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Mathematics

Based on 2017 Curriculum

2

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National Curriculum Council,
Ministry of Federal Education & Professional Training, Government of Pakistan

Textbook of

Mathematics

Grade 2



Approved by

Ministry of Federal Education and Professional Training
&
Federal Directorate of Education(FDE) Capital Administration and
Development Division Government of Pakistan

Preface

Primary Mathematics (1 – 5) has been developed according to the Curriculum 2017. This series is aimed at efficiently facilitating the process of teaching and learning. It encourages reflective thinking and cultivates problem-solving ability among young learners. These textbooks provide real-life learning situations, which are thought-provoking and exciting for students.

The present series of textbooks has been developed in collaboration between the Ministry of Federal Education and Professional Training and Federal Directorate of Education, Capital Administration and Development Division (CADD). The main aim is to provide quality textbooks as per vision of the government to make Islamabad Capital Territory (ICT) a model education city. It is the result of detailed deliberations between the curriculum developers and the authors who worked in close collaboration to translate the soul of the curriculum into the textbooks.

These books are geared to making students competent and proficient young mathematicians right from their junior grades.

This series focuses on five core areas of Mathematics: numbers and their operations, measurement, geometry, algebraic concepts and data handling. These books include an exciting and pleasant layout, eye-catching graphics and progression-controlled text, which is organised in a logical way.

We will appreciate your valuable feedback and suggestions to make these books more useful for young learners.
May Allah guide and help us (Ameen)!

About the Book

Learning Outcomes: Each unit starts with the target outcomes to be achieved in that specific unit.

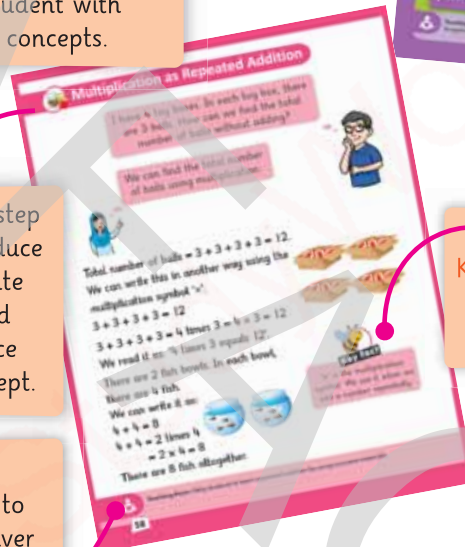
Unit Opener: A full page picture with intriguing question is given at the beginning of a unit to bridge the prior knowledge of the student with the upcoming new concepts.

Concept Building: A step-by-step procedure is provided to introduce each new concept. To facilitate independent working, solved examples and guided practice is added after each new concept.

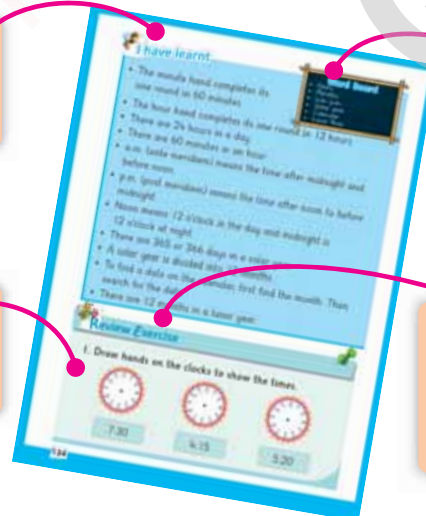
Teaching Points: Clear instructions have been given to the teacher about how to deliver each lesson.

I Have Learnt: It sums up the key points learnt in the unit.

A variety of **activities** have been used for clear understanding.



Chunks: Each unit includes Key facts, Hints and Check Points to highlight terminologies or facts relevant to the topic.



Word Board: Vocabulary words consisting of mathematical terms are given at the end of each unit.

Review exercise: It comprises questions that prompt students to recap the whole lesson.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

شروع اللہ کے نام سے جو بڑا مہربان نہایت رحم والا ہے۔

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Numbers

Unit 1

Let's relate



Learning Outcomes

- Write ordinal numbers from first to twentieth.
- Write numbers 1-100 in words.
- Read numbers up to 999.
- Write numbers up to 999 as numerals.
- Recognize the place value of a 3-digit number.
- Identify the place value of a specific digit in a 3-digit number.
- Compare 2 digit numbers with 3-digit numbers (hundreds, tens and ones).
- Compare 3 digit numbers with 3-digit numbers (hundreds, tens and ones).
- Count backwards in steps of 10 from any given number.
- Arrange numbers up to 999, written in mixed form, in increasing or decreasing order.
- Count and write in 10s (e.g. 10, 20, 30,...).
- Count and write in 100s (e.g. 100, 200, 300,...).
- Identify the smallest/greatest number in a given set of numbers.
- Recognise that 1000 is one more than 999 and the first 4-digit number.

Haadi made a castle with blocks. How many blocks are there?

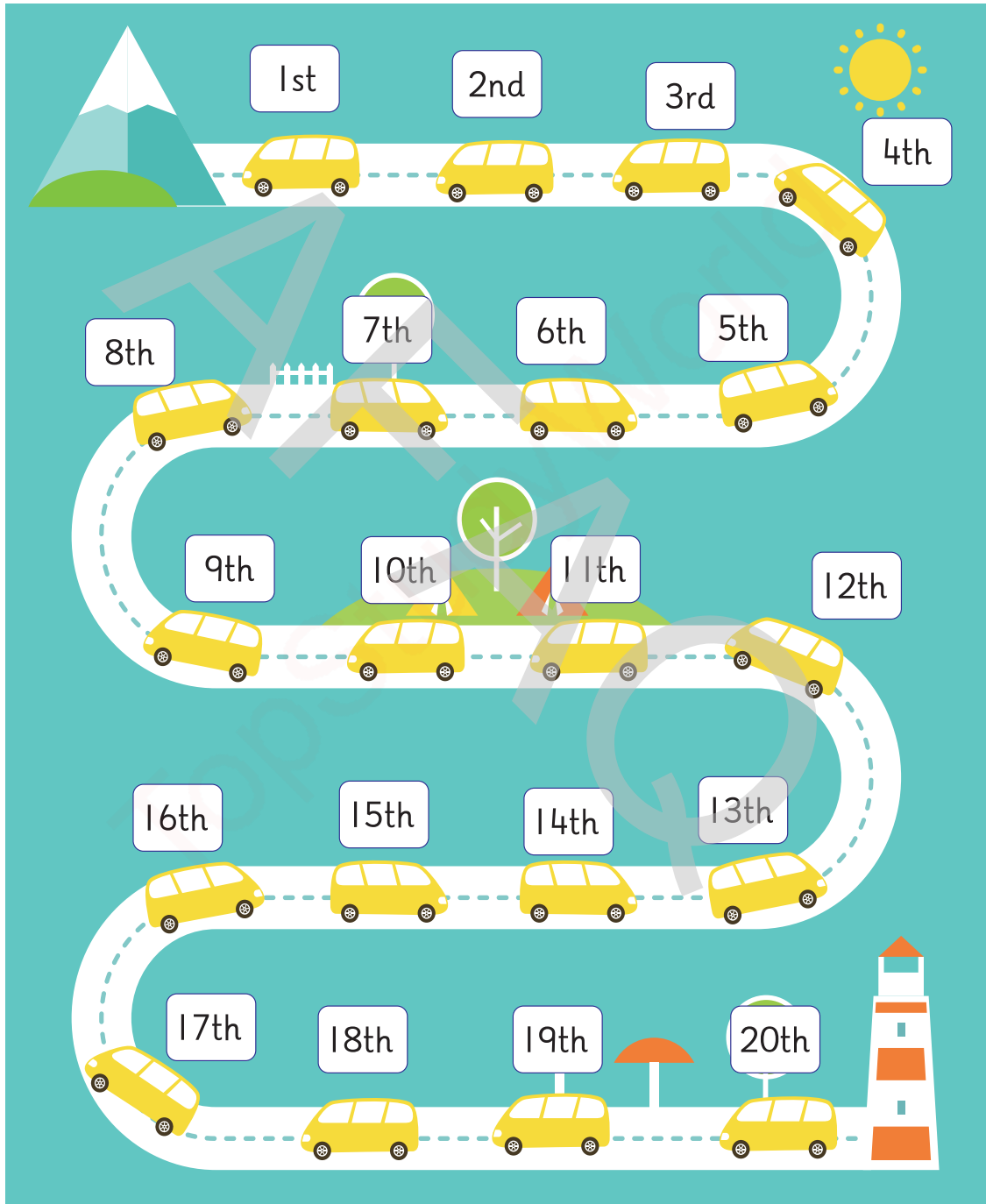


Teaching Point: For effective teaching and learning, feel free to use 'Urdu' as a medium of instruction to explain the concepts.



Ordinal Numbers

The position of objects can be shown by ordinal numbers. Let us have a look at this track and see the position of vehicles.

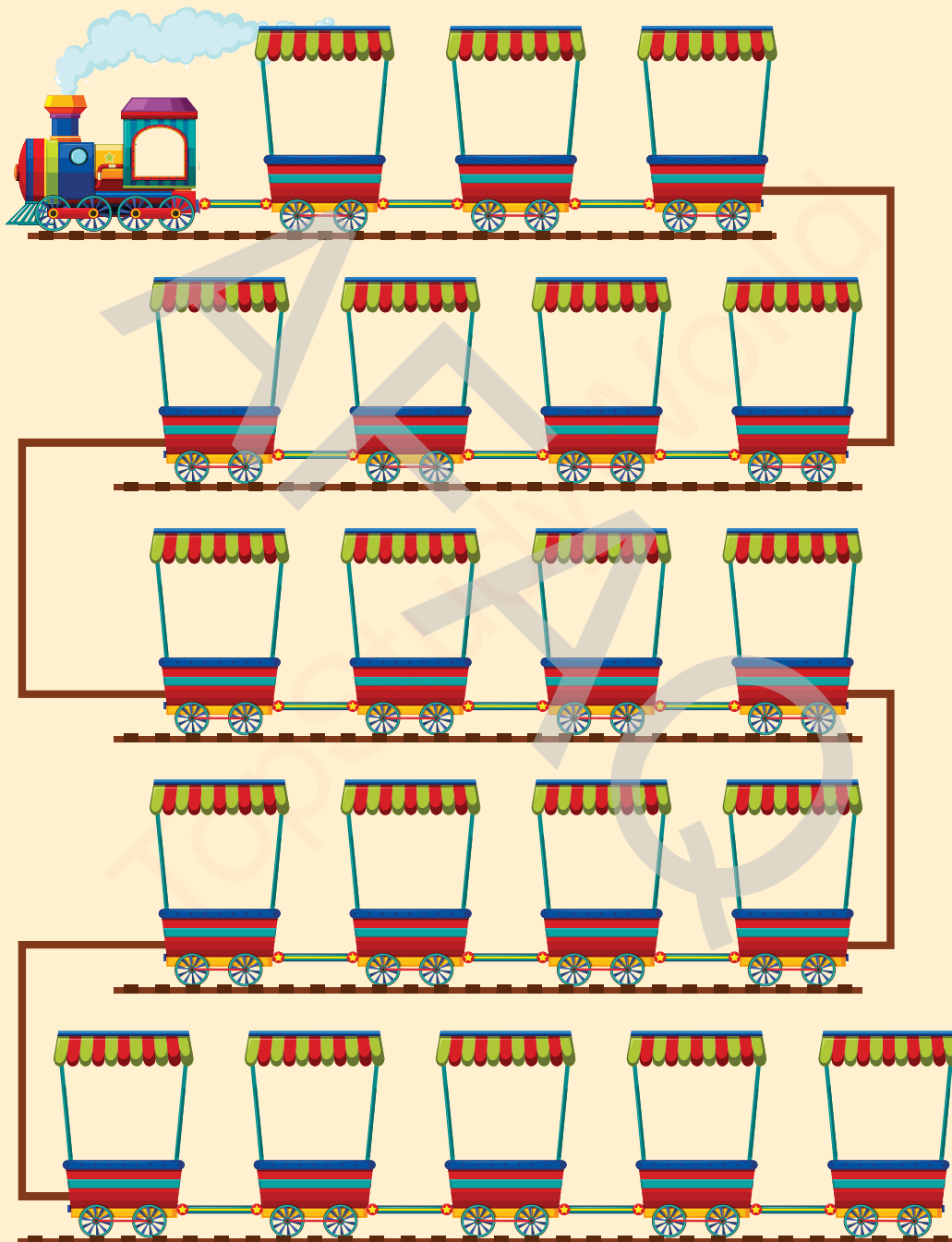




Exercise 1



1. Write the correct ordinal numbers on the carts.

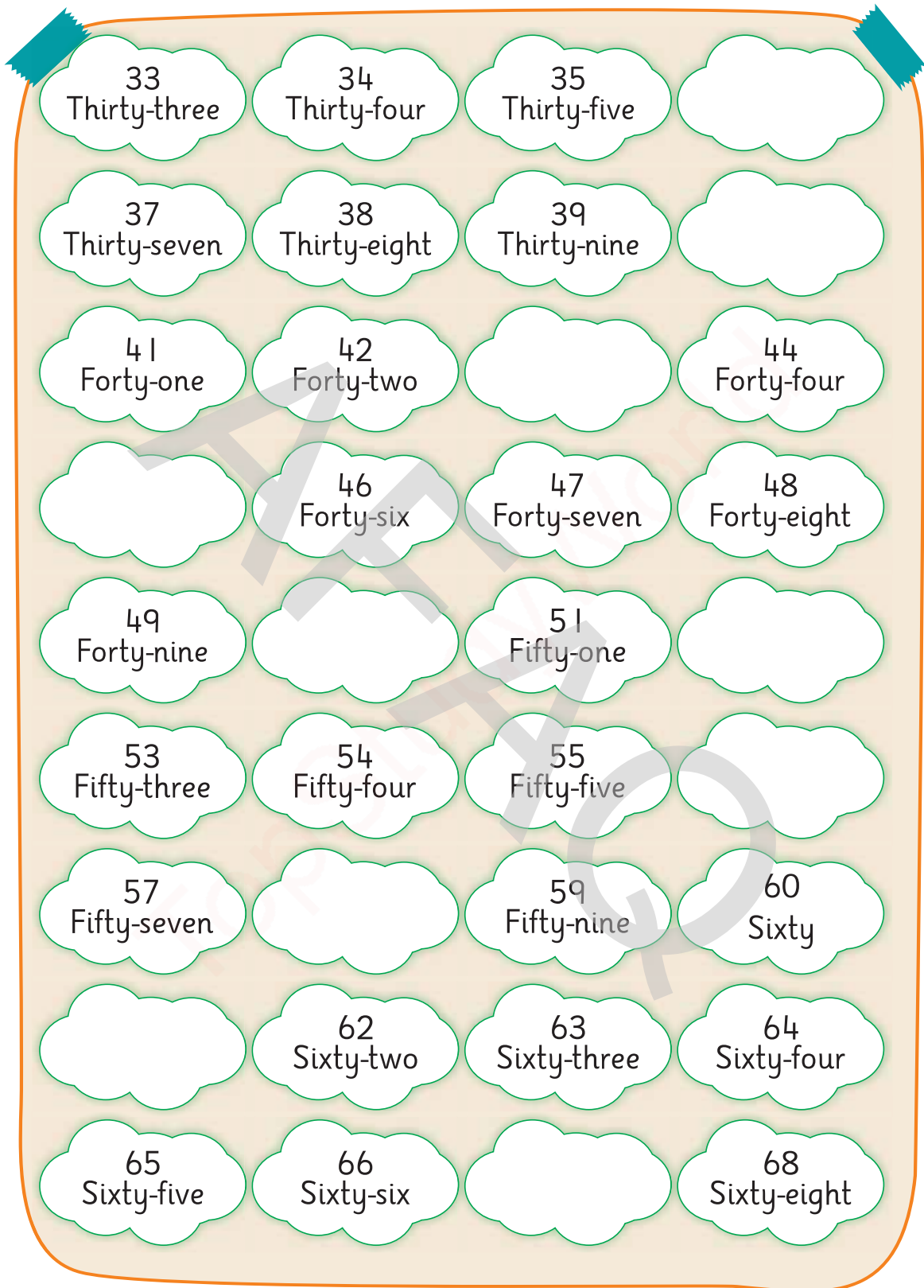




Number Names

Let us read and write.

1 One		3 Three	4 Four
5 Five		7 Seven	
	10 Ten		12 Twelve
13 Thirteen	14 Fourteen		16 Sixteen
17 Seventeen		19 Nineteen	20 Twenty
	22 Twenty-two	23 Twenty-three	24 Twenty-four
25 Twenty-five	26 Twenty-six		28 Twenty-eight
29 Twenty-nine	30 Thirty	31 Thirty-one	



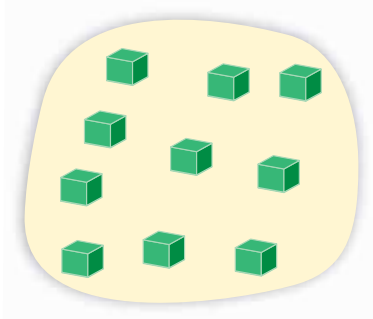
	70 Seventy	71 Seventy-one	72 Seventy-two
	74 Seventy-four		76 Seventy-six
77 Seventy-seven	78 Seventy-eight	79 Seventy-nine	
	82 Eighty-two	83 Eighty-three	84 Eighty-four
85 Eighty-five	86 Eighty-six		88 Eighty-eight
89 Eighty-nine		91 Ninety-one	92 Ninety-two
93 Ninety-three		95 Ninety-five	96 Ninety-six
97 Ninety-seven	98 Ninety-eight		100 Hundred



Teaching Point: Help the students learn and write the numbers and number names.



Counting



10 ones

=

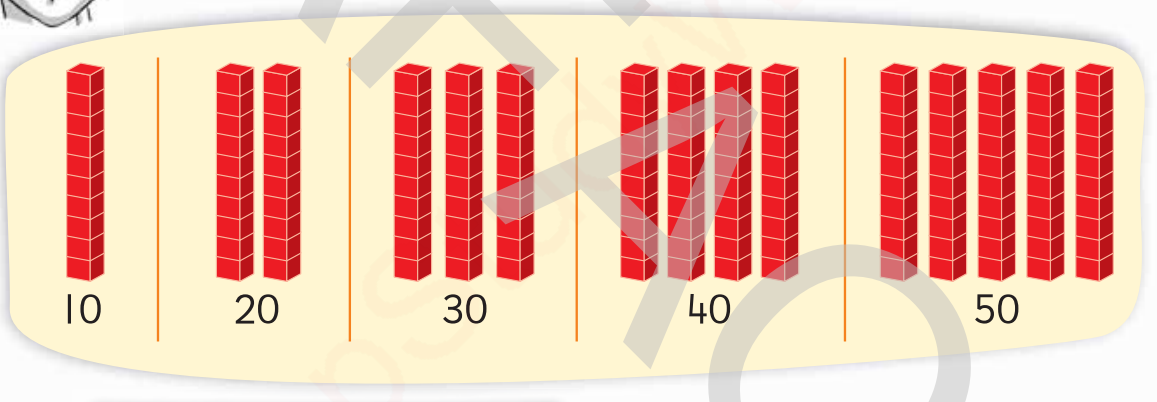


1 ten

10 ones make 1 ten.

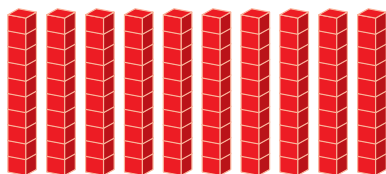


Let us count in tens.



If we keep counting in tens, we get; 60, 70, 80, 90 and 100.

10 tens make 1 hundred.

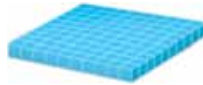


Key fact

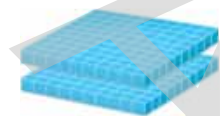
is called a cube.



Let us count in hundreds
by using cubes.



1 hundred or 100



2 hundreds or 200



3 hundreds or 300



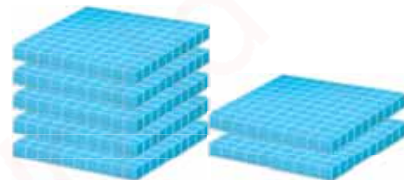
4 hundreds or 400



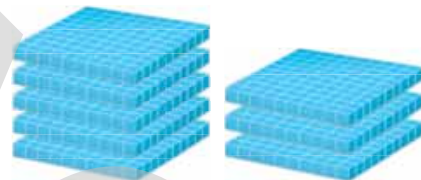
5 hundreds or 500



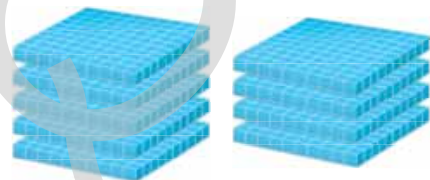
6 hundreds or 600



7 hundreds or 700



8 hundreds or 800



9 hundreds or 900



Key fact

100 is the smallest
3-digit number.

We can count by hundreds, tens and ones.



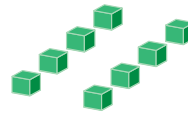
100

+



30

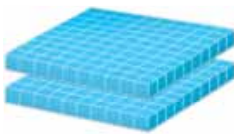
+



8

There are 138 cubes altogether. We write 138 in words as “one hundred and thirty-eight”.

Look at the cubes.



200

+



20

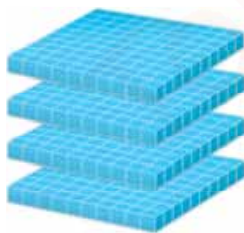
+



2

There are 222 cubes altogether. We write 222 in words as “two hundred and twenty-two”.

Now count how many cubes there are altogether.

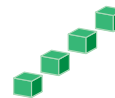


400

+

00

+



4

There are 404 cubes altogether. We write 404 as “four hundred and four”.

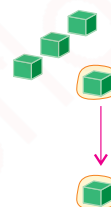
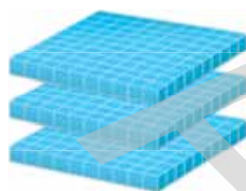


Teaching Point: Make use of base 10 blocks to show and teach the numbers and their formation.



Counting backwards

What number is 1 less than 334?



Count back ones.

334 333

-1

1 less than 334 is 333.

If we keep counting back in 1's, we get 324 after 10 steps.

334, 333, 332, 331, 330, 329, 328, 327, 326, 325, 324

-1 -1 -1 -1 -1 -1 -1 -1 -1

If we keep counting back in 10's, we get 234 after 10 steps.

334, 324, 314, 304, 294, 284, 274, 264, 254, 244, 234

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



Count backwards 10 steps down from 500. What number do you get finally?



Exercise 2



1. Write the following numbers in words.

87

20

32

99

80

2. Count and write the numbers for the given number names.

a) Six hundred and seventy-seven

b) Eight hundred and ninety-nine

c) Three hundred and nine

d) Four hundred and forty-eight

e) Five hundred and nineteen

3. Count backwards 10 steps in 1's from these numbers.

279 _____

344 _____

4. Count backwards 10 steps in 10's from these numbers.

789 _____

624 _____



Place Value

The place value of each digit is decided by its position in the number.



A box has 38 puzzle pieces. How many tens and ones are there in 38?

Tens	Ones
3 tens	8 ones
30	8



$$30 + 8 = 38$$

So, we read it as 'thirty-eight'.

The digit 3 is in the tens place. So, its value is 30.
The digit 8 is in the ones place. So, its value is 8.

Let us find the place value of a 3-digit number, i.e. 144.

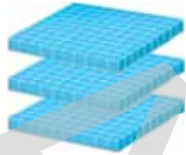
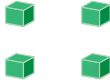


Hundreds	Tens	Ones
1 hundred	4 tens	4 ones
100	40	4

The digit 1 is in the hundreds place. So, its value is 100.
The digit 4 is in the tens place. So, its value is 40.
The digit 4 is in the ones place. So, its value is 4.
So, we read it as 'one hundred and forty-four'.



How many hundreds, tens and ones are there in 304?

Hundreds	Tens	Ones
		
3 hundreds	0 tens	4 ones
300	00	4

$$300 + 00 + 4 = 304$$

The digit 3 is in the hundreds place. So, its value is 300.

The digit 0 is in the tens place. So, its value is 00.

The digit 4 is in the ones place. So, its value is 4.

We read it as 'three hundred and four'.



Key fact

999 is the greatest 3-digit number.



How many hundreds, tens and ones are there in 111?



How many hundreds, tens and ones are there in 999?



Teaching Point: Give number cards to students and ask them to tell the place value of each digit in numbers.



Exercise 3



1. Write the place and place value of the coloured digits.

Numbers	Place	Value
4 5 6	_____	_____
2 8 9	_____	_____
3 3 5	_____	_____

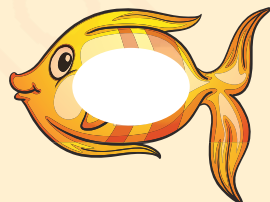
Numbers	Place	Value
4 6 0	_____	_____
5 0 6	_____	_____
4 7 8	_____	_____

2. Read each statement and then circle the correct digit.

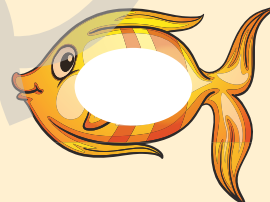
- a) Circle the hundreds. 9 7 8
- b) Circle the tens. 5 9 0
- c) Circle the ones. 3 4 6
- d) Circle the hundreds. 1 0 8

3. Write the correct number inside the fish using the place values.

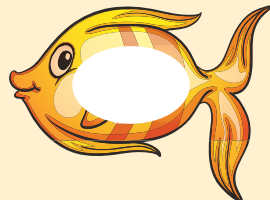
a) $600 + 20 + 5$



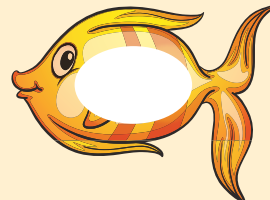
b) $300 + 10 + 2$



c) $500 + 40 + 3$



d) $700 + 30 + 5$





Comparing and Ordering

Comparing Numbers

There are 507 small fish and 35 big fish in a pond.
How can we compare the number of fish?



We can compare the number of fish by using place values.



	Hundreds	Tens	Ones
507			
35			

When comparing a 2-digit number with a 3-digit number, the 3-digit number will always be greater.



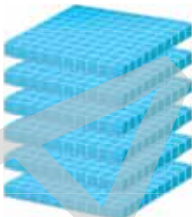
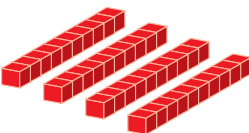

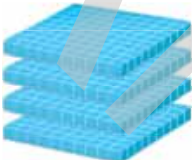

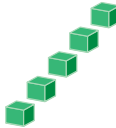
Here, 507 has 3 digits and 35 has 2 digits. So, 507 is greater than 35.



Teaching Point: Give students different groups of objects and ask them to count and compare which is greater.



Lets us compare two
3-digit numbers.

	Hundreds	Tens	Ones
647			
435			

First, we compare the hundreds.

6 hundreds is greater than 4 hundreds.

So, 647 is greater than 435.

To compare two or more 3-digit numbers, first we compare the digits in the hundreds place. The number with the greatest digit in the hundreds place will be the greatest.



Can you compare
742 and 922?
Which is smaller?



Let us compare
267 and 263.



267

263

Hundreds	Tens	Ones

First, compare the digits in the hundreds
place. Both numbers have 2 hundreds.



Now compare the digits in the tens
place. They are also the same. Now,
we compare the digits in the ones place.

7 ones is greater than 3 ones.

So, 263 is smaller 267.

Or 267 is greater than 263.



Teaching Point: Give number cards to students and ask them to make smaller and greater 3-digit numbers and compare them.

Ordering numbers

Let us compare
152, 264 and 178.



We can order numbers
by using place values.



152

264

178

Hundreds	Tens	Ones

First, compare the digits in the hundreds place.



2 is greater than 1. So, 264 is the greatest number.

Now we compare 152 and 178. The digits in
the hundreds places are the same. So, we
compare the digits in the tens place.



7 tens is greater than 5 tens. So, 152 is the smallest number.

Let us arrange the numbers from the smallest to the greatest.



We have 152, 178, 264.

The arrangement of numbers from the smallest to the greatest is called increasing order.

Let us arrange the numbers from the greatest to the smallest.



We have 264, 178, 152.

The arrangement of numbers from the greatest to the smallest is called decreasing order.



Look at the numbers:
24, 356, 196
Which number is the smallest
and which is the greatest?



Teaching Point: Give number cards to students and ask them to make three 3-digit numbers and arrange them in increasing and decreasing order.



Exercise 4



1. Colour the smaller number green and the greater number yellow.

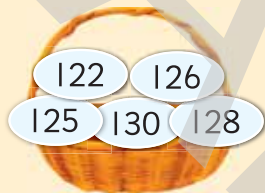
a) 824 428

b) 105 500

c) 353 335

d) 926 999

2. Write the numbers in increasing order.



○ ○ ○ ○ ○



○ ○ ○ ○ ○

3. Write the numbers in decreasing order.



○ ○ ○ ○ ○



○ ○ ○ ○ ○



One Thousand or 1000

If we keep counting in 100s, we get 1000 after 900.

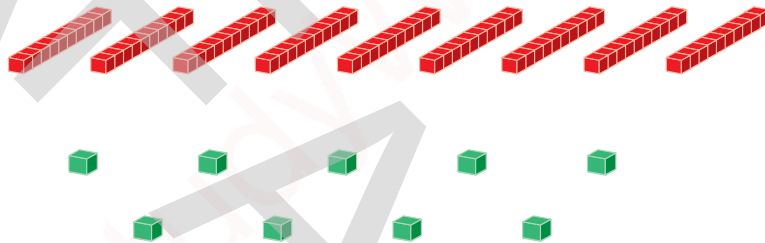
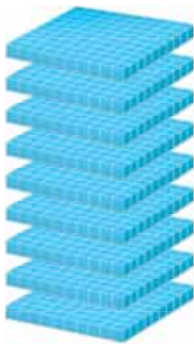
1000 is 1 more than 999.

9 hundreds, 9 tens and 9 ones
make 999.



Key fact

999 is the greatest
3-digit number.

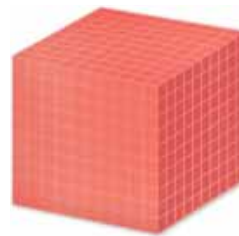
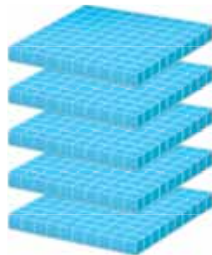
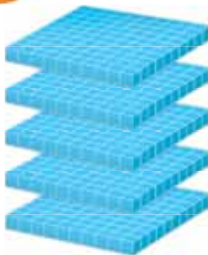


If we add one more
to 999, we get 1000.



Key fact

1000 is the smallest
4-digit number.



10 hundreds

=

1 thousand



I have learnt

- Ordinal numbers are used to tell the position of objects.
- When 3-digit numbers are compared, the digits in the hundreds place are compared first.
- If the digits are the same in the hundreds place, compare the digits in the tens place.
- If the digits are the same in the tens place, compare the digits in the ones place.
- The arrangement of numbers from the smallest to the greatest is called increasing order.
- The arrangement of numbers from the greatest to the smallest is called decreasing order.
- 1 more than 999 is equal to 1000.

Word Board

- Ordinal
- Compare
- Arrange
- Decreasing order
- Increasing order
- Ones, tens, hundreds



Review Exercise



I.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a) Write the positions of the letters given below.

F

H

S

J

A

M

I

C

b) Write the letters in the given positions.

2nd

5th

10th

13th

15th

20th

3rd

4th

2. Count in tens and fill in the missing numbers.



3. Count in hundreds and fill in the missing numbers.



4. Write the numbers in numerals.

a) Three hundred and fifty-nine

b) Seven hundred and thirty-seven

c) Four hundred and one

5. Write the numbers in words.

a) 56 _____

b) 29 _____

c) 44 _____

d) 37 _____

e) 72 _____

f) 99 _____

6. Write the place values of the circled digits.

a) 4 (4) 4



b) 3 3 (3)



c) (8) 8 8



d) 5 (5) 5



e) 1 (0) 7



f) 7 9 (9)



7. Count backwards 10 steps down in 1's and write the numbers.

255										
-----	--	--	--	--	--	--	--	--	--	--

8. Count backwards 10 steps down in 10's and write the numbers.

560										
-----	--	--	--	--	--	--	--	--	--	--

9. Tick (✓) the box if the numbers are in increasing order and cross (×) if the numbers are in decreasing order.

387, 379, 368, 317

☐

734, 748, 799, 877

☐

562, 556, 516, 501

☐

145, 154, 174, 181

☐

Addition

Unit 2



Let's relate

Learning Outcomes

- Add ones and ones.
- Add ones and 2-digit numbers and 2-digit numbers with carrying.
- Add 2-digit numbers to 2-digit numbers with carrying.
- Solve real life problems, involving addition of 2-digit numbers with carrying.
- Add 3-digit numbers and ones without carrying.
- Add 3-digit numbers and 2-digit numbers without carrying.
- Add 3-digit numbers and 3-digit numbers without carrying.
- Solve real life number stories involving addition of 3-digit numbers without carrying.
- Add 3-digit numbers and ones with carrying of tens and hundreds.
- Add 3-digit numbers and 2-digit numbers with carrying of tens and hundreds.
- Add 3-digit numbers and 3-digit numbers with carrying of tens and hundreds.
- Solve real life number stories involving addition of 3-digit numbers with carrying of tens and hundreds.

?

There are 2 girls and 6 boys in the park. How many children are there altogether?



Teaching Point: For effective teaching and learning, feel free to use 'Urdu' as a medium of instruction to explain the concepts.

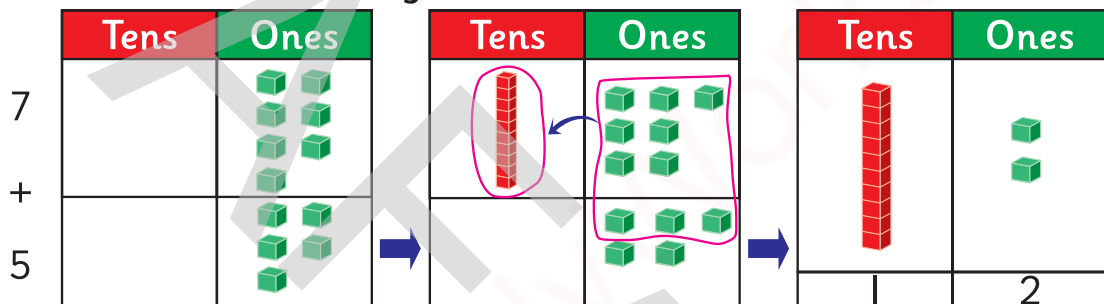


Addition of 1-digit Numbers

There are 7 red flowers and 5 yellow flowers in the garden. How many flowers are there altogether?



Let us add 7 and 5 using blocks.



Regroup 10 ones as 1 ten.

			T	O
Red flowers	=		1	7
Yellow flowers	=	+		5
Total flowers	=		1	2

When we make a new ten from the ones, we are regrouping (making a group of 10 ones as 1 ten).

Step I: Add ones to ones.
 7 ones + 5 ones = 12 ones
 Regroup and carry 10 ones as 1 ten.
 12 ones = 2 ones and 1 ten



Step II: Add tens to tens.
 1 ten + 0 tens = 1 ten



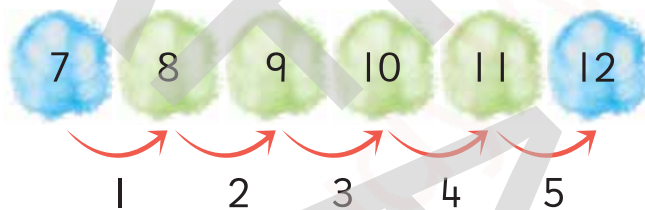
Teaching Point: Use base 10 blocks to recall that 10 ones make 1 ten. Afterwards, demonstrate an addition example using the blocks.

If the sum of ones is more than 9, we need to regroup ones as tens and ones. Carry forward the ones to add to tens.



We can also add 7 and 5 by counting forward.

Let us start at 7. Count forwards 5.



7 and 5 make 12.

$$7 + 5 = 12$$

So, there are 12 flowers altogether.



Clue words for addition are **total**, **altogether**, **in all**, **more than**, **added to**.

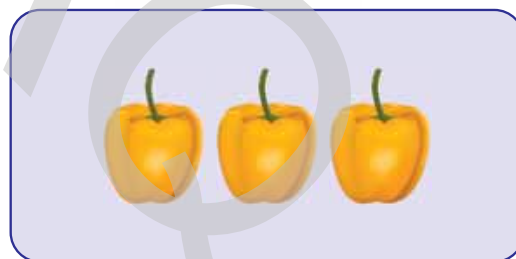


Teaching Point: Give number cards to the students and ask them to loudly count forwards by looking at the numbers and tell the answer.

How many bell peppers are there?



Make a group
of 10 bell peppers
and then add the leftover
bell peppers.



10

and

3

make

13

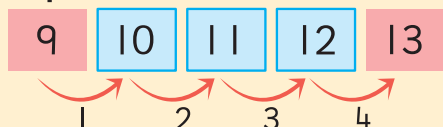
So, $10 + 3 = 13$.



Exercise 1



1. Fariya had 4 cupcakes. Her mother baked 9 more cupcakes. How many cupcakes are there in all?



Hint

Count forwards
4 from 9.

Cupcakes Fariya had =	T	O
	<input type="text"/>	<input type="text"/>
Mother baked =	+	<input type="text"/>
		<input type="text"/>
Total cupcakes =	=	<input type="text"/>
		<input type="text"/>

2. Add the following.

<div> <div>T O</div> <div>8</div> <div>+ 7</div> <div>_____</div> </div>	<div> <div>T O</div> <div>5</div> <div>+ 9</div> <div>_____</div> </div>	<div> <div>T O</div> <div>6</div> <div>+ 6</div> <div>_____</div> </div>	<div> <div>T O</div> <div>1</div> <div>+ 9</div> <div>_____</div> </div>
--	--	--	--

<div> <div>T O</div> <div>3</div> <div>+ 8</div> <div>_____</div> </div>	<div> <div>T O</div> <div>8</div> <div>+ 5</div> <div>_____</div> </div>	<div> <div>T O</div> <div>4</div> <div>+ 5</div> <div>_____</div> </div>	<div> <div>T O</div> <div>7</div> <div>+ 7</div> <div>_____</div> </div>
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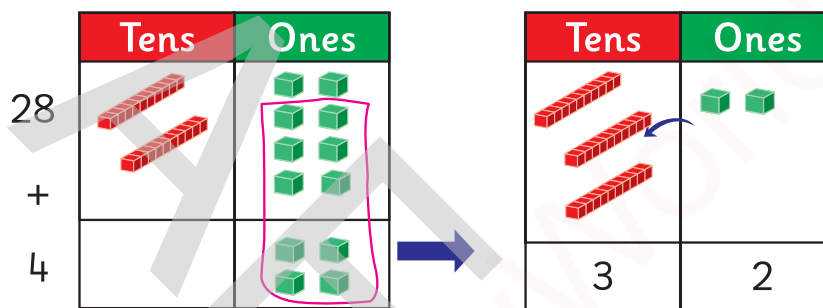


Addition of 2-digit Numbers (with carrying)

Huma collected 28 seashells. Ali collected only 4 seashells. How many seashells did they collect altogether?



We need to add 28 and 4 to find the total number of seashells.



Regroup 10 ones as 1 ten.

	T	O
Seashells Huma collected =	2	8
Seashells Ali collected = +		4
Total seashells =	3	2



Can you count forwards and find the answer?

Step I: Add ones to ones.

8 ones + 4 ones = 12 ones

Regroup and carry 10 ones as 1 ten.

12 ones = 2 ones and 1 ten

Step II: Add tens to tens.

2 tens + 1 ten = 3 tens

So, they collected 32 seashells altogether.



Teaching Point: Use base 10 blocks and show students how to regroup and carry forward ones to tens. Encourage them to demonstrate different addition questions using the base 10 blocks.

Add 54 and 19.

	T	O
	5	4
+	1	9
<hr/>		
	7	3
<hr/>		

Step I: Add ones to ones.

4 ones + 9 ones = 13 ones
Regroup the ones into tens and ones and carry 10 ones as 1 ten.
13 ones = 3 ones and 1 ten.

Step II: Add tens.

1 ten + 5 tens + 1 ten = 7 tens



Exercise 2



I. Add the following.

T	O
1	6
+	7
<hr/>	

T	O
8	9
+	7
<hr/>	

T	O
3	3
+	9
<hr/>	

T	O
8	2
+	8
<hr/>	



Hint

Regroup and carry if the sum of ones is more than 9.

T	O
1	6
+	37
<hr/>	

T	O
7	9
+	17
<hr/>	

T	O
3	3
+	49
<hr/>	

T	O
4	4
+	19
<hr/>	

T	O
3	2
+	28
<hr/>	

T	O
4	6
+	28
<hr/>	

T	O
1	2
+	79
<hr/>	

T	O
6	6
+	26
<hr/>	

T	O
4	4
+	49
<hr/>	

T	O
5	6
+	24
<hr/>	

2. Raza read 12 pages of a storybook on Saturday and 8 pages on Sunday. How many pages did he read in two days altogether?



Pages read on Saturday =	<div style="display: inline-block; text-align: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 15px; height: 15px; line-height: 15px;">T</div> <div style="border: 1px solid black; border-radius: 50%; width: 15px; height: 15px; line-height: 15px;">O</div> 2 </div>
Pages read on Sunday =	+ 8
Total pages read =	_____

3. Nida plucked 18 oranges and Ibrahim plucked 24 oranges from a tree. How many oranges were plucked in all?

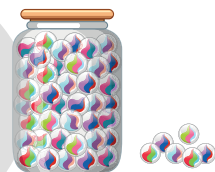


Number of oranges Nida plucked =	<div style="display: inline-block; text-align: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 15px; height: 15px; line-height: 15px;">T</div> <div style="border: 1px solid black; border-radius: 50%; width: 15px; height: 15px; line-height: 15px;">O</div> 8 </div>
Number of oranges Ibrahim plucked =	+ 24
Total number of oranges plucked =	_____








Addition of 3-digit Numbers (Without Carrying)

There are 123 marbles in the jar and 6 marbles outside the jar. What is the total number of marbles?



When adding 3-digit numbers, first add the ones, then the tens and finally the hundreds.



	Hundreds	Tens	Ones
123			
+			
6			

		H	T	O
Marbles in the jar	=	1	2	3
Marbles outside the jar	= +			6
Total marbles	=	1	2	9



Key fact

When zero is added to any number, the result is the number itself.

Step I: Add ones to ones.

3 ones + 6 ones = 9 ones

Step II: Add tens to tens.

2 tens + 0 tens = 2 tens

Step III: Add hundreds to hundreds.

1 hundred + 0 hundreds = 1 hundred

So, there are 129 marbles altogether.



Add 415 and 72.

	H	T	O
415	4	1	5
+ 72		7	2
	4	8	7

Step I: Add ones to ones.

5 ones + 2 ones = 7 ones

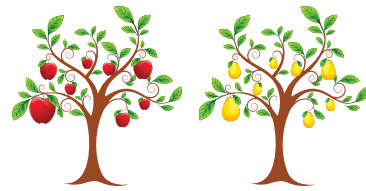
Step II: Add tens to tens.

1 ten + 7 tens = 8 tens

Step III: Add hundreds to hundreds.

4 hundreds + 0 hundreds = 4 hundreds

There are 382 apple trees and 516 mango trees on a farm. How many trees are there altogether?



	H	T	O
Apple trees =	3	8	2
Mango trees = +	5	1	6
Total trees =	8	9	8

First add the ones, then the tens and finally the hundreds.

There are 898 trees altogether.



Exercise 3

I. Add the following.

H	T	O
2	9	3
+ 6		

H	T	O
3	5	7
+ 2		

H	T	O
8	1	3
+ 6		

H	T	O
2	5	3
+ 3 6		

H	T	O
9	3	7
+ 2 2		

H	T	O
8	0	3
+ 9 2		

H	T	O
2	5	3
+ 6 3 6		

H	T	O
5	5	3
+ 3 3 4		

H	T	O
8	9	3
+ 1 0 6		

H	T	O
4	4	4
+ 4 4 2		

H	T	O
6	1	0
+ 1 5 7		

H	T	O
2	5	0
+ 5 2 0		

2. In a school, there are 544 girls and 425 boys. Find the total number of students in the school.



	H	T	O
Girls in school =	<input type="text"/>	<input type="text"/>	<input type="text"/>
Boys in school = +	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total students =	<input type="text"/>	<input type="text"/>	<input type="text"/>



Addition of 3-digit Numbers (With Carrying)

Ali is counting his footsteps while walking in the park. He counted 196 steps. If he takes 4 more steps, what will be the total number of steps he takes?



	Hundreds	Tens	Ones
196			
+			
4			

If the total of tens is more than 9, we need to regroup tens as hundreds. Carry forward the tens as hundreds.



Teaching Point: Use base 10 blocks and show students how to regroup and carry forward ones to the tens and tens to hundreds. Encourage them to demonstrate different addition questions using the base 10 blocks.

		H	T	O
Steps counted	=	1	9	6
More steps taken	= +			4
Total steps	=	2	0	0

Step I: Add ones to ones.
 $6 \text{ ones} + 4 \text{ ones} = 10 \text{ ones}$
 Regroup 10 ones.
 $10 \text{ ones} = 0 \text{ ones and } 1 \text{ ten}$
 (carry 1 ten)

Step II: Add tens to tens.
 $9 \text{ tens} + 1 \text{ ten} = 10 \text{ tens}$
 Regroup 10 tens.
 $10 \text{ tens} = 0 \text{ tens and } 1 \text{ hundred.}$
 (carry 1 hundred)

Step III: Add hundreds to hundreds
 $1 \text{ hundred} + 1 \text{ hundred} = 2 \text{ hundreds}$

So, Ali takes 200 steps in all.

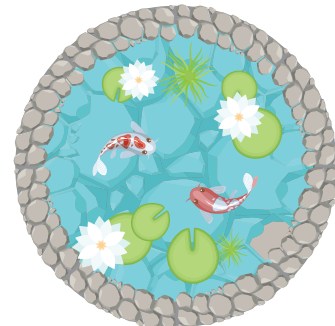
When we make a new hundred from the tens, we are regrouping (making a group of 10 tens as 1 hundred).

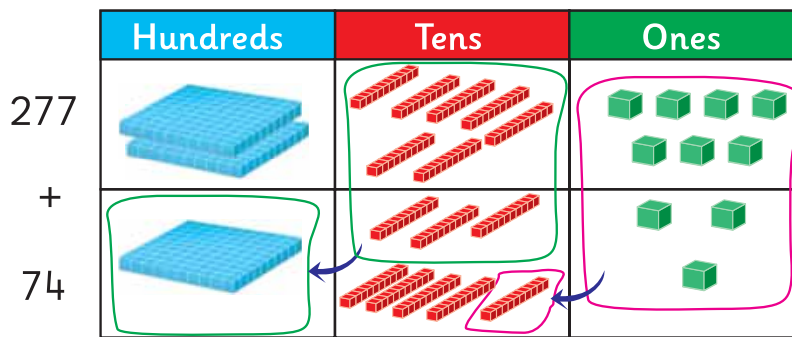


A small pond has 74 fish. A bigger pond has 277 fish. How many fish are there altogether?



Here, we need to add 277 and 74.





		H	T	O
Fish in bigger pond =	①	2	7	7
Fish in small pond = +			7	4
Total fish =		3	5	1

Step I: Add the ones.

7 ones + 4 ones = 11 ones
Regroup the ones.
11 ones = 1 one and 1 ten

Step II: Add tens to tens.

1 ten + 7 tens + 7 tens = 15 tens
Regroup the tens.
15 tens = 1 hundred and 5 tens

Step III: Add hundreds to hundreds.

1 hundred + 2 hundreds = 3 hundreds

So, there are 351 fish altogether.

There are 589 small packs of juice and 343 big packs of juice in a grocery store. How many packs of juice are there in the store altogether?



	H	T	O
Small packs of juice =	5	8	9
Big packs of juice = +	3	4	3
Total packs of juice =	9	3	2

Step I: Add the ones.

9 ones + 3 ones = 12 ones

Regroup 12 ones.

12 ones = 2 ones and 1 ten

Step II: Add the tens.

1 ten + 8 tens + 4 tens = 13 tens

Regroup 13 tens.

13 tens = 3 tens and 1 hundred

Step III: Add the hundreds.

1 hundred + 5 hundreds + 3 hundreds

= 9 hundreds

So, there are 932 packs of juice in the store altogether.



Teaching Point: Make groups of students and ask each group to make addition stories using 2 or 3 digits. Have them exchange their stories with other groups to solve and share their answers.



Exercise 4



1. Add the following.

$$\begin{array}{r} \text{H T O} \\ 296 \\ + \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 357 \\ + \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 579 \\ + \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 812 \\ + \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 447 \\ + \quad 45 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 909 \\ + \quad 77 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 782 \\ + \quad 76 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 258 \\ + \quad 51 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 287 \\ + 245 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 339 \\ + 497 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 785 \\ + 176 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 259 \\ + 651 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 773 \\ + 137 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 582 \\ + 379 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 369 \\ + 455 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 659 \\ + 143 \\ \hline \end{array}$$

2. In a test cricket match, Pakistan Team scored 383 runs in 1st innings and 297 runs in 2nd innings. Find the total runs in both innings.

	H	T	O
Runs in 1st innings =	<input type="text"/>	<input type="text"/>	<input type="text"/>
Runs in 2nd innings = +	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total runs =	<input type="text"/>	<input type="text"/>	<input type="text"/>



I have learnt

- When we make a new ten from the ones, we are regrouping (making a group of 10 ones as 1 ten).
- When we make a new hundred from the tens, we are regrouping. (making group of 10 tens as 1 hundred).
- When adding 3-digit numbers, first add the ones, then the tens and finally the hundreds.
- If the sum of ones is more than 9, we need to regroup ones as tens. If the sum of tens is more than 9, regroup tens as hundreds.

Word Board

- Regroup
- Carry forward
- Ones
- Hundred
- Ones



Review Exercise



1. Choose the correct option.

a) $46 + 25 =$ _____.

i) 71

ii) 72

iii) 37

iv) 74

b) $265 + 369 =$ _____.

i) 633

ii) 634

iii) 635

iv) 636

c) In addition, first we add the _____.

i) thousands

ii) hundreds

iii) tens

iv) ones

d) If the total of ones is more than 9, we need to regroup the ones as _____.

i) tens

ii) hundreds

iii) ones

iv) zero

e) When we add zero to any number, we get _____.

i) the same number

ii) a different number

iii) a smaller number

iv) a greater number

2. Add the following.

$\begin{array}{r} \text{T O} \\ 5 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 2 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 4 \\ + 7 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 9 \\ + 2 \\ \hline \end{array}$
$\begin{array}{r} \text{T O} \\ 46 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 82 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 66 \\ + 6 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 59 \\ + 9 \\ \hline \end{array}$
$\begin{array}{r} \text{T O} \\ 46 \\ + 28 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 12 \\ + 79 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 66 \\ + 26 \\ \hline \end{array}$	$\begin{array}{r} \text{T O} \\ 59 \\ + 39 \\ \hline \end{array}$
$\begin{array}{r} \text{H T O} \\ 447 \\ + \quad 1 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 990 \\ + \quad 7 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 702 \\ + \quad 6 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 258 \\ + \quad 1 \\ \hline \end{array}$
$\begin{array}{r} \text{H T O} \\ 772 \\ + \quad 17 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 920 \\ + \quad 79 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 333 \\ + \quad 55 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 652 \\ + \quad 43 \\ \hline \end{array}$
$\begin{array}{r} \text{H T O} \\ 266 \\ + 536 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 538 \\ + 128 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 363 \\ + 338 \\ \hline \end{array}$	$\begin{array}{r} \text{H T O} \\ 813 \\ + 177 \\ \hline \end{array}$

3. Solve the following.

- a) A farmer has 15 buffaloes and 28 cows.
How many cattle does he have?



		T	O
Buffaloes	=	<input type="text"/>	<input type="text"/>
Cows	= +	<input type="text"/>	<input type="text"/>
Total cattle	=	<input type="text"/>	<input type="text"/>

- b) A bakery had 581 bags of sugar. The owner purchased 207 more bags of sugar. How many bags of sugar are there altogether?



		H	T	O
Bags of sugar	=	<input type="text"/>	<input type="text"/>	<input type="text"/>
More bags purchased	= +	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total bags	=	<input type="text"/>	<input type="text"/>	<input type="text"/>

- c) There are two bundles of books. One bundle has 359 books and the other has 562 books. How many books are there in both bundles?



		H	T	O
Books in one bundle	=	<input type="text"/>	<input type="text"/>	<input type="text"/>
Books in other bundle	= +	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total books	=	<input type="text"/>	<input type="text"/>	<input type="text"/>

Subtraction

Unit 3

Let's relate



Learning Outcomes

- Subtract ones from 2-digit numbers with borrowing.
- Subtract 2-digit numbers from 2-digit numbers with borrowing.
- Solve real-life number stories of subtraction with borrowing.
- Subtract ones from 3-digit numbers without borrowing.
- Subtract 2-digit numbers from 3-digit numbers without borrowing.
- Subtract 3-digit numbers from 3-digit numbers without borrowing.
- Solve and construct number stories of subtraction without borrowing.
- Subtract ones from 3-digit numbers with borrowing.
- Subtract 2-digit numbers from 3-digit numbers with borrowing.
- Subtract 3-digit numbers from 3-digit numbers with borrowing.
- Solve and construct number stories of subtraction with borrowing.
- Analyze simple problems identifying the correct operations of addition and subtraction with carrying/borrowing in mixed form.

?

There are 20 marbles. 11 are blue. How many marbles are yellow?



Teaching Point: For effective teaching and learning, feel free to use 'Urdu' as a medium of instruction to explain the concepts.



Subtraction of 1-digit Numbers from 2-digit Numbers

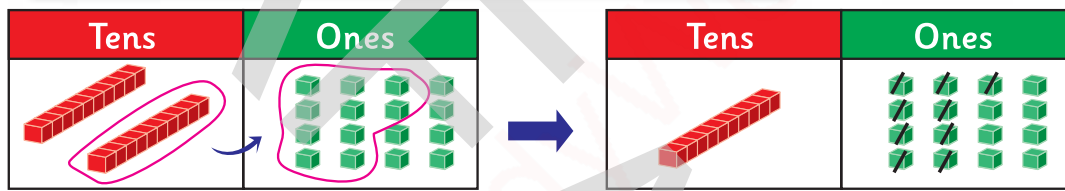
There were 26 animals on a farm. 9 animals were shifted to another farm. How many animals were left on the farm?



First subtract 9 from 26.



We cannot subtract 9 ones from 6 ones. We need to regroup and borrow 1 ten as 10 ones. Now there are 16 ones and 1 ten.



	T	O
Total animals =	2	6
Shifted animals = -		9
Animals left =	1	7



Try finding the answer by counting backwards 9 from 26.

Step I: Borrow 1 ten as 10 ones.

Step II: Subtract ones from ones.

$$16 \text{ ones} - 9 \text{ ones} = 7 \text{ ones}$$

Step III: Subtract tens from tens.

$$1 \text{ ten} - 0 \text{ tens} = 1 \text{ ten}$$

So, there are 17 animals left.



Teaching Point: Call a few students to the front of the class and give them number cards (according to the example). Ask them to loudly count backwards by looking at the numbers and tell the answer.



Subtraction of 2-digit Numbers (With Borrowing)

Ayyan had 53 cherries. He gave 25 to Rida. How many cherries are left?



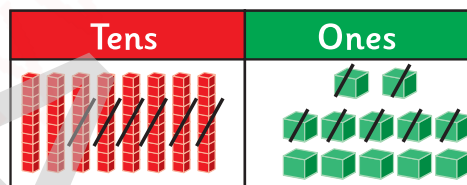
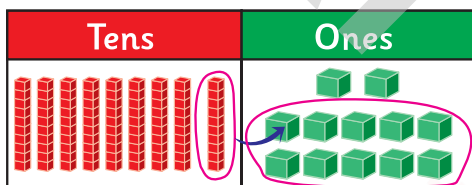
	T	O
Total number of cherries =	5	3
Cherries given to Rida =	2	5
Cherries left =	2	8

Clue words for Subtraction:

Less than, fewer than, how many more, how many less, left, remain, difference.



Subtract 67 from 92.



	T	O
	8 9	1 2
–	6	7
	2	5

Let us regroup and borrow from tens. There will be 12 ones and 8 tens now.



Step I: Borrow 1 ten as 10 ones.

Step II: Subtract the ones.
12 ones – 7 ones = 5 ones

Step III: Subtract the tens.
8 tens – 6 tens = 2 tens

So, $92 - 67 = 25$.



Exercise 1



1. Subtract the following.

$$\begin{array}{r} \text{T O} \\ 25 \\ - 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 82 \\ - 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 15 \\ - 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 30 \\ - 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 94 \\ - 88 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 50 \\ - 38 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 43 \\ - 15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 85 \\ - 49 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 60 \\ - 58 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 74 \\ - 27 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 96 \\ - 69 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 83 \\ - 34 \\ \hline \end{array}$$

2. There were 42 carrots. The bunny ate 19. How many carrots are left?



	T	O
Total carrots =	<input type="text"/>	<input type="text"/>
Bunny ate = -	<input type="text"/>	<input type="text"/>
Carrots left =	<input type="text"/>	<input type="text"/>

3. Make a number story of subtraction using these words and numbers. Then solve it.

a shop

87 juice packs

48 sold out

how many left



Subtraction of 3-digit Numbers (Without Borrowing)

There were 158 pears on the tree. 5 fell down. How many pears are left on the tree?



When subtracting 3-digit numbers, first subtract the ones, then the tens and finally the hundreds.

Hundreds	Tens	Ones



		H	T	O
Total pears	=	1	5	8
Pears fell down	= -			5
Pears left	=	1	5	3

Step I: Subtract ones from ones.

$$8 \text{ ones} - 5 \text{ ones} = 3 \text{ ones}$$

Step II: Subtract tens from tens.

$$5 \text{ tens} - 0 \text{ tens} = 5 \text{ tens}$$

Step III: Subtract hundreds from hundreds.

$$1 \text{ hundred} - 0 \text{ hundreds} = 1 \text{ hundred}$$

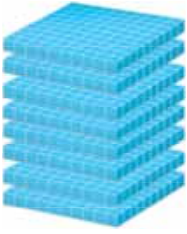
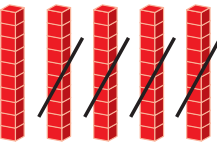
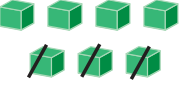
So, 153 pears are left on the tree.



Key fact

When zero is subtracted from any number, the result is the number itself.

Subtract 43 from 857.

Hundreds	Tens	Ones
		

H	T	O
8	5	7
—	4	3
8	1	4

Step I: Subtract the ones.

$$7 \text{ ones} - 3 \text{ ones} = 4 \text{ ones}$$

Step II: Subtract the tens.

$$5 \text{ tens} - 4 \text{ tens} = 1 \text{ ten}$$

Step III: Subtract the hundreds.

$$8 \text{ hundreds} - 0 \text{ hundreds} = 8 \text{ hundreds}$$

There are 835 birds and animals in a zoo. If there are 325 animals, how many birds are there in the zoo?

Number of animals and birds	=	<table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td>8</td><td>3</td><td>5</td></tr></table>	H	T	O	8	3	5
H	T	O						
8	3	5						
Number of animals	=	<table><tr><td>—</td><td>3</td><td>2</td><td>5</td></tr></table>	—	3	2	5		
—	3	2	5					
Number of birds	=	<table><tr><td>5</td><td>1</td><td>0</td></tr></table>	5	1	0			
5	1	0						



So, there are 510 birds in the zoo.



Teaching Point: Present real-life scenarios based on subtraction. Ask them to solve the stories by applying subtraction.



Exercise 2



1. Subtract the following.

H	T	O
8	9	9
		6
<hr/>		

H	T	O
3	0	7
		2
<hr/>		

H	T	O
6	7	6
		6
<hr/>		



Hint

First, subtract the ones. Then the tens and finally the hundreds.

H	T	O
2	5	7
		3
<hr/>		

H	T	O
9	3	7
		25
<hr/>		

H	T	O
5	6	9
		34
<hr/>		

H	T	O
7	2	5
		13
<hr/>		

H	T	O
8	9	3
		92
<hr/>		

H	T	O
8	5	9
		636
<hr/>		

H	T	O
8	7	7
		122
<hr/>		

H	T	O
6	5	6
		221
<hr/>		

H	T	O
5	5	9
		334
<hr/>		

H	T	O
2	9	6
		166
<hr/>		

H	T	O
8	9	7
		106
<hr/>		

H	T	O
7	9	8
		601
<hr/>		

2. Sonia got 796 marks in two terms altogether. If she got 462 marks in 1st term, how many marks did she get in 2nd term?

	H	T	O
Total marks in two terms =	<input type="text"/>	<input type="text"/>	<input type="text"/>
Marks in 1st term = -	<input type="text"/>	<input type="text"/>	<input type="text"/>
Marks in 2nd term =	<input type="text"/>	<input type="text"/>	<input type="text"/>

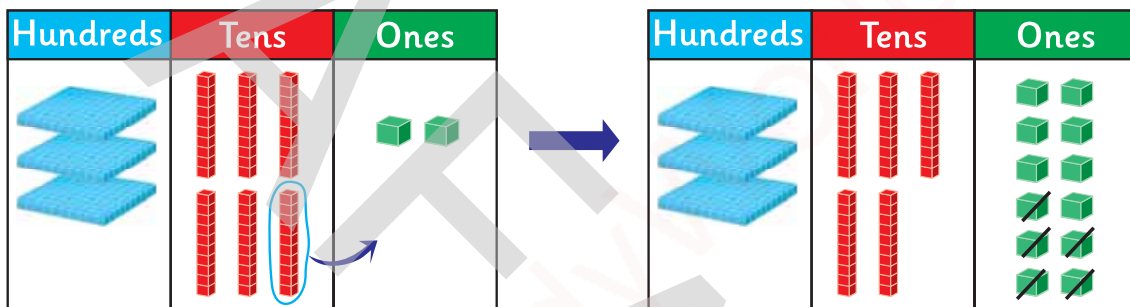


Subtraction of 3-digit Numbers (with borrowing)

Amir got 362 marks in final exams. His friend Ahad got 5 marks less than him. How many marks did Ahad get?



We cannot subtract 5 from 2 so we need to regroup and borrow 1 ten as 10 ones.



	H	T	O
Marks of Amir	3	6	2
Less marks Ahad got	0	0	5
Marks of Ahad	3	5	7

Step I: Subtract ones from ones.
12 ones – 5 ones = 7 ones

Step II: Subtract tens from tens.
5 tens – 0 tens = 5 tens

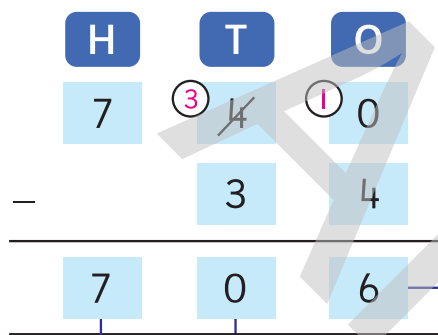
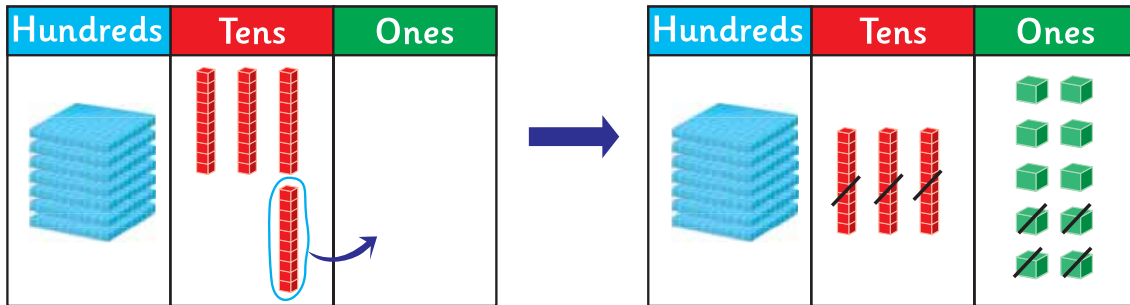
Step III: Subtract hundreds from hundreds.
3 hundreds – 0 hundreds = 3 hundreds

So, Ahad got 357 marks.



Teaching Point: Use base 10 blocks and show students how to regroup and borrow from tens or hundreds. Afterwards, encourage them to demonstrate different subtraction questions in groups using the base 10 blocks.

Subtract 34 from 740.



Step I: Subtract the ones.

$$10 \text{ ones} - 4 \text{ ones} = 6 \text{ ones}$$

Step II: Subtract the tens.

$$3 \text{ tens} - 3 \text{ tens} = 0 \text{ tens}$$

Step III: Subtract the hundreds.

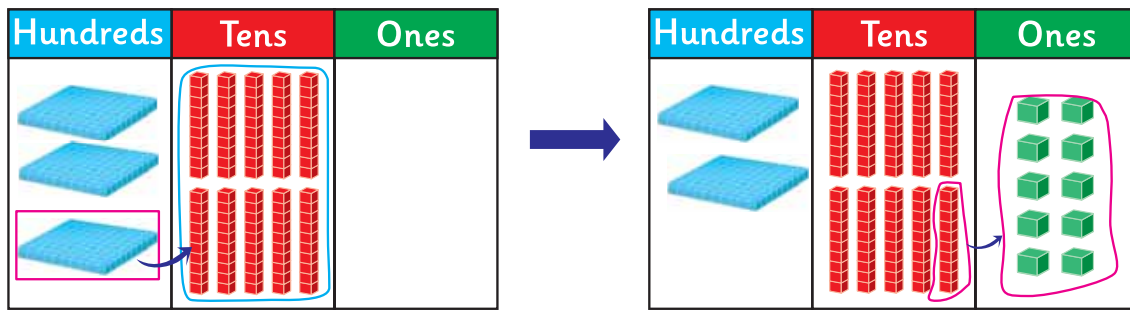
$$7 \text{ hundreds} - 0 \text{ hundreds} = 7 \text{ hundreds}$$

So, $740 - 34 = 706$.

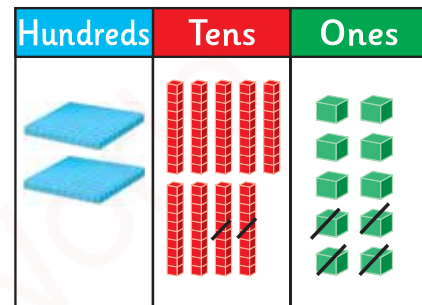
A book has 300 pages. Another book has 124 pages. How many less pages are there in the 2nd book?

We cannot subtract 4 from 0 so we need to regroup and borrow 1 ten as 10 ones. Similarly, we need to regroup and borrow 1 hundred as 10 tens.





		H	T	O
Pages in one book	=	3	0	0
Pages in other book	= -	1	2	4
Less pages in 2nd book =		1	7	6



Step I: Subtract ones from ones.

$$10 \text{ ones} - 4 \text{ ones} = 6 \text{ ones}$$

Step II: Subtract tens from tens.

$$9 \text{ tens} - 2 \text{ tens} = 7 \text{ tens}$$

Step III: Subtract hundreds from hundreds.

$$2 \text{ hundreds} - 1 \text{ hundred} = 1 \text{ hundred}$$

So, the 2nd book has 176 pages less than the 1st book.



Teaching Point: Make groups of students and give hint cards of numbers and words to make a story. Ask them to use the cards and create a subtraction story. Then share their story with other groups to solve.



Exercise 3



1. Subtract the following.

H	T	O
2	5	3
		- 6
<hr/>		

H	T	O
8	7	7
		- 9
<hr/>		

H	T	O
5	5	5
		- 8
<hr/>		

H	T	O
8	9	0
		- 2
<hr/>		

H	T	O
2	5	3
		- 36
<hr/>		

H	T	O
9	3	5
		- 28
<hr/>		

H	T	O
5	6	3
		- 38
<hr/>		

H	T	O
8	0	3
		- 97
<hr/>		

H	T	O
8	6	6
		- 536
<hr/>		

H	T	O
5	1	8
		- 128
<hr/>		

H	T	O
7	6	3
		- 338
<hr/>		

H	T	O
8	1	3
		- 177
<hr/>		

2. A shopkeeper had 264 toys. He sold 78 toys. How many toys were left?

	H	T	O
Total toys =			
Toys sold = -			
Toys left =			

3. There are 666 eggs in a shop. 288 eggs are rotten. How many eggs are fresh?

	H	T	O
Total eggs =			
Rotten eggs = -			
Fresh eggs =			

4. Make a number story of subtraction using these words and numbers. Then solve it.

Sara

250 coins

146 given to Ali

how many left



I have learnt

- When subtracting 3-digit numbers, first subtract the ones, then the tens and finally the hundreds.
- Regrouping in subtraction means borrowing, that is:
 - i) Making a group of 1 ten as 10 ones.
 - ii) Making a group of 1 hundred as 10 tens.
- When zero is subtracted from any number, the result is the number itself.

Word Board

- Regroup
- Subtract
- Borrow



Review Exercise



I. Choose the correct option.

a) $74 - 8 =$ _____.

i) 62

ii) 72

iii) 66

iv) 764

b) $700 - 200 =$ _____.

i) 50

ii) 900

iii) 500

iv) 600

c) In subtraction, first we subtract _____.

i) thousands

ii) hundreds

iii) tens

iv) ones

d) When we subtract any number from itself, we get _____.

i) the same number

ii) 1

iii) 10

iv) 0

e) Regrouping in subtraction means borrowing from _____ or hundreds.

i) ones

ii) tens

iii) zero

iv) hundreds

2. Subtract the following.

$$\begin{array}{r} \text{T O} \\ 94 \\ - 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 52 \\ - 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 68 \\ - 49 \\ \hline \end{array}$$

$$\begin{array}{r} \text{T O} \\ 86 \\ - 28 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 779 \\ - 17 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 999 \\ - 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 337 \\ - 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 444 \\ - 442 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 788 \\ - 116 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 440 \\ - 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 782 \\ - 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 902 \\ - 97 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 250 \\ - 51 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 973 \\ - 137 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 660 \\ - 455 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 411 \\ - 298 \\ \hline \end{array}$$

3. Solve.

Use the clue words to identify if you need to add or subtract.



- a) Sana had 25 candy bars. She gave 8 to her sister. How many candy bars does she have left?

		T	O
Candy bars Sana had	=	<input type="text"/>	<input type="text"/>
Candy bars given to sister	= -	<input type="text"/>	<input type="text"/>
Candy bars left	=	<input type="text"/>	<input type="text"/>

- b) Sara got Rs 950 as Eidi. She gave Rs 350 to an orphan child. What amount is left with her?



		H	T	O
Amount Sara got as Eidi	=	<input type="text"/>	<input type="text"/>	<input type="text"/>
Amount given to orphan child	= -	<input type="text"/>	<input type="text"/>	<input type="text"/>
Amount left	=	<input type="text"/>	<input type="text"/>	<input type="text"/>

4. Read and solve these number stories. They look the same but you need to think and use clue words to guess if you need to add or subtract to solve these problems.

- a) There are 167 palm trees and 234 maple trees. How many more maple trees are there than the palm trees?

		H	T	O
_____	=	<input type="text"/>	<input type="text"/>	<input type="text"/>
_____	= -	<input type="text"/>	<input type="text"/>	<input type="text"/>
_____	=	<input type="text"/>	<input type="text"/>	<input type="text"/>

- b) There are 167 palm trees and 234 maple trees. How many trees are there altogether?

		H	T	O
_____	=	<input type="text"/>	<input type="text"/>	<input type="text"/>
_____	= +	<input type="text"/>	<input type="text"/>	<input type="text"/>
_____	=	<input type="text"/>	<input type="text"/>	<input type="text"/>



Teaching Point: Use a wallchart of clue words of addition and subtraction. Help students to identify the correct operation using the clue words.

Multiplication

Unit 4



Let's relate



Learning Outcomes

- Recognise and use the multiplication symbol “ \times ”.
- Recognize multiplication as repeated addition (e.g. $2+2+2=6$ is equivalent to 3 times $2 = 6$ and $3 \times 2 = 6$).
- Complete number sequences in steps of 2, 3, 4, 5 and 10 (e.g. in steps of 2 the sequence is expressed as 2, 4, 6, ...).
- Develop multiplication tables of 2, 3, 4, 5 and 10 til the multiplication of 10×10 .
- Multiply numbers within a multiplication table.
- Write a number sentence for multiplication from the picture.
- Solve number stories on multiplication.

There are 3 bicycles. Each has 2 wheels.

$$2 + 2 + 2 = 6$$

Can you think of any easier way to find the total number of wheels?



Teaching Point: For effective teaching and learning, feel free to use 'Urdu' as a medium of instruction to explain the concepts.



Multiplication as Repeated Addition

I have 4 toy boxes. In each toy box, there are 3 balls. How can we find the total number of balls without adding?

We can find the total number of balls using multiplication.



Total number of balls = $3 + 3 + 3 + 3 = 12$.

We can write this in another way using the multiplication symbol '×'.

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

$$3 + 3 + 3 + 3 = 4 \text{ times } 3 = 4 \times 3 = 12$$

We read it as: '4 times 3 equals 12'.

There are 2 fish bowls. In each bowl, there are 4 fish.

We can write it as:

$$4 + 4 = 8$$

$$4 + 4 = 2 \text{ times } 4 \\ = 2 \times 4 = 8$$



Key fact

'×' is the multiplication symbol. We use it when we add a number repeatedly.



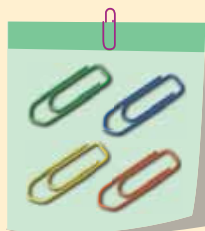
Teaching Point: Help students to learn repeated addition by using concrete materials.



Exercise 1



1. How many paperclips are there in 4 groups?



There are _____ groups.

Each group has _____ paperclips.

Total number of paperclips = _____ + _____ + _____ + _____

= _____ times _____

= _____ × _____

= _____

There are _____ paperclips altogether.

2. How many stars are there altogether?



There are _____ groups.

Each group has _____ stars.

Total number of stars = _____ + _____

= _____ times _____

= _____ × _____ = _____

There are _____ stars altogether.

3. Find the total number of apples.



There are _____ plates.

Each plate has _____ apples.

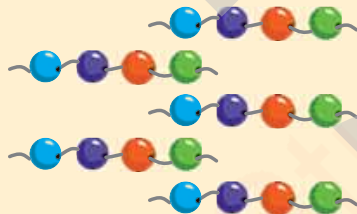
Total number of apples = _____ + _____ + _____

= _____ times _____

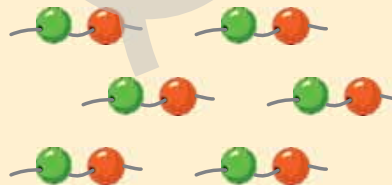
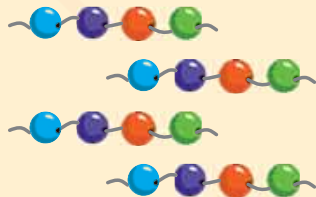
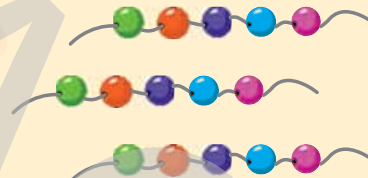
= _____ \times _____ = _____

There are _____ apples altogether.

4. Look at these objects and write number sentences for these.



5 groups of 4 equals 20
or
 $5 \times 4 = 20$





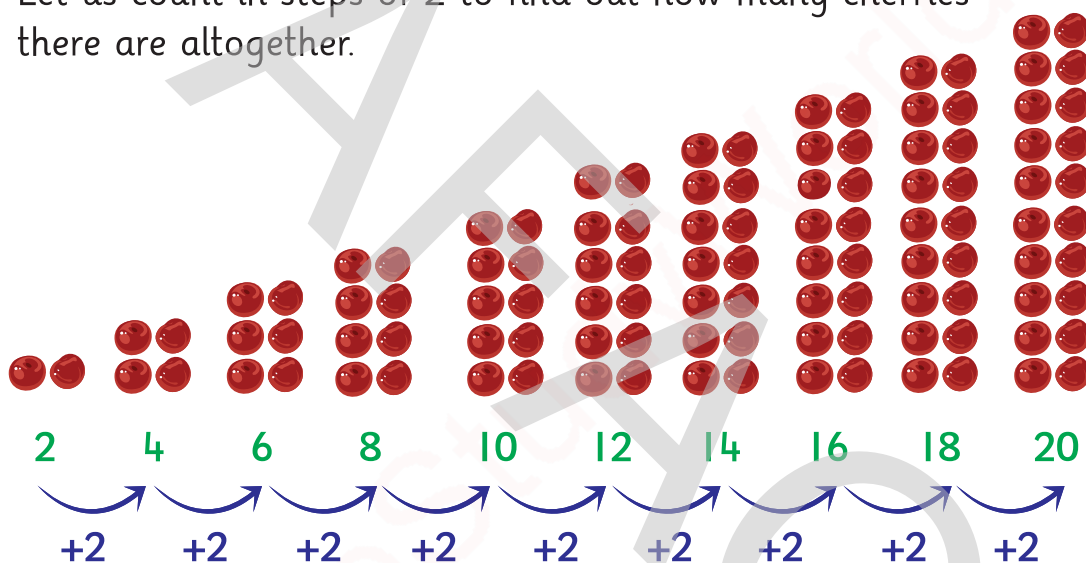
Counting in Steps



Let us count in steps of 2, 3, 4, 5 and 10.
This will help us to learn
multiplication tables.

Counting in steps of 2

Let us count in steps of 2 to find out how many cherries there are altogether.



So, there are 20 cherries altogether. We can write it as:

$$10 \text{ times } 2 = 10 \times 2 = 20$$

Counting in steps of 3

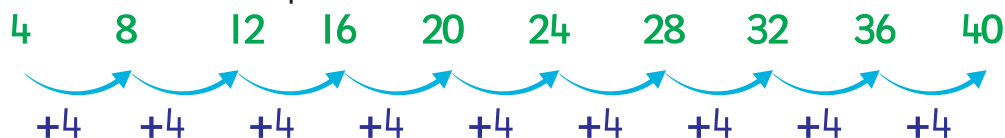
Let us count in steps of 3.



$$10 \text{ times } 3 = 10 \times 3 = 30$$

Counting in steps of 4

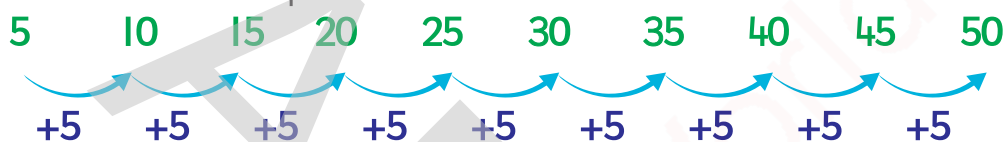
Let us count in steps of 4.



$$10 \text{ times } 4 = 10 \times 4 = 40$$

Counting in steps of 5

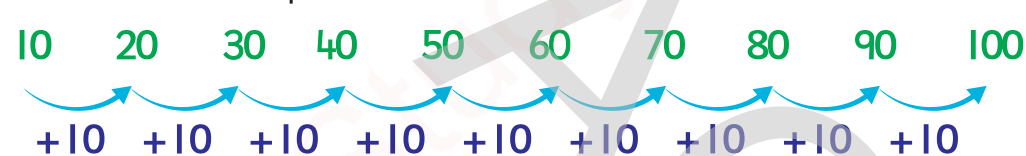
Let us count in steps of 5.



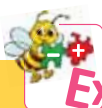
$$10 \text{ times } 5 = 10 \times 5 = 50$$

Counting in steps of 10

Let us count in steps of 10.



$$10 \text{ times } 10 = 10 \times 10 = 100$$



Exercise 2



1. Count in steps of 2 and complete the sequence.



2. Count in steps of 5 and complete the sequence.





2 Times Table

We can count in steps of 2 to get the 2 times table.



$$1 \text{ times } 2 \quad 1 \times 2 = 2$$



$$2 \text{ times } 2 \quad 2 \times 2 = 4$$



$$3 \text{ times } 2 \quad 3 \times 2 = 6$$



$$4 \text{ times } 2 \quad 4 \times 2 = 8$$



$$5 \text{ times } 2 \quad 5 \times 2 = 10$$



$$6 \text{ times } 2 \quad 6 \times 2 = 12$$



$$7 \text{ times } 2 \quad 7 \times 2 = 14$$



$$8 \text{ times } 2 \quad 8 \times 2 = 16$$



$$9 \text{ times } 2 \quad 9 \times 2 = 18$$



$$10 \text{ times } 2 \quad 10 \times 2 = 20$$



Teaching Point: Help students to learn the 2 times table using repeated addition of concrete materials.



3 Times Table

We can count in steps of 3 to get the 3 times table.



$$1 \text{ times } 3 \quad 1 \times 3 = 3$$



$$2 \text{ times } 3 \quad 2 \times 3 = 6$$



$$3 \text{ times } 3 \quad 3 \times 3 = 9$$



$$4 \text{ times } 3 \quad 4 \times 3 = 12$$



$$5 \text{ times } 3 \quad 5 \times 3 = 15$$



$$6 \text{ times } 3 \quad 6 \times 3 = 18$$



$$7 \text{ times } 3 \quad 7 \times 3 = 21$$



$$8 \text{ times } 3 \quad 8 \times 3 = 24$$



$$9 \text{ times } 3 \quad 9 \times 3 = 27$$



$$10 \text{ times } 3 \quad 10 \times 3 = 30$$



Teaching Point: Help students to learn the 3 times table using repeated addition of concrete materials.



4 Times Table

We can count in steps of 4 to get the 4 times table.



$$1 \text{ times } 4 \quad 1 \times 4 = 4$$



$$2 \text{ times } 4 \quad 2 \times 4 = 8$$



$$3 \text{ times } 4 \quad 3 \times 4 = 12$$



$$4 \text{ times } 4 \quad 4 \times 4 = 16$$



$$5 \text{ times } 4 \quad 5 \times 4 = 20$$



$$6 \text{ times } 4 \quad 6 \times 4 = 24$$



$$7 \text{ times } 4 \quad 7 \times 4 = 28$$



$$8 \text{ times } 4 \quad 8 \times 4 = 32$$



$$9 \text{ times } 4 \quad 9 \times 4 = 36$$



$$10 \text{ times } 4 \quad 10 \times 4 = 40$$



Teaching Point: Help students to learn the 4 times table using repeated addition of concrete materials.



5 Times Table

We can count in steps of 5 to get the 5 times table.



1 times 5 $1 \times 5 = 5$



2 times 5 $2 \times 5 = 10$



3 times 5 $3 \times 5 = 15$



4 times 5 $4 \times 5 = 20$



5 times 5 $5 \times 5 = 25$



6 times 5 $6 \times 5 = 30$



7 times 5 $7 \times 5 = 35$



8 times 5 $8 \times 5 = 40$



9 times 5 $9 \times 5 = 45$



10 times 5 $10 \times 5 = 50$



Teaching Point: Help students to learn the 5 times table using repeated addition of concrete materials.



10 Times Table

We can count in steps of 10 to get the 10 times table.



1 times 10 $1 \times 10 = 10$



2 times 10 $2 \times 10 = 20$



3 times 10 $3 \times 10 = 30$



4 times 10 $4 \times 10 = 40$



5 times 10 $5 \times 10 = 50$



6 times 10 $6 \times 10 = 60$



7 times 10 $7 \times 10 = 70$



8 times 10 $8 \times 10 = 80$



9 times 10 $9 \times 10 = 90$



10 times 10 $10 \times 10 = 100$



Teaching Point: Help students to learn the 10 times table using repeated addition of concrete materials.

There are 3 flowerpots.
Each pot has 4 flowers on it.



How many flowers are
there in all?

Number of flowerpots	=	3
Flowers in each flowerpot	=	$\times 4$
Total flowers	=	12



So, there are 12 flowers in all.



How many flowers will be there
if there are 5 flowerpots?

Clue words for
multiplication are:

Product
Times
In all
Altogether



We multiply when
the problem asks
for a total and
equal groups of
objects are given.



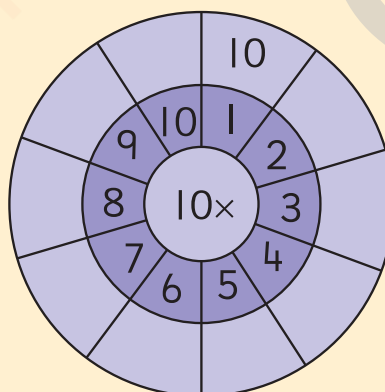
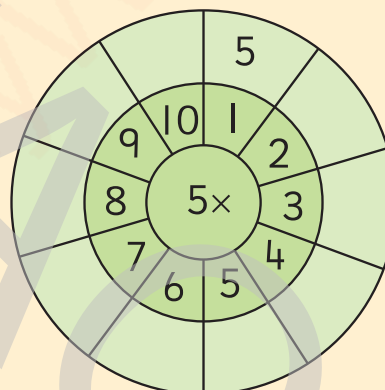
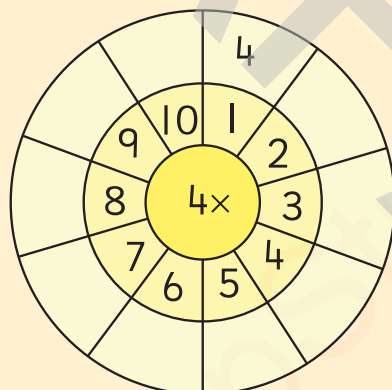
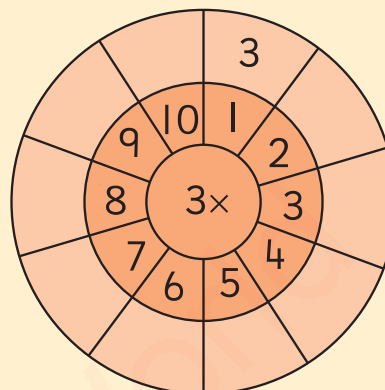
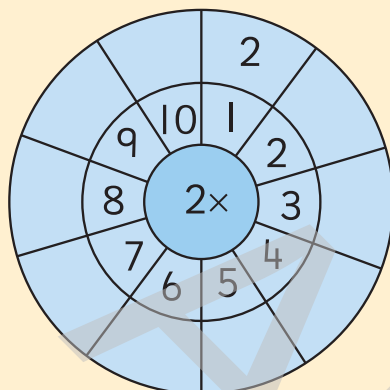
Teaching Point: Tell the students different key words to solve the multiplication questions.



Exercise 3













1. Complete the following multiplication tables.



2. Multiply the numbers and match with the correct answers.

	<div>○ 3×5 ○</div>	
<div>○ 20 ○</div>	<div>○ 5×4 ○</div>	<div>○ 27 ○</div>
	<div>○ 3×10 ○</div>	
<div>○ 16 ○</div>	<div>○ 8×5 ○</div>	<div>○ 40 ○</div>
	<div>○ 9×3 ○</div>	
<div>○ 30 ○</div>	<div>○ 4×4 ○</div>	<div>○ 15 ○</div>

3. Multiply and fill in the boxes.

$3 \times 2 =$		$5 \times 3 =$	
$4 \times 4 =$		$7 \times 4 =$	
$6 \times 10 =$		$10 \times 4 =$	
$8 \times 5 =$		$5 \times 10 =$	
$3 \times 5 =$		$3 \times 10 =$	

4. Multiply these.

$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

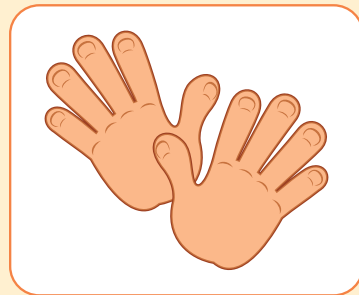
$$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

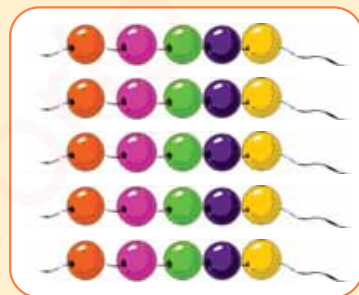
5. There are 5 fingers in a hand. How many fingers are there in 2 hands?

×



6. There are 5 strings. Each has 5 beads in it. How many beads are there altogether?

×



7. There are 10 baskets. Each basket has 4 oranges. How many oranges are there altogether?

×



8. Sadia reads 3 pages of the Holy Quran each day. How many pages will she read in 5 days?

×



9. Abid took part in a plantation campaign and planted 4 plants each day. How many plants did he plant in 10 days?

×



I have learnt

- Multiplication is repeated addition
- '×' is the multiplication symbol.
- Multiplication is used when we add a number repeatedly.
- Count in steps of 2 to get the 2 times table.
- Count in steps of 3 to get the 3 times table.
- Count in steps of 4 to get the 4 times table.
- Count in steps of 5 to get the 5 times table.
- Count in 10s to get the 10 times table.
- In the 5 times table, the digit in the ones place is always 0 or 5.

Word Board

- Repeated addition
- Multiplication
- Tables



Review Exercise



1. Choose the correct option.

a) $3 + 3 + 3 + 3 + 3 = \underline{\hspace{2cm}}$.



b) Symbol for multiplication is $= \underline{\hspace{2cm}}$.



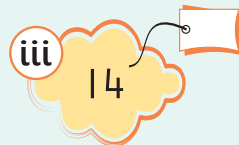
c) 3 times 2 $= \underline{\hspace{2cm}}$.



d) $6 \times 5 = \underline{\hspace{2cm}}$.



e) Count in steps of 2. What comes after 2, 4, 6, 8, $\underline{\hspace{2cm}}$.



2. Find the total number of beads.

There are _____ groups.

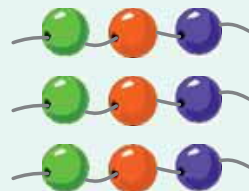
Each group has _____ beads.

Total number of beads = _____ + _____ + _____

= _____ times _____

= _____ × _____

= _____



There are _____ beads altogether.

3. Count in steps of 3 and complete the sequence.



4. Count in steps of 4 and complete the sequence.



5. Count in steps of 10 and complete the sequence.



6. Multiply and fill in the boxes.

$2 \times 2 =$

$4 \times 3 =$

$6 \times 4 =$

$5 \times 5 =$

$6 \times 3 =$

$6 \times 4 =$

$2 \times 10 =$

$9 \times 5 =$

$3 \times 10 =$

$10 \times 5 =$

$7 \times 3 =$

$4 \times 4 =$

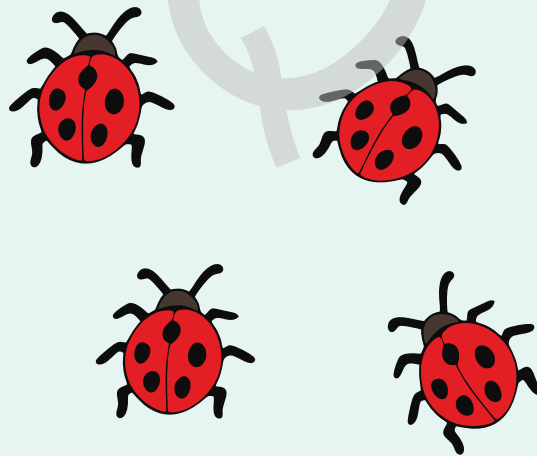
7. There are 3 baskets of apples. Each basket has 3 apples in it. How many apples are there altogether?

	<input type="text"/>
\times	<input type="text"/>
	<input type="text"/>



8. A ladybird has 5 dots. If there are 4 ladybirds, how many dots are there altogether?

	<input type="text"/>
\times	<input type="text"/>
	<input type="text"/>



Division

Unit 5

Let's relate



Can you share 9 blocks
equally among 3 kids?
How will you do it?

Learning Outcomes

- Recognise and use the division symbol \div or $/$.
- Recognise division as successive subtraction.
- Divide numbers within the multiplication tables with remainder zero.
- Solve number stories involving division.

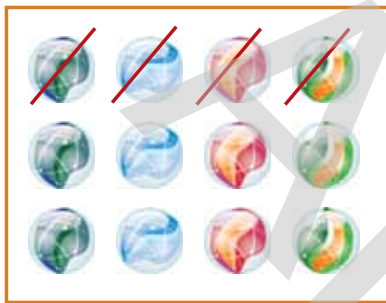


Teaching Point: For effective teaching and learning, feel free to use 'Urdu' as a medium of instruction to explain the concepts.



Division Using Subtraction

Ali, Sana, Sara and Ahmad want to share 12 marbles equally among themselves.

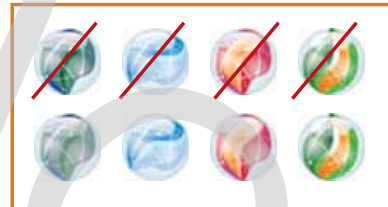


First each of them takes 1 marble. Now 8 marbles are left.

$$12 - 4 = 8$$



Again, each of them takes 1 marble. Now 4 marbles are left.



$$8 - 4 = 4$$



Finally they again take 1 marble each. Now 0 marbles are left.



$$4 - 4 = 0$$



So, each of them gets 3 marbles.



We can write it as:

12 divided by 4 equals 3.

Or

$$12 \div 4 = 3$$



After subtracting 4
three times from 12,
we get 0.

Division means equal
sharing. It is repeated
subtraction.

The symbol used
for division is “ \div ”.



How can I share 8 cherries
between my
friend and I
equally?



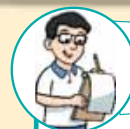
Teaching Point: Use marbles and call 3 students to the front of the class. Have them share the marbles equally among themselves by successive subtraction as given in the example above.



Exercise 1



1. There are 12 cupcakes.
How many equal groups of 3 cupcakes can be made from these?



Hint

Keep subtracting 3 from 12 until you get zero. Then count how many times you subtracted.



$$12 - 3 = 9 \rightarrow \text{(1st time subtraction)}$$



$$9 - 3 = 6 \rightarrow \text{(2nd time subtraction)}$$



$$6 - 3 = 3 \rightarrow \text{(3rd time subtraction)}$$



$$3 - 3 = 0 \rightarrow \text{(4th time subtraction)}$$

Count the number of times 3 is subtracted, that is 4 times.



÷



=



2. Divide using subtraction.

$$25 \div 5 = \underline{\hspace{2cm}}$$

$$25 - 5 = \underline{\hspace{2cm}} \quad \text{(1st time subtraction)}$$

$$20 - 5 = \underline{\hspace{2cm}} \quad \text{(2nd time subtraction)}$$

$$\underline{\hspace{2cm}} - 5 = \underline{\hspace{2cm}} \quad \text{(3rd time subtraction)}$$

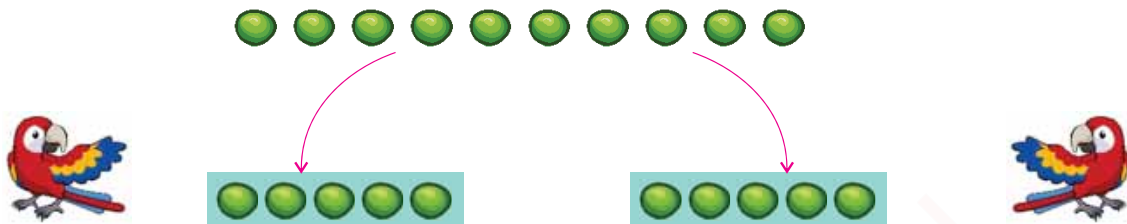
$$\underline{\hspace{2cm}} - 5 = \underline{\hspace{2cm}} \quad \text{(4th time subtraction)}$$

$$\underline{\hspace{2cm}} - 5 = \underline{\hspace{2cm}} \quad \text{(5th time subtraction)}$$



Division

Umar wants to share 10 peas equally between 2 parrots.



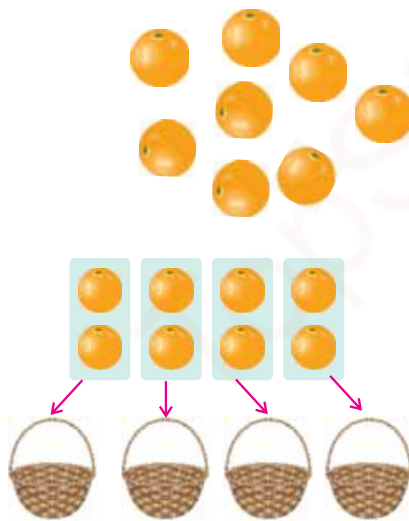
10 divided by 2 equals 5.

$$10 \div 2 = 5$$

Each parrot gets 5 peas.



Let us divide 8 oranges in 4 baskets equally.



$$8 \div 4 = 2$$



If there are 2 baskets, how many oranges will be there in each?

We can easily divide if we can recall multiplication tables.



Teaching Point: Ask students to work in pairs. Distribute different concrete objects among them. Ask them to share the objects in equal groups. Change the number of groups without changing the number of objects.

Divide.

$$6 \div 2 = \square$$

Recall the 2 times table.

$$3 \times 2 = 6$$

So, $6 \div 2 = 3$.



Exercise 2



1. Share 6 fish equally in 2 jars.



$$\square \div \square = \square$$

2. Share 15 cupcakes equally in 5 groups.



$$\square \div \square = \square$$

2. Share 5 carrots equally between 5 rabbits.




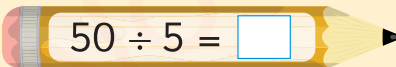
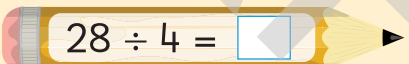
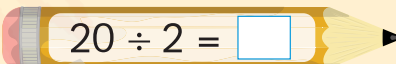
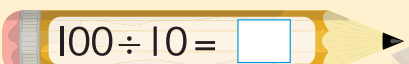
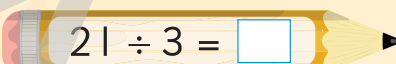
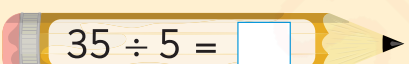
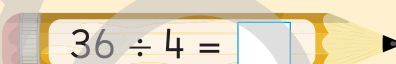
$$\square \div \square = \square$$


















Key fact

A number divided by itself always equals to 1.

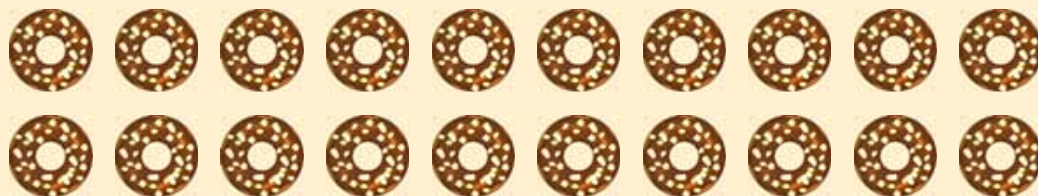
3. Solve.

- | | |
|--|---|
| a)  $18 \div 3 = \square$ | b)  $50 \div 5 = \square$ |
| c)  $28 \div 4 = \square$ | d)  $20 \div 2 = \square$ |
| e)  $100 \div 10 = \square$ | f)  $21 \div 3 = \square$ |
| g)  $35 \div 5 = \square$ | h)  $36 \div 4 = \square$ |

4. Divide and colour the correct answer.

- | | | | |
|---------------------------|--|---|--|
| a) $8 \div 2 = \square$ |  4 |  16 |  10 |
| b) $10 \div 5 = \square$ |  2 |  5 |  15 |
| c) $36 \div 4 = \square$ |  8 |  9 |  7 |
| d) $60 \div 10 = \square$ |  16 |  60 |  6 |
| e) $30 \div 3 = \square$ |  3 |  10 |  13 |

5. Sara wants to divide 20 donuts equally in 4 groups. How many donuts will be there in each group?



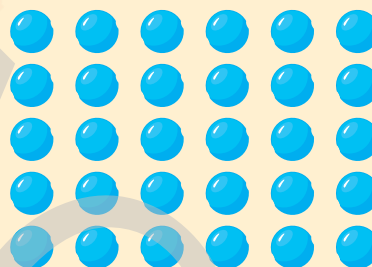
$$\square \div \square = \square$$

So, there will be donuts in each basket.

6. Zoobia has 30 beads. She wants to put 10 beads in each string. How many strings does she need?

$$\square \div \square = \square$$

She needs strings.

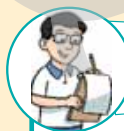


7. A shopkeeper wants to put 45 soap bars in 5 shelves equally. How many soap bars will he put in each shelf?

$$\square \div \square = \square$$

He will put soap bars

in each shelf.



Hint

Recall the 5 times table.

$4 \times 5 = \underline{\quad}$.

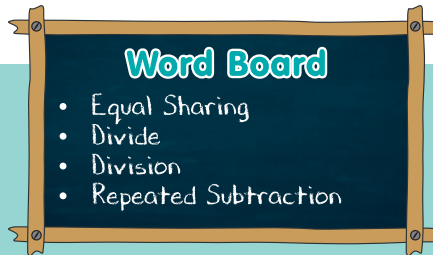


Teaching Point: Present different real-life scenarios/stories involving division. Ask students to think and share what they need to do in order to solve the story. Share clue words for division with them to identify why to use division.



I have learnt

- 'Division' means sharing equally, It is repeated subtraction.
- The symbol used for division is ' \div '.
- A number divided by itself always equals to 1.



Review Exercise



I. Choose the correct option.

a) _____ means sharing equally.

- i) Addition ii) Symbol iii) Division iv) Calculation

b) _____ is the symbol of division.

- i) + ii) = iii) \div iv) \times

c) $30 \div 5 =$ _____.

- i) 5 ii) 7 iii) 6 iv) 10

d) Share 30 candies among 10 kids. Each kid will get _____.

- i) 3 candies ii) 2 candies iii) 5 candies iv) 1 candy

e) If 12 dates are divided between 2 children, how many dates will each child get?

- i) 4 ii) 5 iii) 6 iv) 3

2. There are 12 cookies in 4 packets. How many cookies are there in each packet?

$$12 - 4 = \underline{\quad\quad\quad} \text{ (1st time subtraction)}$$

$$\underline{\quad\quad\quad} - 4 = \underline{\quad\quad\quad} \text{ (2nd time subtraction)}$$

$$\underline{\quad\quad\quad} - 4 = \underline{\quad\quad\quad} \text{ (3rd time subtraction)}$$

So, there are cookies in each packet.

3. Divide the following and fill in the boxes.

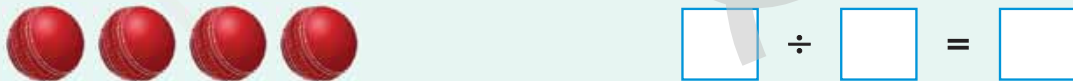
a) Divide 9 balloons into groups of 3.



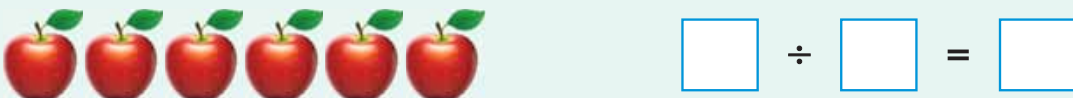
b) Divide 10 ducks into groups of 5.



c) Divide 4 balls into groups of 2.



d) Divide 6 apples into groups of 3.



4. Divide the following.

$8 \div 4 = \underline{\quad}$

$6 \div 2 = \underline{\quad}$

$9 \div 3 = \underline{\quad}$

$15 \div 3 = \underline{\quad}$

$12 \div 4 = \underline{\quad}$

$10 \div 1 = \underline{\quad}$

$18 \div 2 = \underline{\quad}$

$13 \div 1 = \underline{\quad}$

$12 \div 2 = \underline{\quad}$

5. Sehrish has 18 mangoes. She wants to put 2 mangoes in each basket. How many baskets does she need?



$\boxed{\quad} \div \boxed{\quad} = \boxed{\quad}$

6. Fatima recites 3 ayahs of Surah Al-Lail daily. In how many days will she finish reciting the Surah which has 21 ayahs?



$\boxed{\quad} \div \boxed{\quad} = \boxed{\quad}$

7. Humaira has 12 cupcakes. She wants to distribute them among 4 orphan children. How many cupcakes will each one get?



$\boxed{\quad} \div \boxed{\quad} = \boxed{\quad}$



Mixed Stories

clue words



Division Clue words

- How many will each get
- How many in each group
- Shared
- Divided
- Equal/Equally
- Quotient



Multiplication Clue words

- Product
- Times
- In all
- Altogether



Subtraction Clue words

- Difference
- More than
- Less than
- How many more
- Fewer than
- How many left



Addition Clue words

- Total
- Altogether
- In all
- Sum
- More than
- Combined
- Added to

Steps to solve mixed number stories.

Step 1: Read the problem carefully.

Step 2: Underline the facts you will need to solve the problem.

Step 3: Draw a picture, if needed, to help you solve the problem.

Step 4: Write a number sentence for the problem.

Step 5: Solve the problem.



Teaching Point: Explain the clue words and the steps for solving mixed stories. Ask students practise guessing the correct operation required to solve a problem.

Use the clue words and steps to solve these mixed stories.

1. There were 56 ducks in a pond. 29 more ducks joined them. How many ducks are there altogether?

Clue words:

more, altogether

So, here we need to add.



_____	=	<input type="text"/>	<input type="text"/>
_____	= +	<input type="text"/>	<input type="text"/>
_____	=	<input type="text"/>	<input type="text"/>

2. Sonia had a collection of 237 coins from different countries. She gave 89 coins to her brother. How many coins does she have left?



_____	=	<input type="text"/>	<input type="text"/>
_____	= -	<input type="text"/>	<input type="text"/>
_____	=	<input type="text"/>	<input type="text"/>

3. Taha reads 4 pages of a storybook each day.
How many pages will he read in a week?

$$\begin{array}{r} \square \\ \square \\ \square \end{array} \times \begin{array}{r} \square \\ \square \\ \square \end{array}$$


4. Ali saved Rs 348. Marwa saved Rs 250 more than Ali. What amount did Marwa save?

_____	=	<input type="text"/>	<input type="text"/>
_____	= +	<input type="text"/>	<input type="text"/>
_____	=	<input type="text"/>	<input type="text"/>

5. The price of one pencil is Rs 8. Madiha bought 4 such pencils. How much did she spend altogether?

$$\begin{array}{r} \square \\ \square \\ \square \end{array} \times \begin{array}{r} \square \\ \square \\ \square \end{array}$$


6. Noor wants to put 35 muffins equally in 5 jars. How many muffins will be there in each jar?



$$\square \div \square = \square$$

Approved by National Curriculum Council,
Ministry of Federal Education & Professional Training,
Government of Pakistan vide Letter No. F. No 1(1) 17-NCC,
dated 2nd December 2019

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Lahore

18-A Johar Town, Lahore.

Phone: +92-42-111-AFAQ-PK (2327-75), 042-35171090-91
Fax: +92-42-35171089 Email: quality@afaq.edu.pk

Islamabad

Ajmir Manziel 2, Stadium road Junction, IJP Road Islamabad

Ph: +92-51-8433228, +92-51-8433227
Email: islamabad@afaq.edu.pk

www.afaq.edu.pk