 ÷ 3 =	18 ÷ 3 =	20 ÷ 4 =
18 ÷ 2 =	24 ÷ 4 =	24 ÷ 6 =	21 ÷ 3 =
35 ÷ 5 =	45 ÷ 5 =	28 ÷ 4 =	36 ÷ 6 =
30 ÷ 6 =	18 ÷ 6 =	42 ÷ 7 =	32 ÷ 8 =
40 ÷ 8 =	56 ÷ 8 =	45 ÷ 9 =	36 ÷ 9 =

Filling boxes

How many boxes can you fill with these balls?

Hint: It is easy to find how many boxes by making groups.

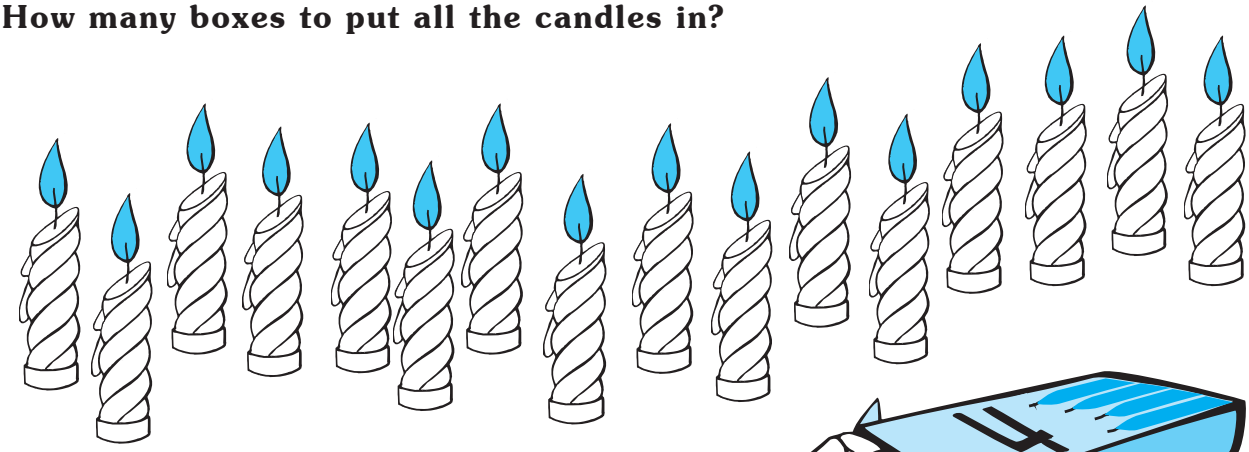


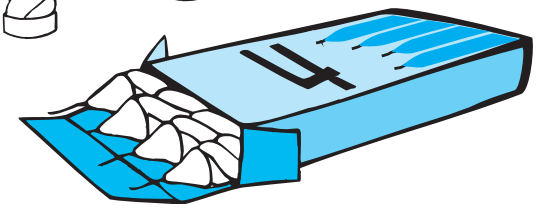


□ ÷ □ = □

Don't forget to write the division fact.

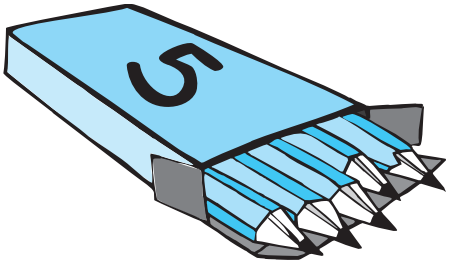
How many boxes to put all the candles in?

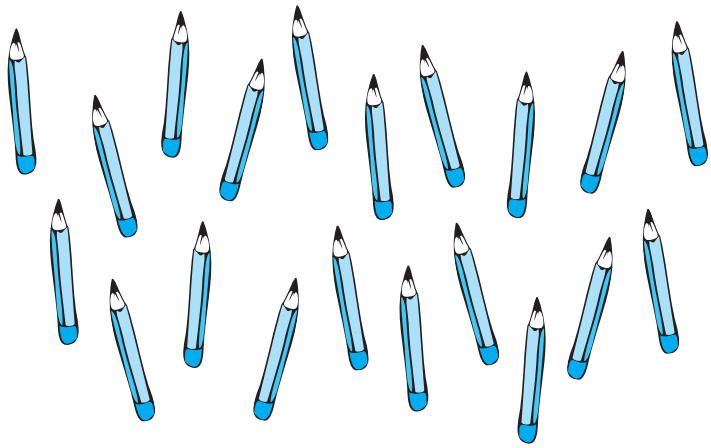




□ ÷ □ = □

How many boxes to put all the pencils in?

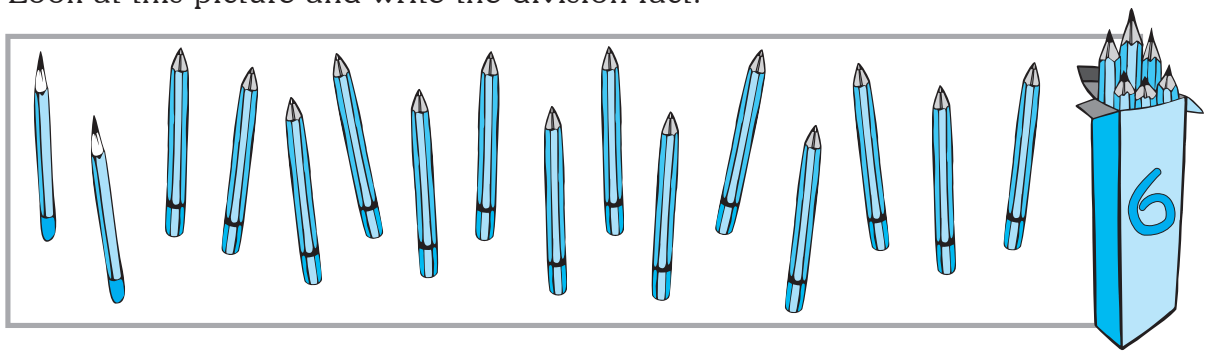




□ ÷ □ = □

An extra box

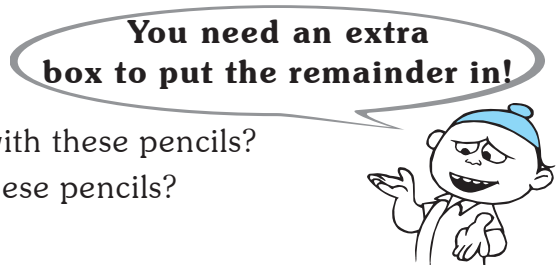
Look at this picture and write the division fact.



Notice that there is a remainder for the division fact.

How many pencils remain over?

□ ÷ □ = □



Read these two questions carefully.

(a) How many boxes can you completely fill with these pencils?

(b) How many boxes do you need to put all these pencils?

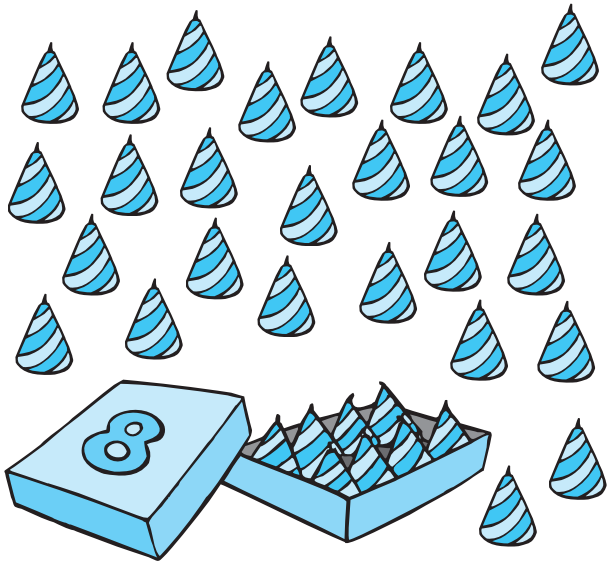
Are the answers to (a) and (b) the same?

If there was no remainder would the answers be the same?

Look at the picture below. Can you write down the division fact for the picture?

For this problem write down two questions like (a) and (b) in the previous picture.

Find whether the answers are different or the same.



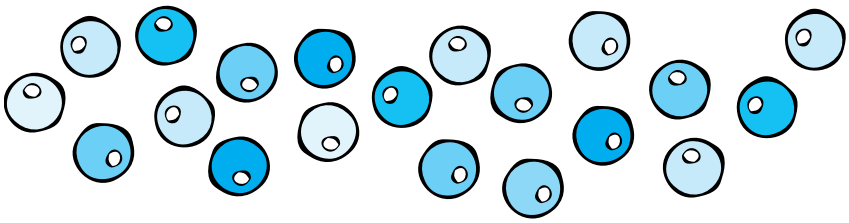
□ ÷ □ = □

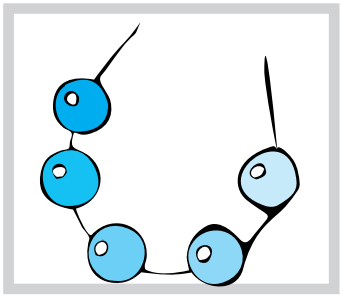
Picture stories

Write a division word problem for each picture.

Also write the division fact and the answer to the problem.

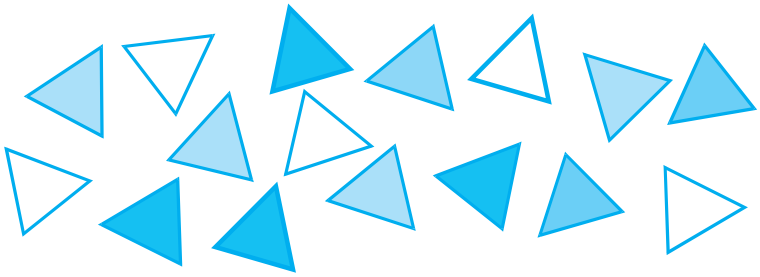
Example

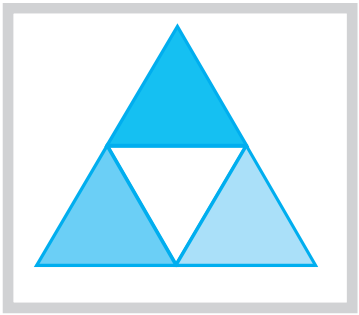




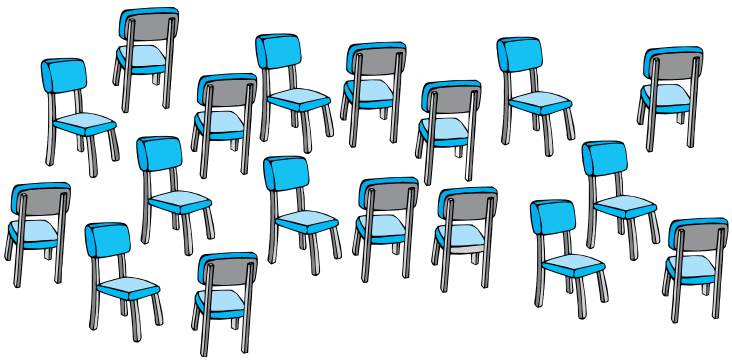
Each necklace has 5 beads. How many necklaces can you make from 20 beads?

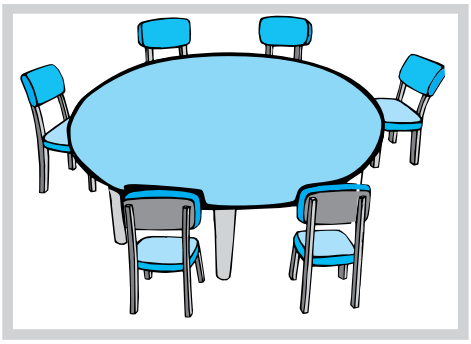
20 ÷ 5 = 4



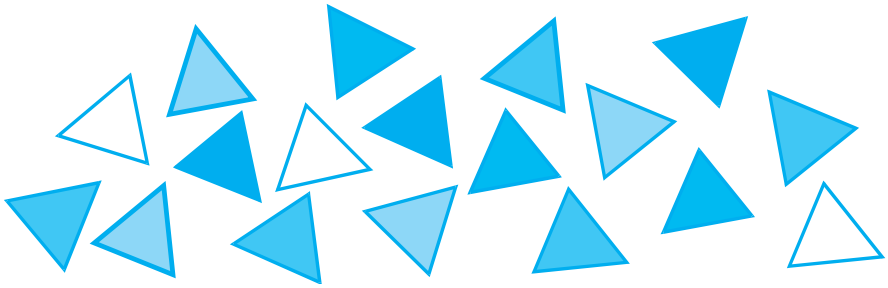


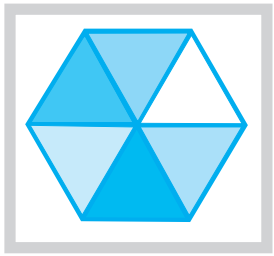
____ ÷ ____ = ____





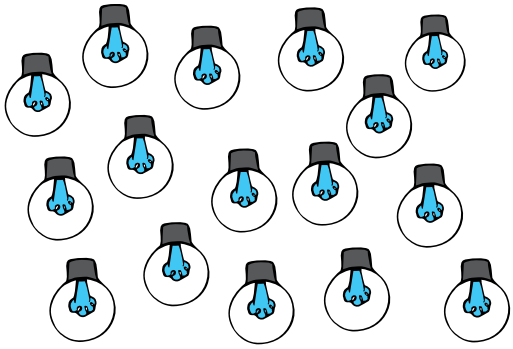
____ ÷ ____ = ____

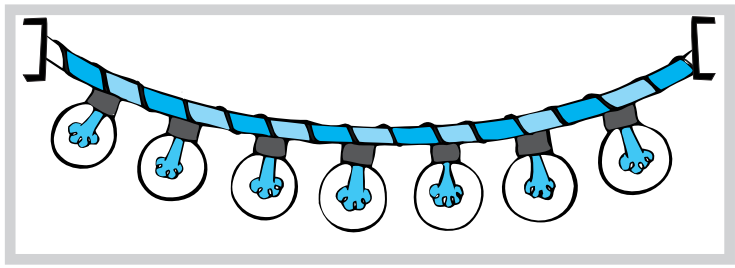


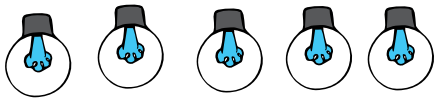


_____ ÷ _____ = _____

_____

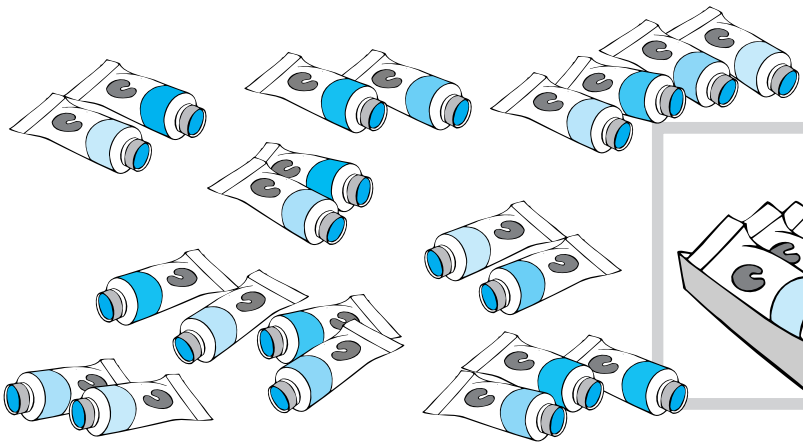


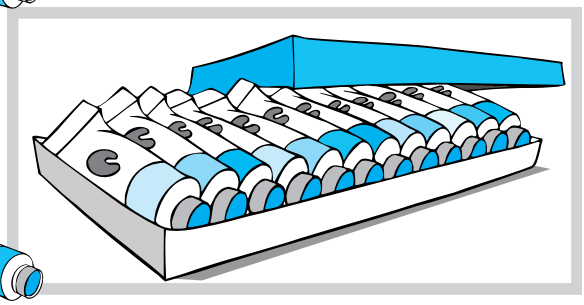




_____ ÷ _____ = _____

_____





_____ ÷ _____ = _____

_____

Sharing

Dividing is sharing equally.

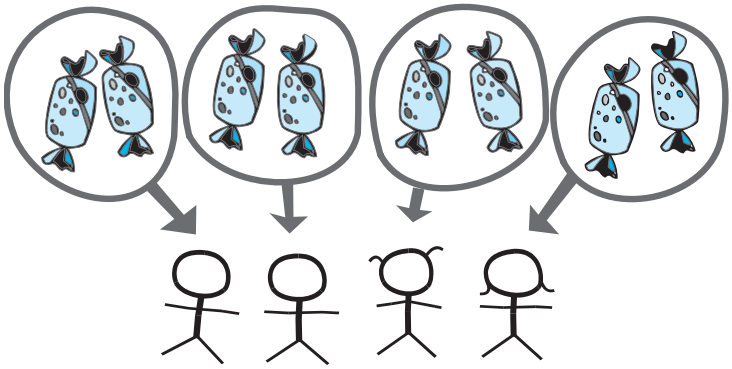
You can use division facts to share equally.

Share 8 toffees among 4 children equally.

Division fact $8 \div 4 = 2$

Each child gets 2 toffees.

Check the answer by drawing rings and sharing.
Do all the children get an equal share?

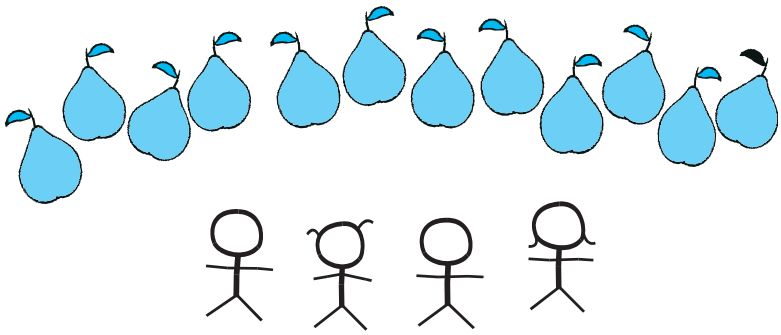


Use division facts to share equally.

Also draw rings and check if all the children get an equal share.

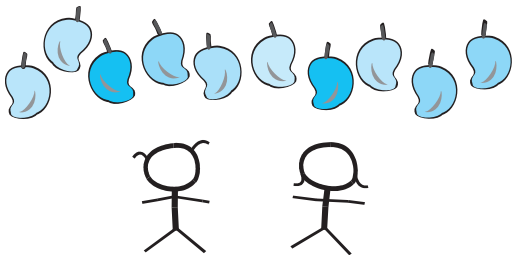
$\square \div \square = \square$

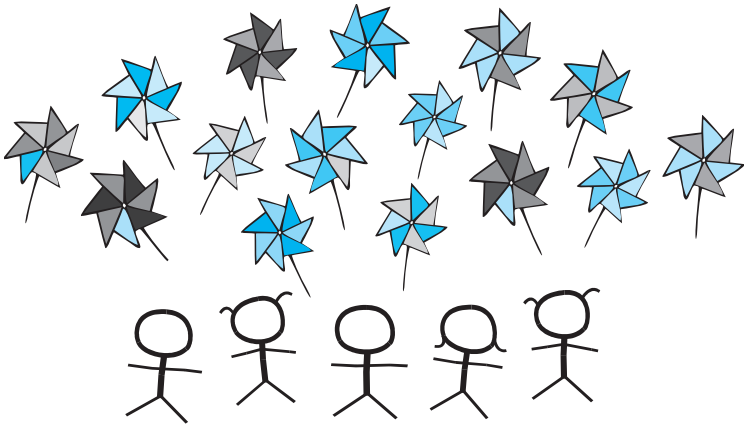
Each child gets____ guavas.



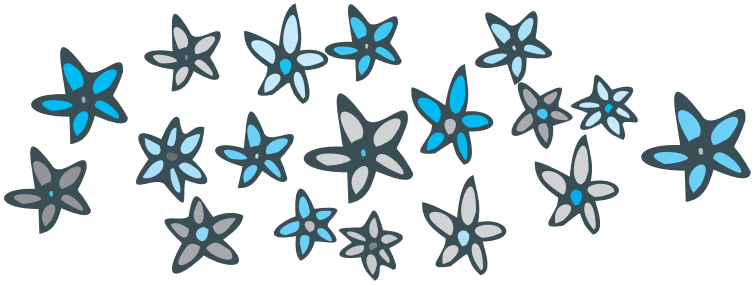
$\square \div \square = \square$

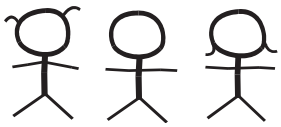
Each child gets____ mangoes.





□ ÷ □ = □





□ ÷ □ = □

Draw a picture to show 20 ÷ 4 as an equal sharing problem.

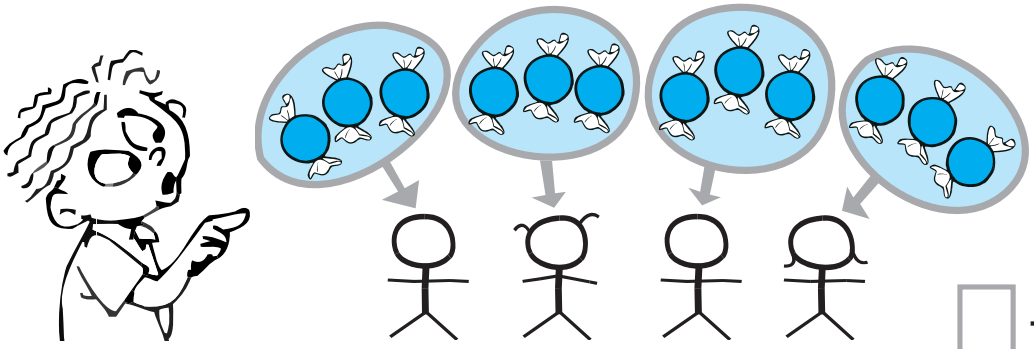
Notebook Exercise

Draw pictures in your notebook to show these division facts as sharing problems.

16 ÷ 2 16 ÷ 4 18 ÷ 6 35 ÷ 7

Two ways of sharing

Javed shared 12 sweets among 4 children like this.

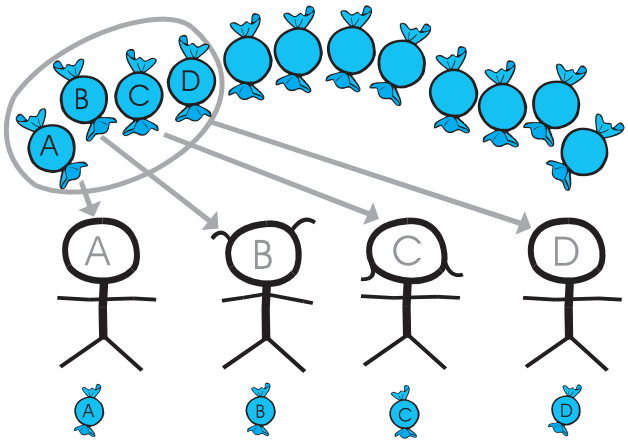


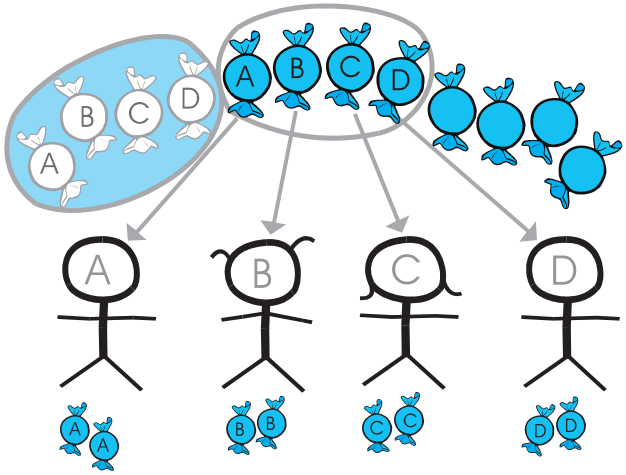
□ ÷ □ = □

Javed made 4 groups. Each group had 3 toffees.

Eti Soppo has found another way of sharing.

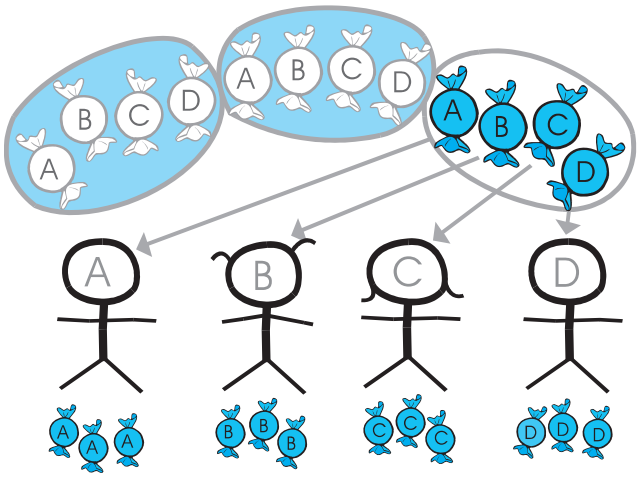
He first made a **group of 4 toffees** and gave one toffee to each child.





He made another group of 4 and shared out the toffees.

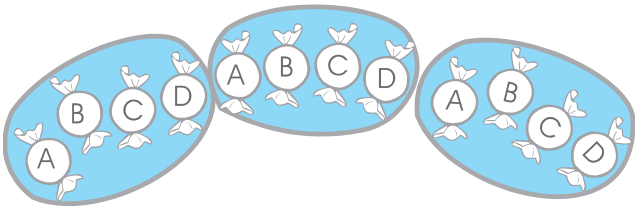
Use actual objects to show this way of sharing. See teacher's book.

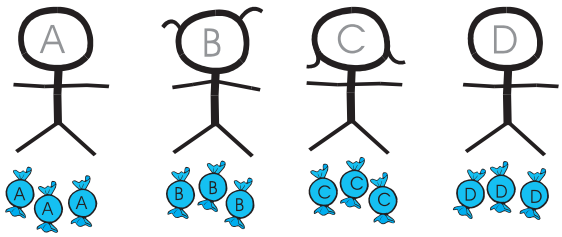


He then shared out the last group of 4.

So Eti had shared his toffees out like this:

One group at a time to all the children.

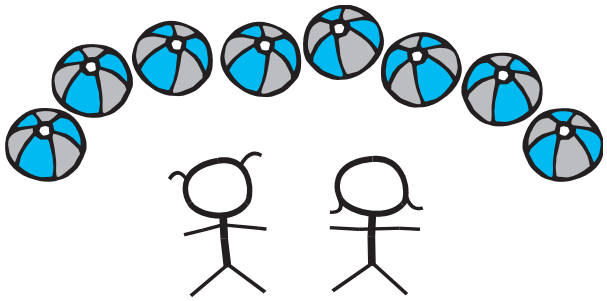




□ ÷ □ = □

What is the difference between Javed's way of sharing and Eti's way of sharing?.

Share these balls out like the way Eti did.



□ ÷ □ = □

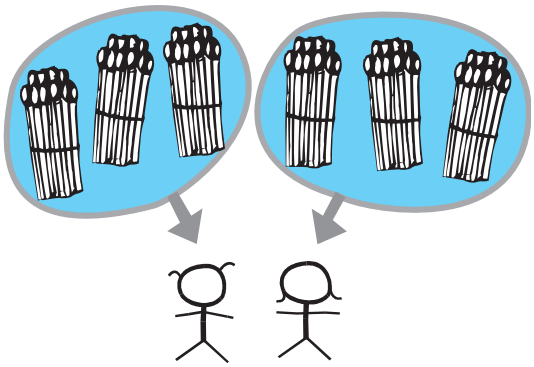
Notebook Exercise

Draw pictures to show sharing for these division facts. Do the sharing like the way Eti did.

6 ÷ 2 6 ÷ 3 15 ÷ 5 21 ÷ 7 36 ÷ 3

Dividing tens

Share these tens equally among all the children.



Each child gets 3 tens.

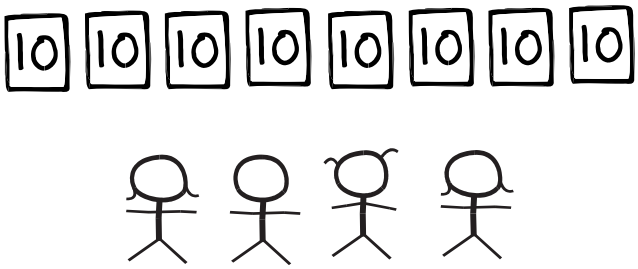
6 tens ÷ 2 = 3 tens

6 tens is 60. 3 tens is 30.

So we write

60 ÷ 2 = 30

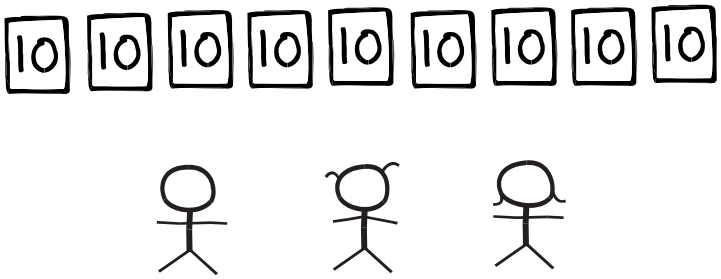
Share these tens equally.



Each child gets____ tens.

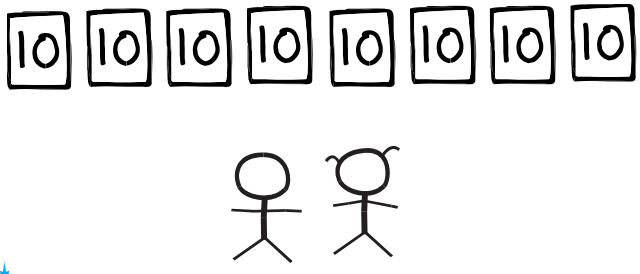
8 tens ÷ 4 = ____ tens

80 ÷ ☐ = ☐



____ tens ÷____ = ____tens

☐ ÷ ☐ = ☐



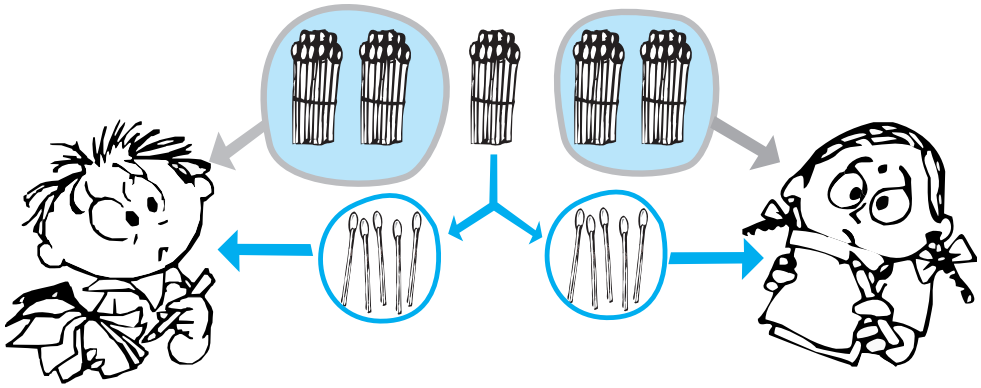
____ tens ÷____ = ____tens

☐ ÷ ☐ = ☐

Use actual matchstick bundles for these pages.

Sometimes you need to open a bundle of ten to get 10 ones.

Share 5 tens equally among two children.

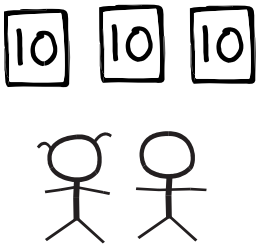


When a bundle of ten is left over you must open it and share the ones.

5 tens ÷ 2 = 2 tens and 5 ones

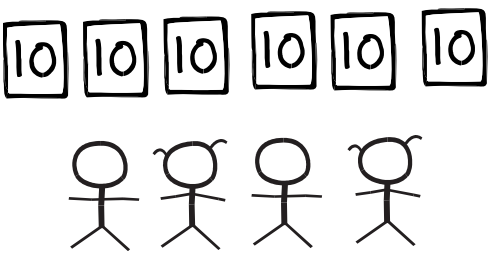
50 ÷ 2 = 25

Share these tens equally.



____ tens ÷ 2 = ____ tens and ____ ones

□ ÷ □ = □

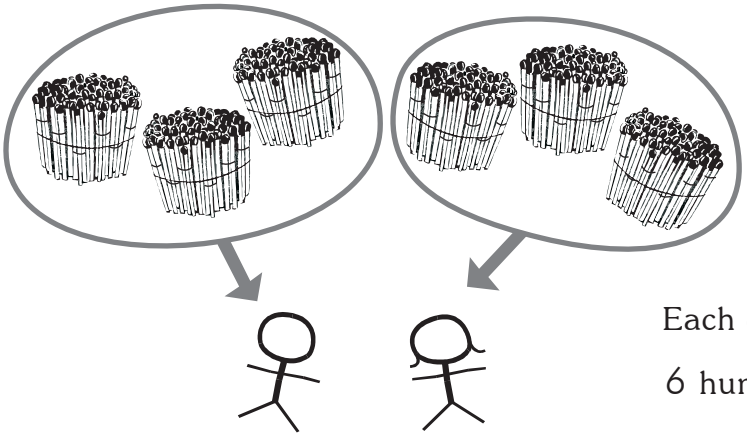


____ tens ÷ 4 = ____ tens and ____ ones

□ ÷ □ = □

Dividing hundreds

Share these hundreds equally.*



Each child gets 3 hundreds.

6 hundreds ÷ 2 = 3 hundreds

600 ÷ 2 = 300

Share these hundreds equally.

100 100 100 100 100 100 100 100 100

Each child gets hundreds.

9 hundreds ÷ 3 = hundreds

900 ÷ ☐ = ☐

100 100 100 100 100 100 100 100

hundreds ÷ = hundreds

☐ ÷ ☐ = ☐

100 100 100 100 100 100 100 100 100 100

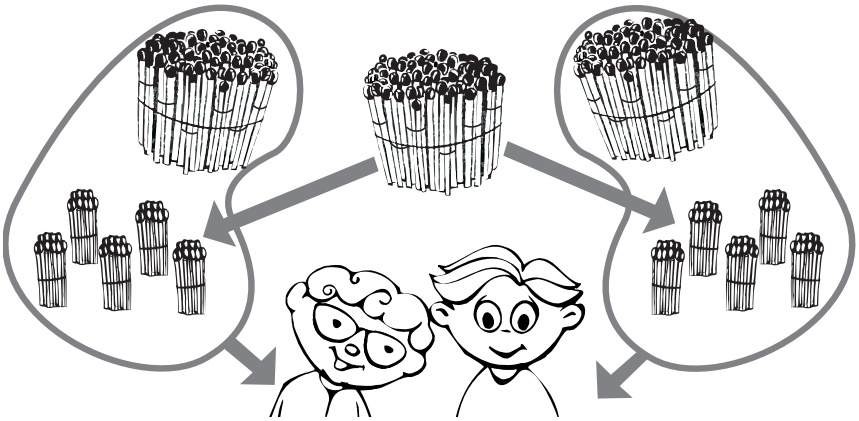
hundreds ÷ = hundreds

☐ ÷ ☐ = ☐

* Use actual matchstick bundles for these pages.

When a hundred bundle is left over, you must open it to get 10 tens.

Share these hundreds equally.

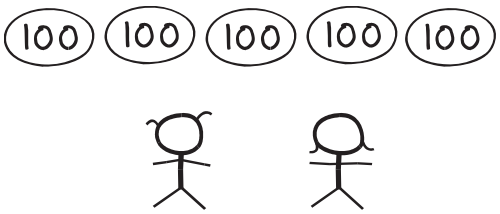


Each child gets 1 hundred and 5 tens.

3 hundreds ÷ 2 = 1 hundred and 5 tens

300 ÷ 2 = 150

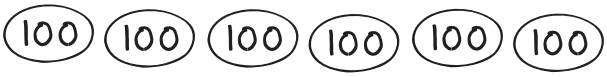
Share these hundreds equally.



Each child gets ____ hundreds and ____ tens.

____ hundreds ÷ ____ = ____ hundreds and ____ tens

____ ÷ ____ = ____



____ hundreds ÷ ____ = ____ hundreds and ____ tens

____ ÷ ____ = ____

____ hundreds ÷ ____ = ____ hundreds and ____ tens and ____ ones.

____ ÷ ____ = ____

Notebook Exercise

Divide on a line of dots.

24 ÷ 6 32 ÷ 4 28 ÷ 7 36 ÷ 6 18 ÷ 9

Complete and write the opposite division facts.

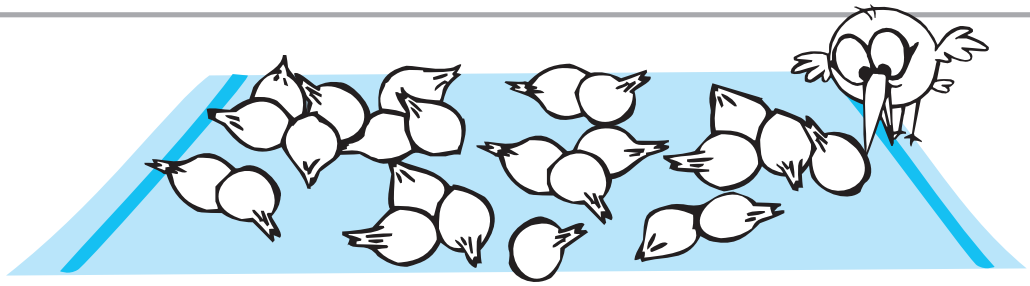
5 × 6 = 3 × 9 = 7 × 6 = 8 × 5 = 8 × 7 =

Write the mulitiplication fact and then write the answer.

35 ÷ 5 = 25 ÷ 5 = 42 ÷ 7 = 64 ÷ 8 = 72 ÷ 8 =

Divide and write only the answer.

28 ÷ 4 = 24 ÷ 4 = 49 ÷ 7 = 54 ÷ 6 = 56 ÷ 8 =



Count the coconuts in the picture and fill in the blanks below.

If you make heaps of 3 coconuts each, you will get _____ heaps.

If you make heaps of 4 coconuts each, you will get _____ heaps.

If you make heaps of 6 coconuts each, you will get _____ heaps.

Notebook Exercise

Write the division fact and find the answer.

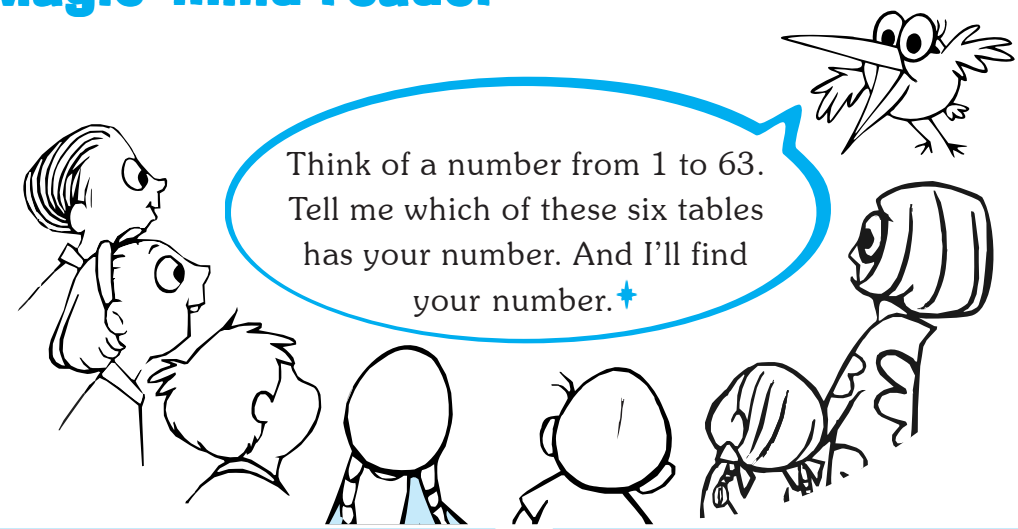
1) Two children share 16 marbles equally. How many will each child get?

2) Three children share 21 exercise books equally. How many will each child get?

Complete each division fact and make up a story problem for each division fact.

18 ÷ 6 = 16 ÷ 4 = 35 ÷ 7 = 45 ÷ 5 =

Magic mind-reader



1	13	25	37	49	61
3	15	27	39	51	63
5	17	29	41	53	
7	19	31	43	55	
9	21	33	45	57	
11	23	35	47	59	

2	14	26	38	50	62
3	15	27	39	51	63
6	18	30	42	54	
7	19	31	43	55	
10	22	34	46	58	
11	23	35	47	59	

4	14	28	38	52	62
5	15	29	39	53	63
6	20	30	44	54	
7	21	31	45	55	
12	22	36	46	60	
13	23	37	47	61	

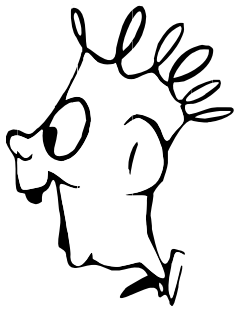
8	14	28	42	56	62
9	15	29	43	57	63
10	24	30	44	58	
11	25	31	45	59	
12	26	40	46	60	
13	27	41	47	61	

16	22	28	50	56	62
17	23	29	51	57	63
18	24	30	52	58	
19	25	31	53	59	
20	26	48	54	60	
21	27	49	55	61	

32	38	44	50	56	62
33	39	45	51	57	63
34	40	46	52	58	
35	41	47	53	59	
36	42	48	54	60	
37	43	49	55	61	

Turn to the next page to see how to find the number.

How to find the number using the magic mind-reader:



Add the first numbers in the tables in which the number appears. For example, if your number appears in the first two tables and the last table, add 1 + 2 + 32 = 35.

35 is the number you thought of.

Perfect your mental addition so that you can impress others with this trick.

Magic squares

Add the numbers in any row or column or diagonal in these two magic squares. What do you find?

8	1	6
3	5	7
4	9	2

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

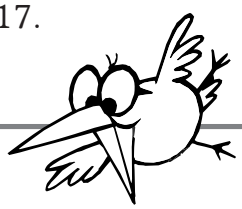
More magic!

There is more magic in this 4 × 4 square.

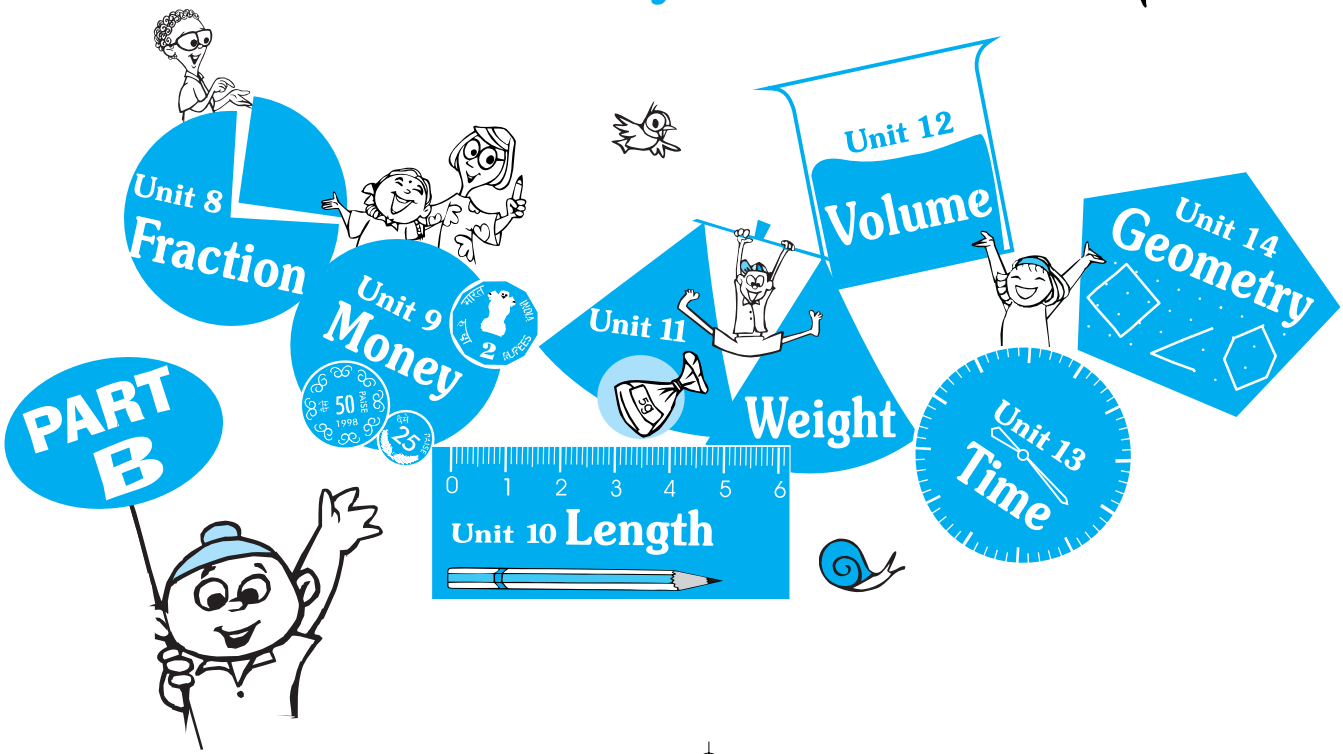
Add the four corner numbers.

Add the four numbers in the centre

Find pairs of numbers which add to 17. See how they are arranged.



Contents of *Maths for Every Child* Part B



Division

Unit 7

Making groups

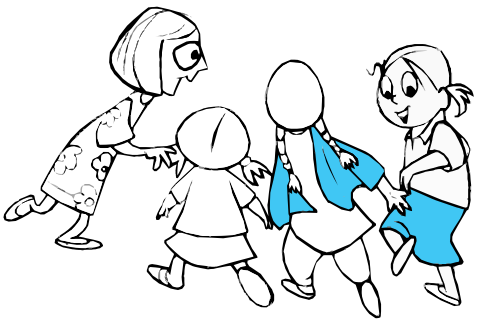
Here are children playing the groups game.

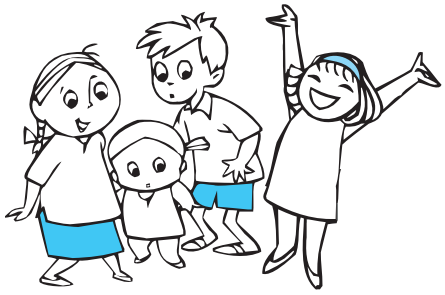
Count how many children.

12 children make groups of 4. How many groups did they make? Three groups.

12 divided by four equals 3.

12 ÷ 4 = 3





÷ means ‘ divided by’

Make groups of 3 and write the division fact.

$\square \div 3 = \square$

The answer tells you how many groups you can make.

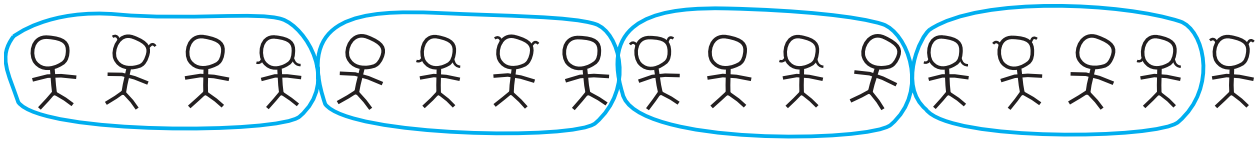
Make groups of 6 and write the division fact.

$\square \div \square = \square$

Example

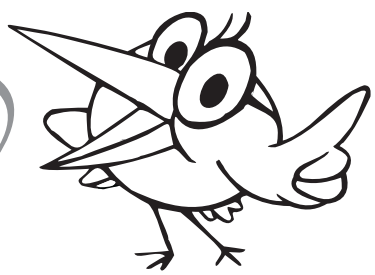
Sometimes when you make equal groups, you get a remainder.

Make groups of 4 and write the division fact.



$17 \div 4 = 4\ \mathbf{R}\ 1$

R 1 means 'remainder one'. One child remains over.



Notebook Exercise

In your notebook draw groups of children to show these division facts.

9 ÷ 3 11 ÷ 3 15 ÷ 5 20 ÷ 3

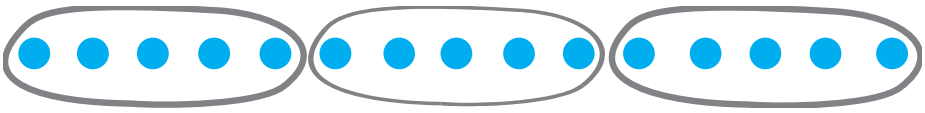
Dividing on the dotted line

You can divide on a line of dots by making equal groups.

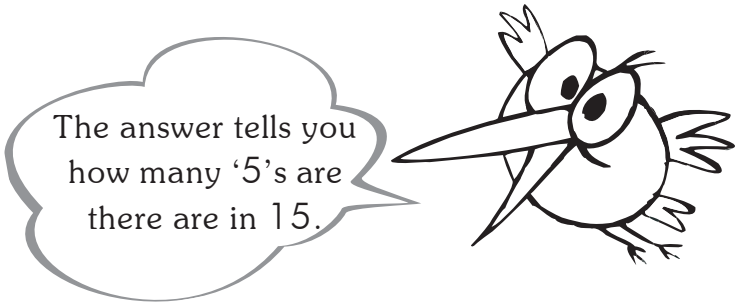
Example 15 ÷ 5

Draw 15 dots and make groups of 5 dots.

Count how many groups.



15 ÷ 5 = 3



Sometimes some dots remain over.

Example 20 ÷ 3

6 groups and 2 dots remain over.

20 ÷ 3 = 6 R 2

6 **R** 2 means 6 remainder 2.

Notebook Exercise

Divide on a line of dots.

6 ÷ 2	8 ÷ 4	10 ÷ 5	15 ÷ 5	15 ÷ 3	5 ÷ 2
7 ÷ 2	7 ÷ 3	8 ÷ 3	10 ÷ 4	11 ÷ 5	14 ÷ 3

How many '2's are there in 8?

How many '4's are there in 16?

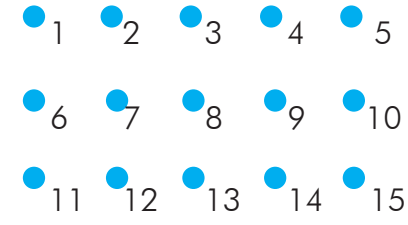
How many '5's are there in 20?

How many '10's are there in 30?

Another way of dividing dots:

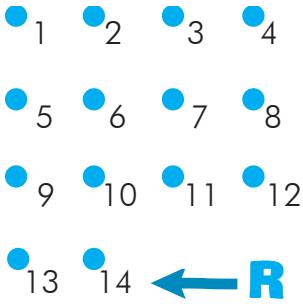
Example $15 \div 5$

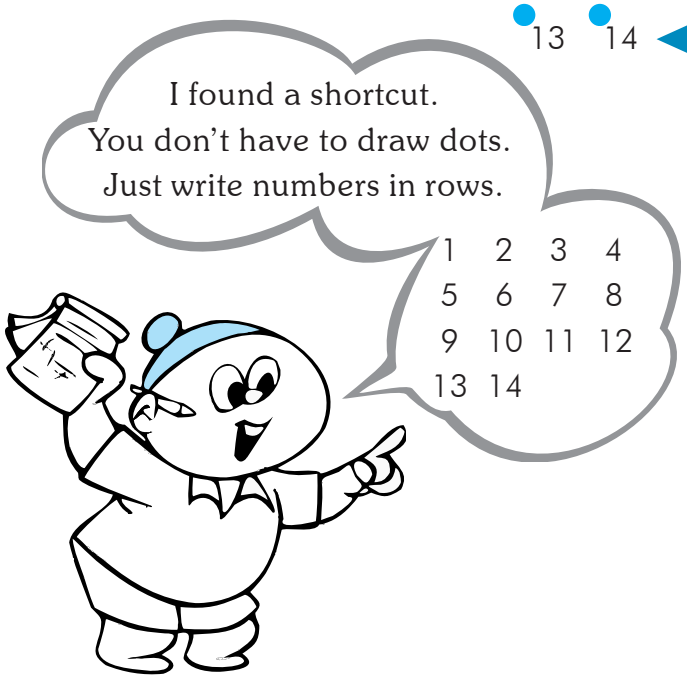
Draw the dots in rows of 5.
Count how many rows.
$15 \div 5 = 3$

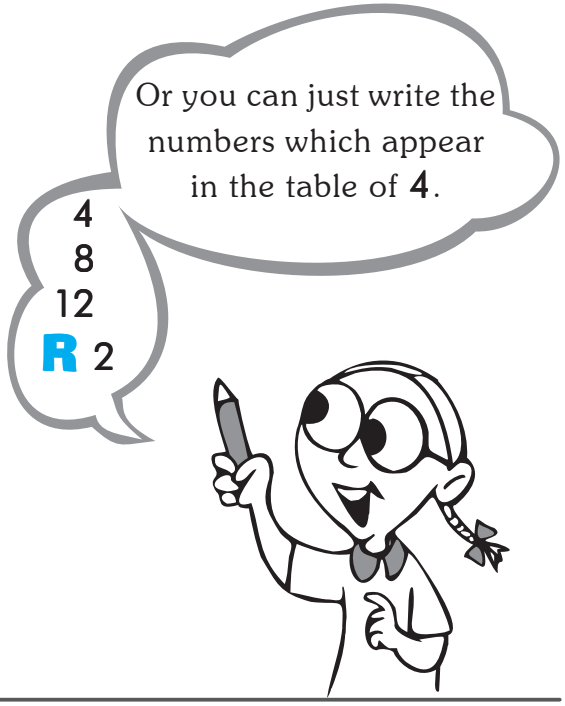


Example $14 \div 4$

$14 \div 4 = 3$ **R** 2







Notebook Exercise

Divide by making dots in rows.

$8 \div 2$	$6 \div 3$	$10 \div 2$	$13 \div 4$	$15 \div 4$	$16 \div 4$
$18 \div 6$	$20 \div 4$	$24 \div 3$	$16 \div 5$	$22 \div 7$	$36 \div 9$

Finding the opposite

Do you remember how Eti Soppo found the opposites of adddition facts?

Complete the addition fact and write the opposite subtraction facts.

Example

3 + 7 = 10

10 – 7 = 3

10 – 3 = 7

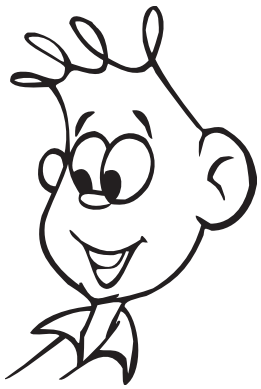
4 + 7 = ___

7 + 9 = ___

One day Eti's teacher gave him a multiplication problem: 4 x 2 = ____

As usual Eti wanted to write the opposite.

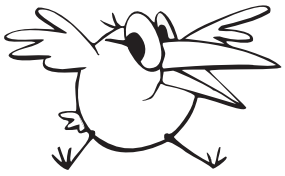
The opposite of multiplication is _____



Eti wrote down two opposites for 4 x 2 = 8.

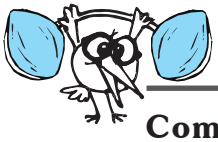
Opposite **1**. 8 ÷ 4 =

Opposite **2**. 8 ÷ 2 =



The opposite of + is _____

The opposite of × is _____



EXERCISE

Complete the multiplication fact and write down the opposite division facts.

3 × 8 = 7 × 5 = 5 × 8 = 6 × 7 =

8 × 6 = 9 × 7 = 8 × 8 = 13 × 1 =

Use the tables to divide

You can use the multiplication tables for division.

Example

20 ÷ 4 = ____ You can write this as 4 × ? = 20

Say the table of 4 till you come to 20.

4 × 0 = 0
4 × 1 = 4
4 × 2 = 8
4 × 3 = 12
4 × 4 = 16
4 × 5 = 20

4 × 5 = 20
So 20 ÷ 4 = 5

Divide using the tables.

First write the multiplication fact below the problem, then write the answer.

Examples

10 ÷ 2 = 5
2 × 5 = 10

42 ÷ 6 =

36 ÷ 4 =

25 ÷ 5 =

28 ÷ 4 = __
4 × __ = 28

56 ÷ 7 =

48 ÷ 8 =

81 ÷ 9 =

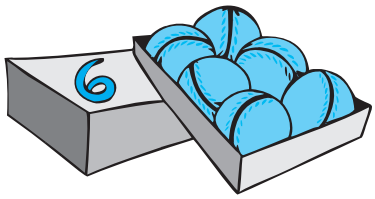
Divide and write only the answer.

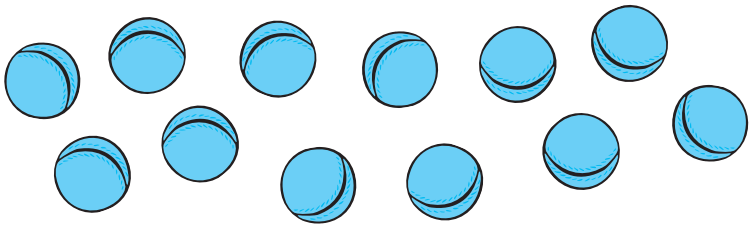
12 ÷ 2 =	12 ÷ 3 =	18 ÷ 3 =	20 ÷ 4 =
18 ÷ 2 =	24 ÷ 4 =	24 ÷ 6 =	21 ÷ 3 =
35 ÷ 5 =	45 ÷ 5 =	28 ÷ 4 =	36 ÷ 6 =
30 ÷ 6 =	18 ÷ 6 =	42 ÷ 7 =	32 ÷ 8 =
40 ÷ 8 =	56 ÷ 8 =	45 ÷ 9 =	36 ÷ 9 =

Filling boxes

How many boxes can you fill with these balls?

Hint: It is easy to find how many boxes by making groups.

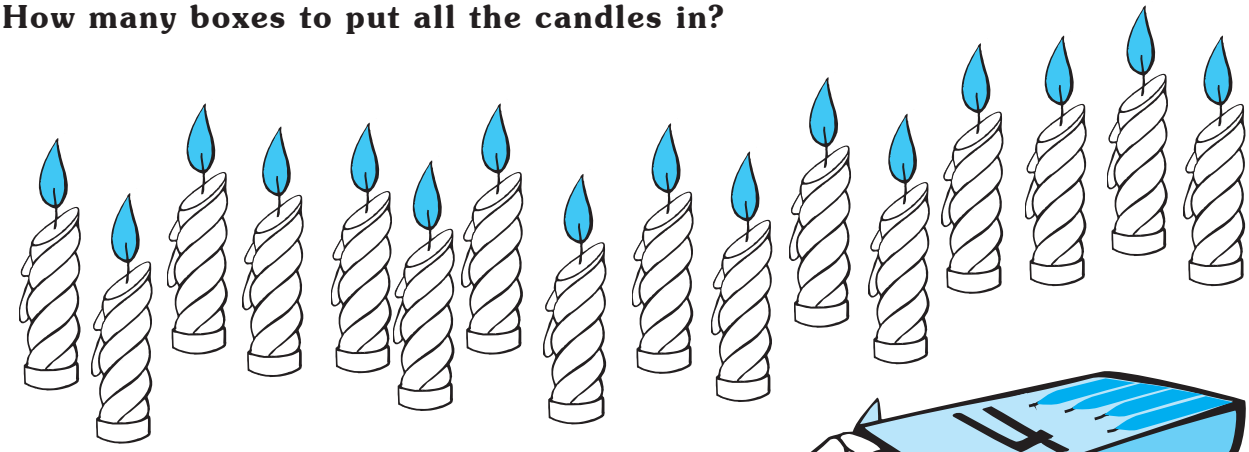


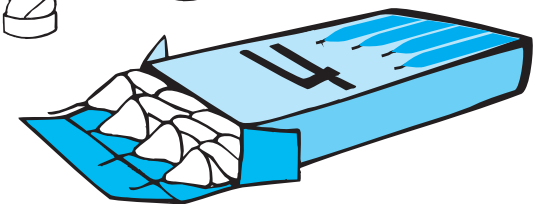


□ ÷ □ = □

Don't forget to write the division fact.

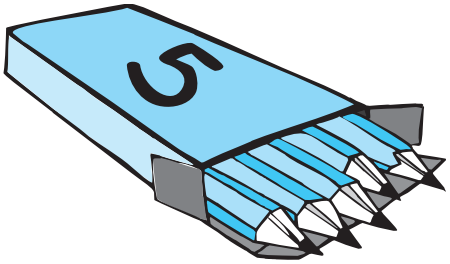
How many boxes to put all the candles in?

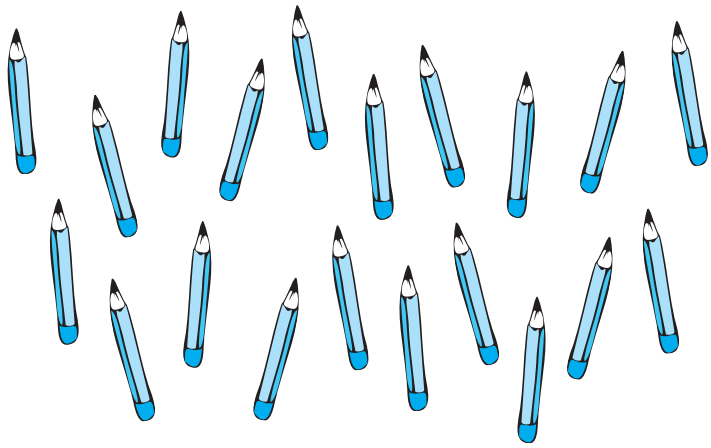




□ ÷ □ = □

How many boxes to put all the pencils in?

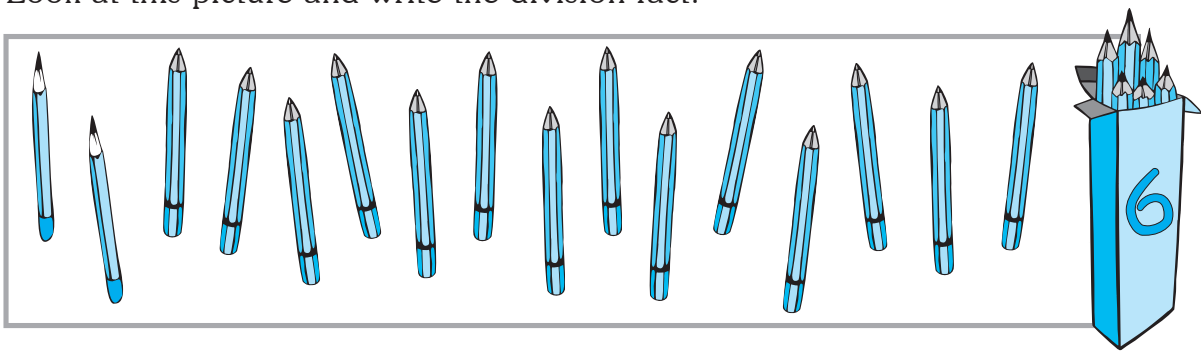




□ ÷ □ = □

An extra box

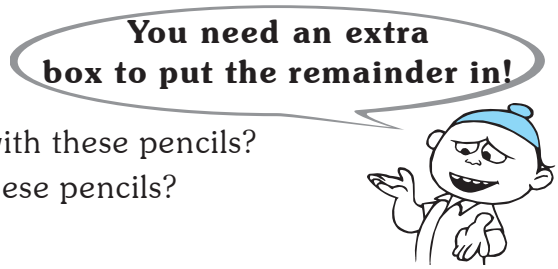
Look at this picture and write the division fact.



Notice that there is a remainder for the division fact.

How many pencils remain over?

□ ÷ □ = □



Read these two questions carefully.

(a) How many boxes can you completely fill with these pencils?

(b) How many boxes do you need to put all these pencils?

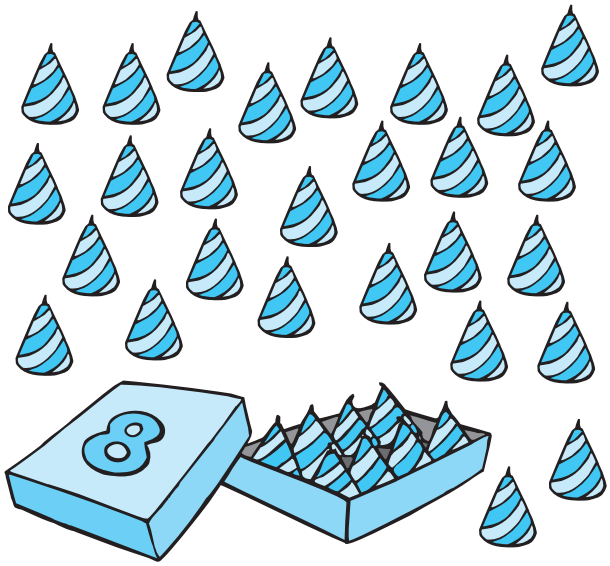
Are the answers to (a) and (b) the same?

If there was no remainder would the answers be the same?

Look at the picture below. Can you write down the division fact for the picture?

For this problem write down two questions like (a) and (b) in the previous picture.

Find whether the answers are different or the same.



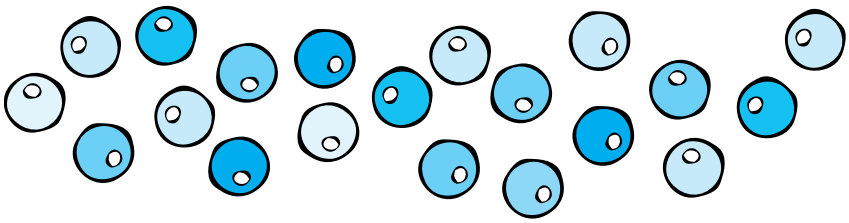
□ ÷ □ = □

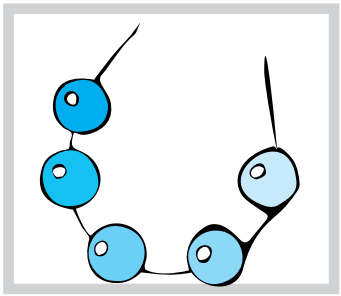
Picture stories

Write a division word problem for each picture.

Also write the division fact and the answer to the problem.

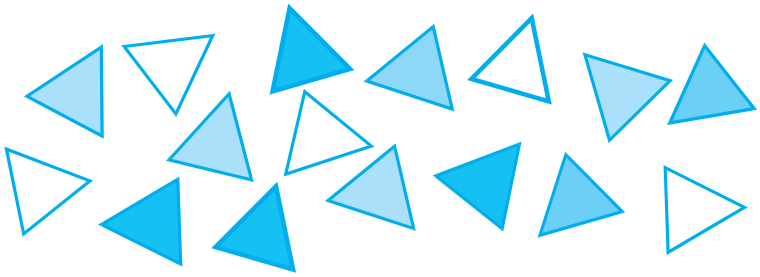
Example

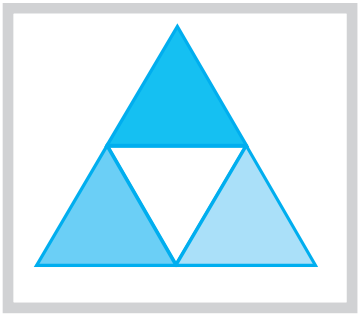




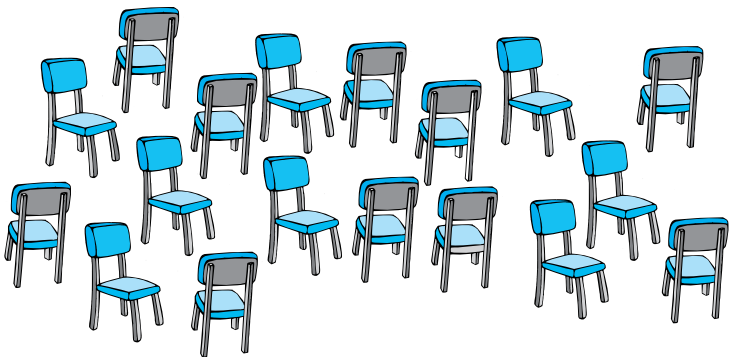
Each necklace has 5 beads. How many necklaces can you make from 20 beads?

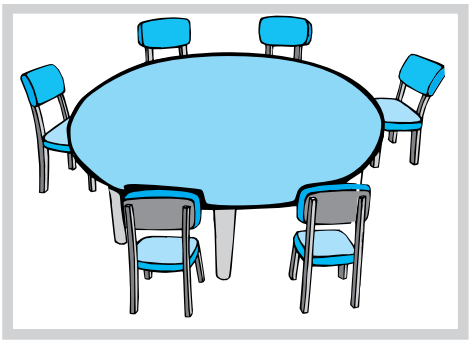
20 ÷ 5 = 4



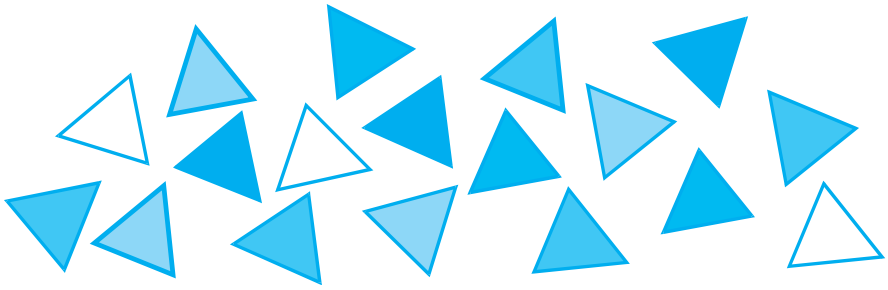


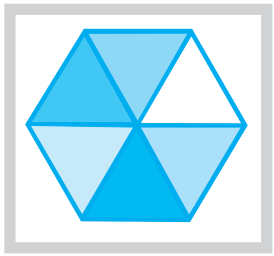
__ ÷ __ = __





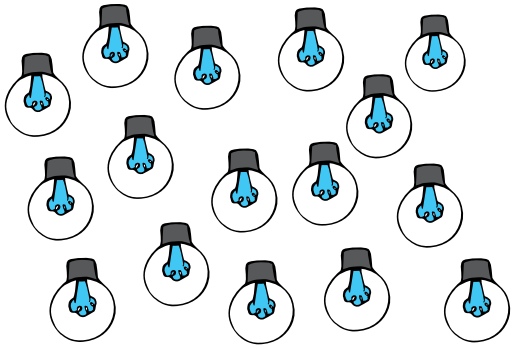
__ ÷ __ = __

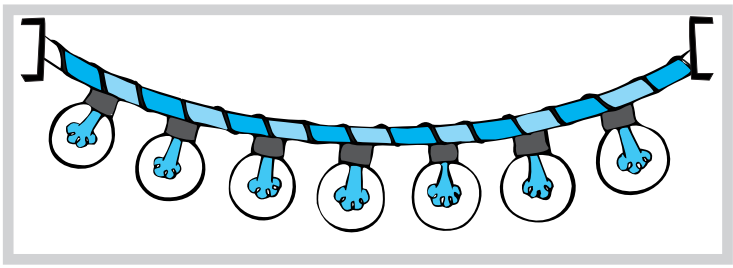


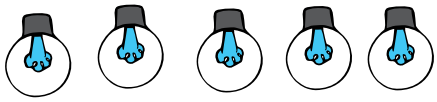


_____ ÷ _____ = _____

_____

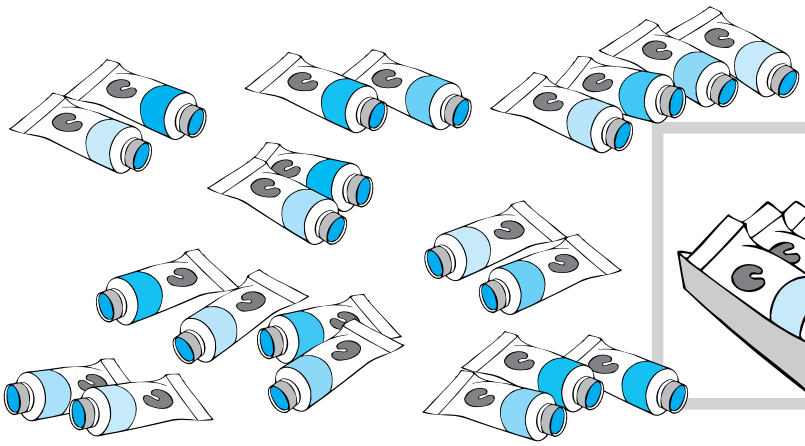


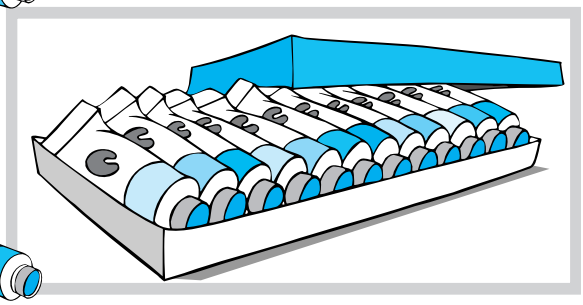




_____ ÷ _____ = _____

_____





_____ ÷ _____ = _____

_____

Sharing

Dividing is sharing equally.

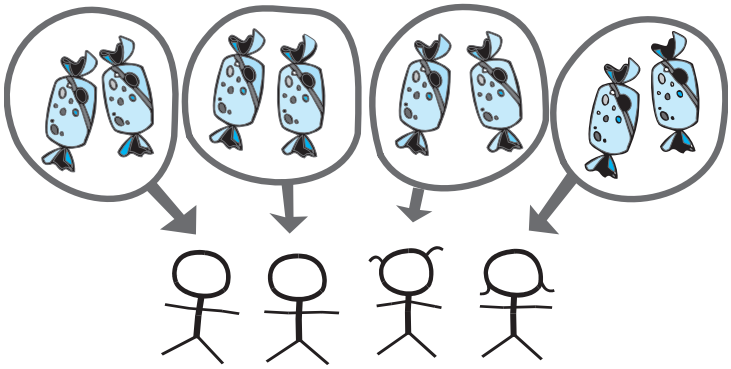
You can use division facts to share equally.

Share 8 toffees among 4 children equally.

Division fact $8 \div 4 = 2$

Each child gets 2 toffees.

Check the answer by drawing rings and sharing.
Do all the children get an equal share?

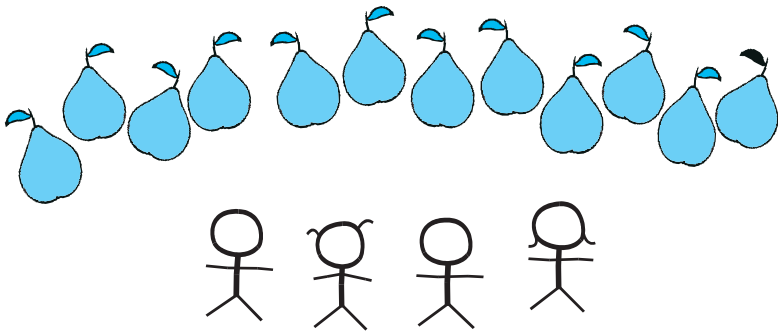


Use division facts to share equally.

Also draw rings and check if all the children get an equal share.

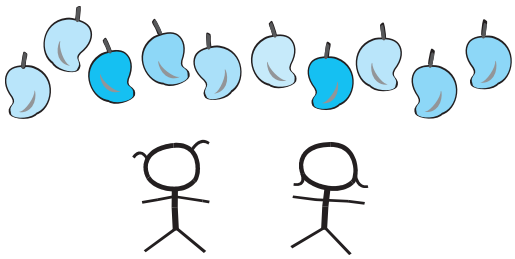
$\square \div \square = \square$

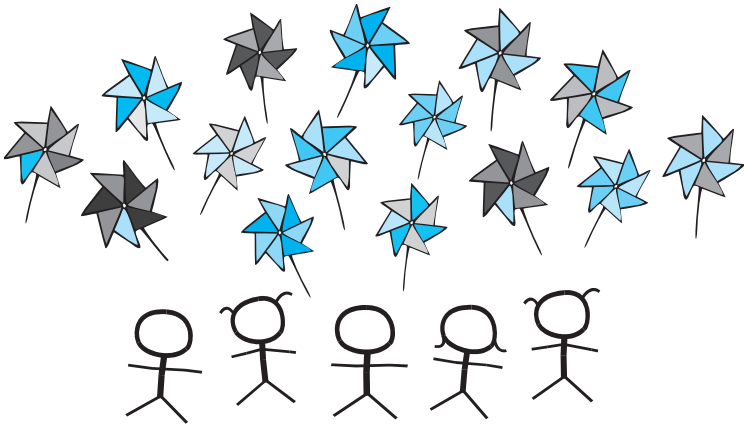
Each child gets____ guavas.



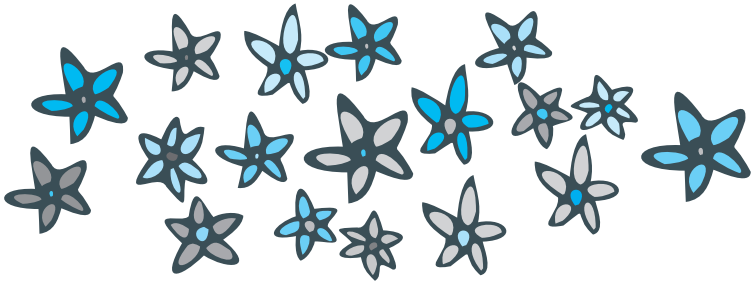
$\square \div \square = \square$

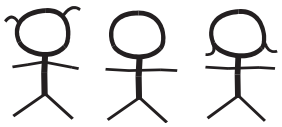
Each child gets____ mangoes.





□ ÷ □ = □





□ ÷ □ = □

Draw a picture to show 20 ÷ 4 as an equal sharing problem.

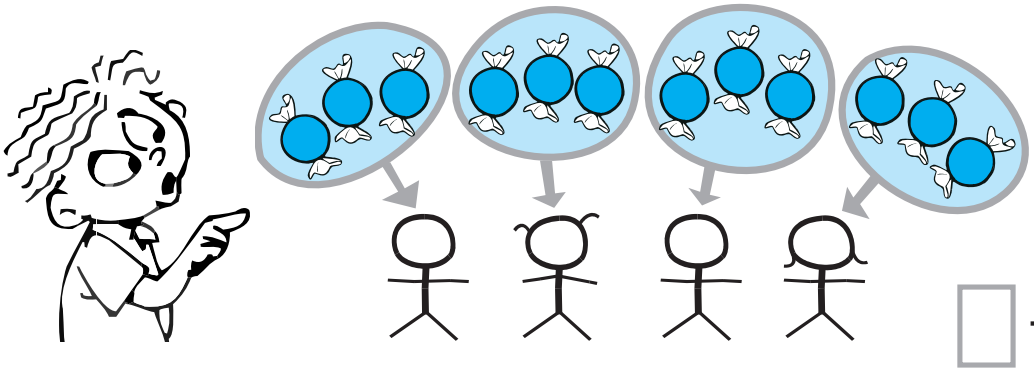
Notebook Exercise

Draw pictures in your notebook to show these division facts as sharing problems.

16 ÷ 2 16 ÷ 4 18 ÷ 6 35 ÷ 7

Two ways of sharing

Javed shared 12 sweets among 4 children like this.

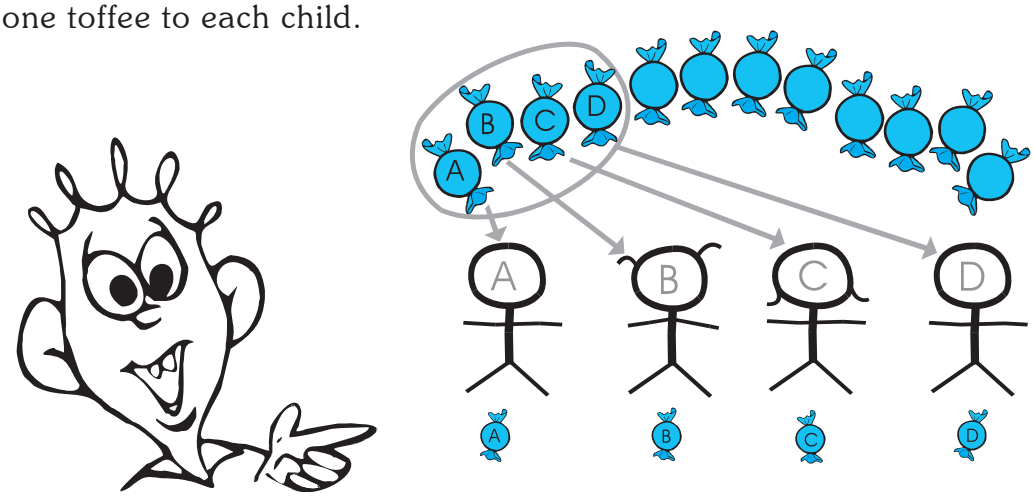


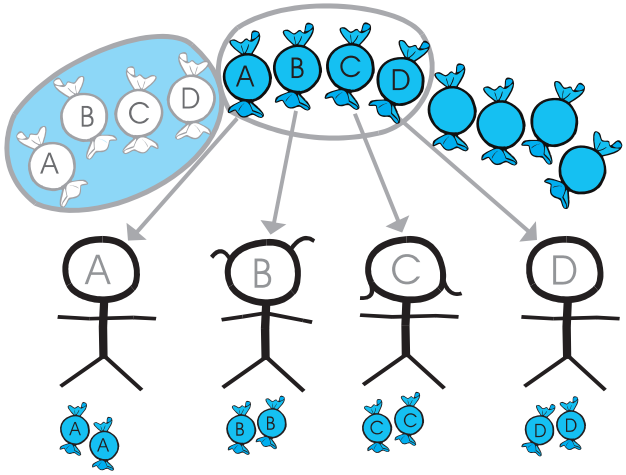
□ ÷ □ = □

Javed made 4 groups. Each group had 3 toffees.

Eti Soppo has found another way of sharing.*

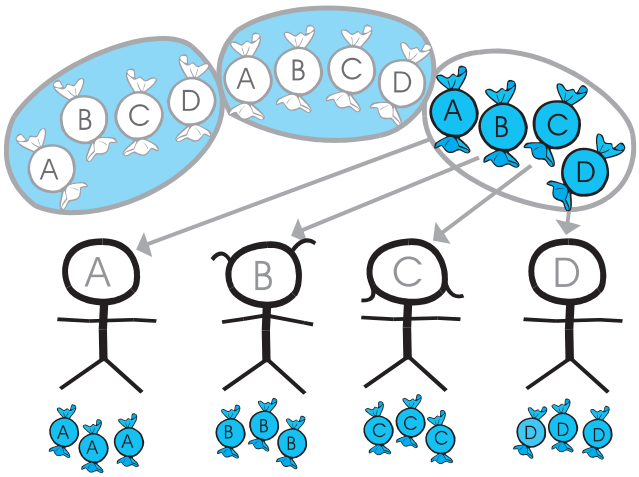
He first made a **group of 4 toffees** and gave one toffee to each child.



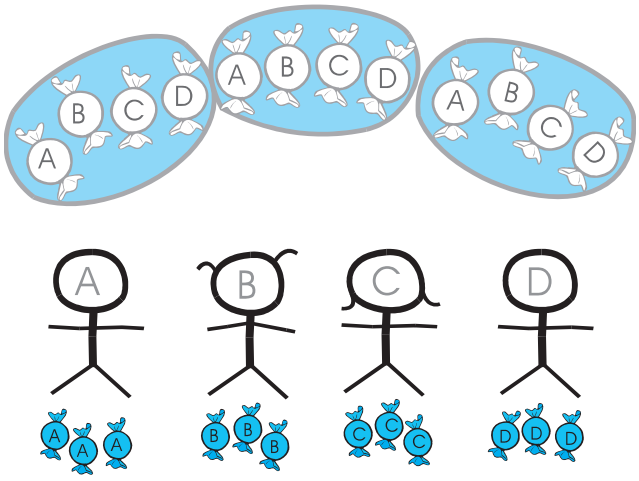


He made another group of 4 and shared out the toffees.

* Use actual objects to show this way of sharing. See teacher's book.



He then shared out the last group of 4.



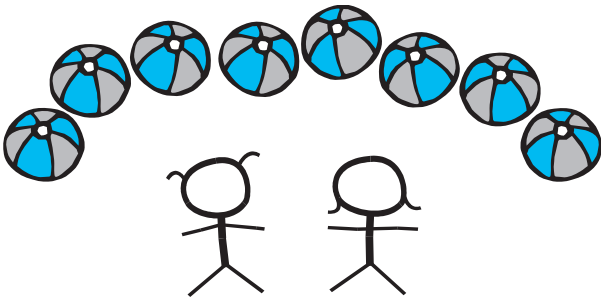
So Eti had shared his toffees out like this:

One group at a time to all the children.

□ ÷ □ = □

What is the difference between Javed's way of sharing and Eti's way of sharing?.

Share these balls out like the way Eti did.



□ ÷ □ = □

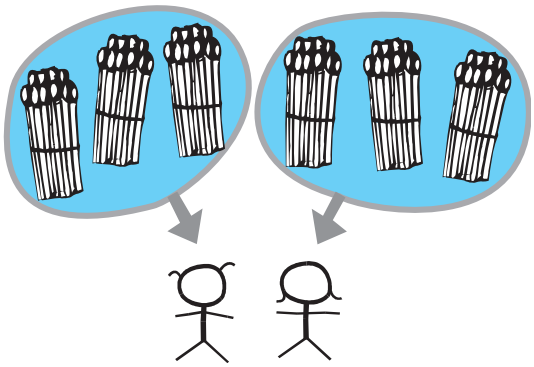
Notebook Exercise

Draw pictures to show sharing for these division facts. Do the sharing like the way Eti did.

6 ÷ 2 6 ÷ 3 15 ÷ 5 21 ÷ 7 36 ÷ 3

Dividing tens

Share these tens equally among all the children.



Each child gets 3 tens.

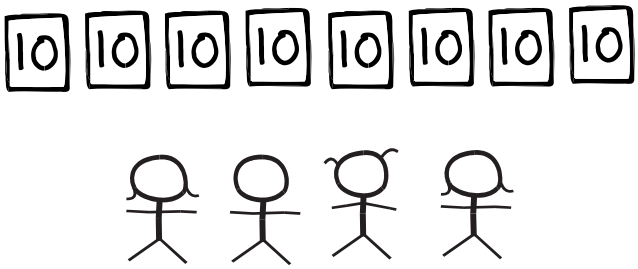
6 tens ÷ 2 = 3 tens

6 tens is 60. 3 tens is 30.

So we write

60 ÷ 2 = 30

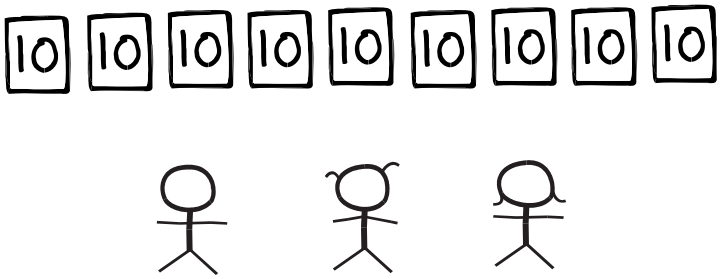
Share these tens equally.



Each child gets____ tens.

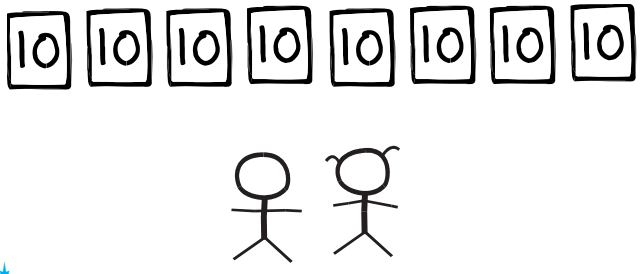
8 tens ÷ 4 = ____ tens

80 ÷ ☐ = ☐



____ tens ÷____ = ____tens

☐ ÷ ☐ = ☐



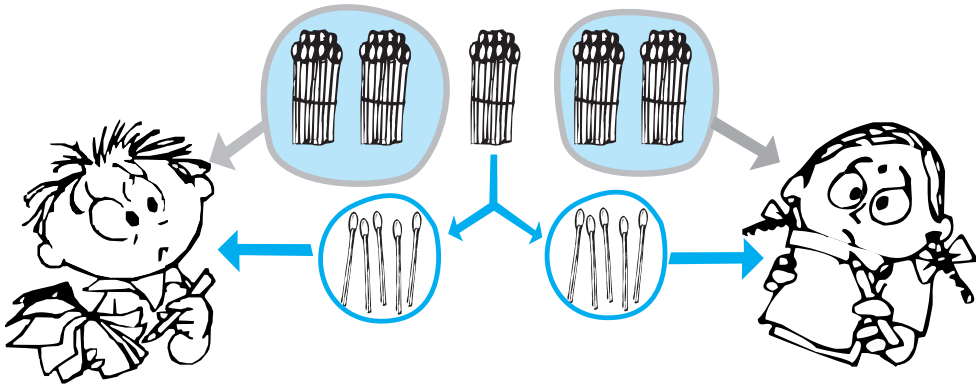
____ tens ÷____ = ____tens

☐ ÷ ☐ = ☐

Use actual matchstick bundles for these pages.

Sometimes you need to open a bundle of ten to get 10 ones.

Share 5 tens equally among two children.

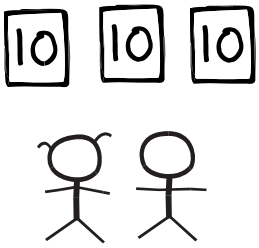


When a bundle of ten is left over
you must open it and share the ones.

5 tens ÷ 2 = 2 tens and 5 ones

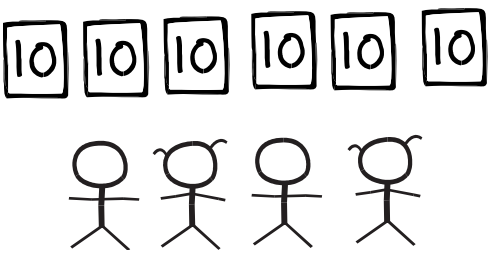
50 ÷ 2 = 25

Share these tens equally.



____ tens ÷ 2 = ____ tens and ____ ones

□ ÷ □ = □

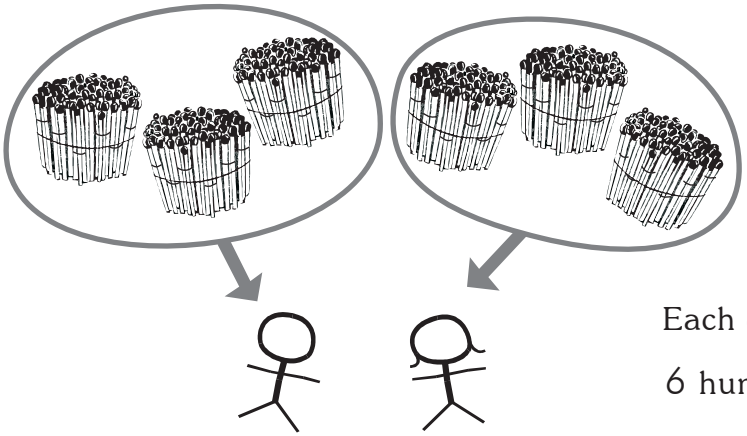


____ tens ÷ 4 = ____ tens and ____ ones

□ ÷ □ = □

Dividing hundreds

Share these hundreds equally.*



Each child gets 3 hundreds.

6 hundreds ÷ 2 = 3 hundreds

600 ÷ 2 = 300

Share these hundreds equally.

100 100 100 100 100 100 100 100 100

Each child gets hundreds.

9 hundreds ÷ 3 = hundreds

900 ÷ ☐ = ☐

100 100 100 100 100 100 100 100

hundreds ÷ = hundreds

☐ ÷ ☐ = ☐

100 100 100 100 100 100 100 100 100 100

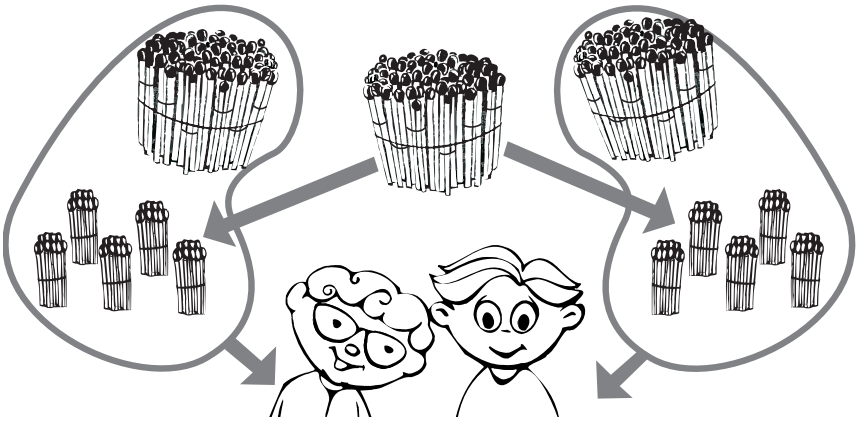
hundreds ÷ = hundreds

☐ ÷ ☐ = ☐

* Use actual matchstick bundles for these pages.

When a hundred bundle is left over, you must open it to get 10 tens.

Share these hundreds equally.

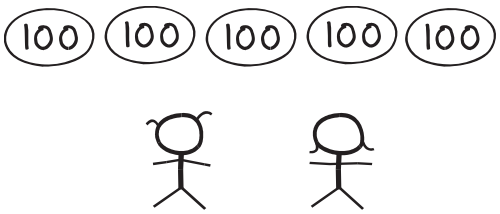


Each child gets 1 hundred and 5 tens.

3 hundreds ÷ 2 = 1 hundred and 5 tens

300 ÷ 2 = 150

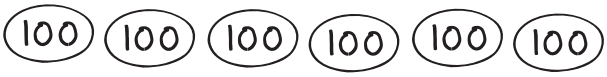
Share these hundreds equally.



Each child gets ____ hundreds and ____ tens.

____ hundreds ÷ ____ = ____ hundreds and ____ tens

____ ÷ ____ = ____



____ hundreds ÷ ____ = ____ hundreds and ____ tens

____ ÷ ____ = ____

____ hundreds ÷ ____ = ____ hundreds and ____ tens and ____ ones.

____ ÷ ____ = ____

Notebook Exercise

Divide on a line of dots.

24 ÷ 6 32 ÷ 4 28 ÷ 7 36 ÷ 6 18 ÷ 9

Complete and write the opposite division facts.

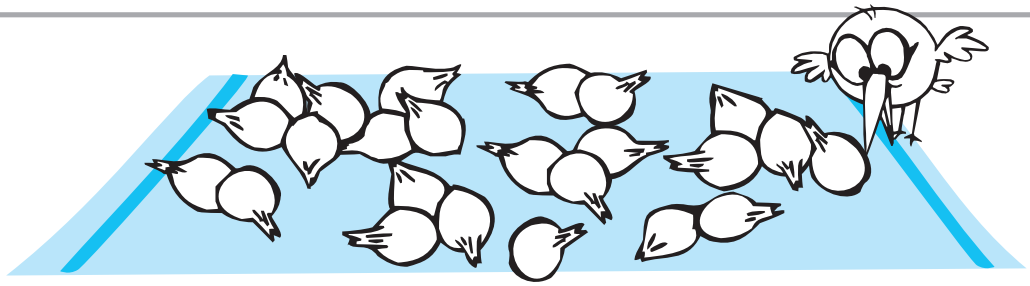
5 × 6 = 3 × 9 = 7 × 6 = 8 × 5 = 8 × 7 =

Write the mulitiplication fact and then write the answer.

35 ÷ 5 = 25 ÷ 5 = 42 ÷ 7 = 64 ÷ 8 = 72 ÷ 8 =

Divide and write only the answer.

28 ÷ 4 = 24 ÷ 4 = 49 ÷ 7 = 54 ÷ 6 = 56 ÷ 8 =



Count the coconuts in the picture and fill in the blanks below.

If you make heaps of 3 coconuts each, you will get _____ heaps.

If you make heaps of 4 coconuts each, you will get _____ heaps.

If you make heaps of 6 coconuts each, you will get _____ heaps.

Notebook Exercise

Write the division fact and find the answer.

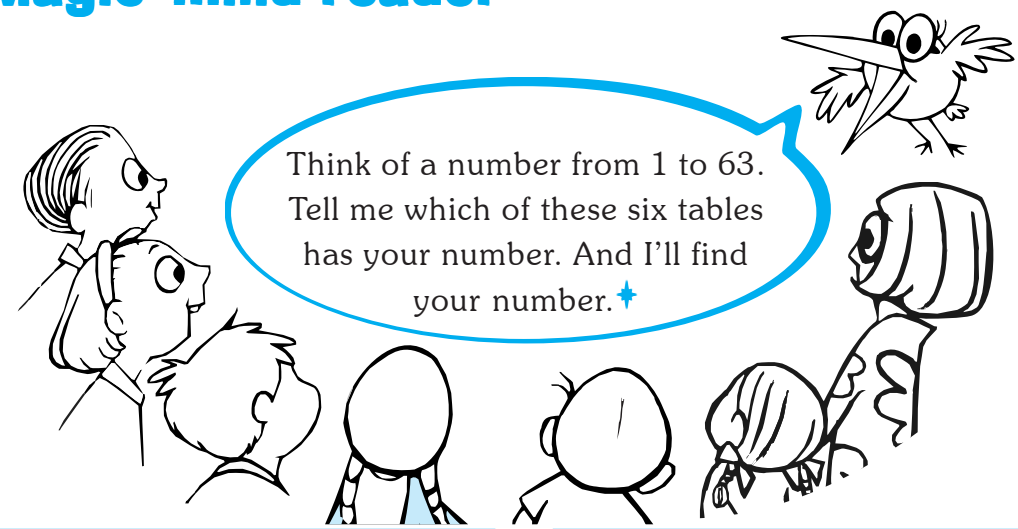
1) Two children share 16 marbles equally. How many will each child get?

2) Three children share 21 exercise books equally. How many will each child get?

Complete each division fact and make up a story problem for each division fact.

18 ÷ 6 = 16 ÷ 4 = 35 ÷ 7 = 45 ÷ 5 =

Magic mind-reader



1	13	25	37	49	61
3	15	27	39	51	63
5	17	29	41	53	
7	19	31	43	55	
9	21	33	45	57	
11	23	35	47	59	

2	14	26	38	50	62
3	15	27	39	51	63
6	18	30	42	54	
7	19	31	43	55	
10	22	34	46	58	
11	23	35	47	59	

4	14	28	38	52	62
5	15	29	39	53	63
6	20	30	44	54	
7	21	31	45	55	
12	22	36	46	60	
13	23	37	47	61	

8	14	28	42	56	62
9	15	29	43	57	63
10	24	30	44	58	
11	25	31	45	59	
12	26	40	46	60	
13	27	41	47	61	

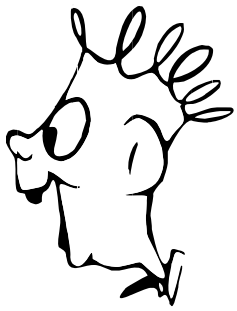
16	22	28	50	56	62
17	23	29	51	57	63
18	24	30	52	58	
19	25	31	53	59	
20	26	48	54	60	
21	27	49	55	61	

32	38	44	50	56	62
33	39	45	51	57	63
34	40	46	52	58	
35	41	47	53	59	
36	42	48	54	60	
37	43	49	55	61	

Turn to the next page to see how to find the number.

How to find the number using the magic mind-reader:

Add the first numbers in the tables in which the number appears. For example, if your number appears in the first two tables and the last table, add 1 + 2 + 32 = 35.



35 is the number you thought of.

Perfect your mental addition so that you can impress others with this trick.

Magic squares

Add the numbers in any row or column or diagonal in these two magic squares. What do you find?

8	1	6
3	5	7
4	9	2

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

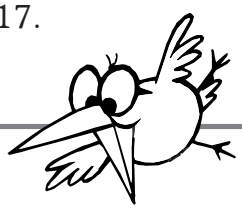
More magic!

There is more magic in this 4 × 4 square.

Add the four corner numbers.

Add the four numbers in the centre

Find pairs of numbers which add to 17. See how they are arranged.



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