Mathematics
Grade 2

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$\frac{1}{4}$

$\frac{1}{3}$

2 Mathematics

Mathematics

بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

(In the Name of Allah, the Most Compassionate, the Most Merciful)

Mathematics
Grade 2

Based on Single National Curriculum 2020

ONE NATION, ONE CURRICULUM

PUNJAB CURRICULUM AND TEXTBOOK BOARD, LAHORE

Contents

Unit 1

Whole Numbers

After completing this unit, you will be able to:

- 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.
- Compare 3-digit numbers with 3-digit numbers.
- Count backward ten steps down from any given number.
- Arrange numbers up to 999, written in mixed form, in ascending or descending 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.
- Recognize that 1 000 is one more than 999 and the first 4-digit number.

Ali is studying in a library. Can you count the books in the shelf?

Ordinal Numbers

Let us look at the honey bees and their positions.

1st First

2nd Second

3rd Third

4th Fourth

5th Fifth

6th Sixth

7th Seventh

8th Eighth

9th Ninth

10th Tenth

11th Eleventh

16th Sixteenth

15th Fifteenth

14th Fourteenth

13th Thirteenth

12th Twelfth

17th Seventeenth

18th Eighteenth

19th Nineteenth

20th Twentieth
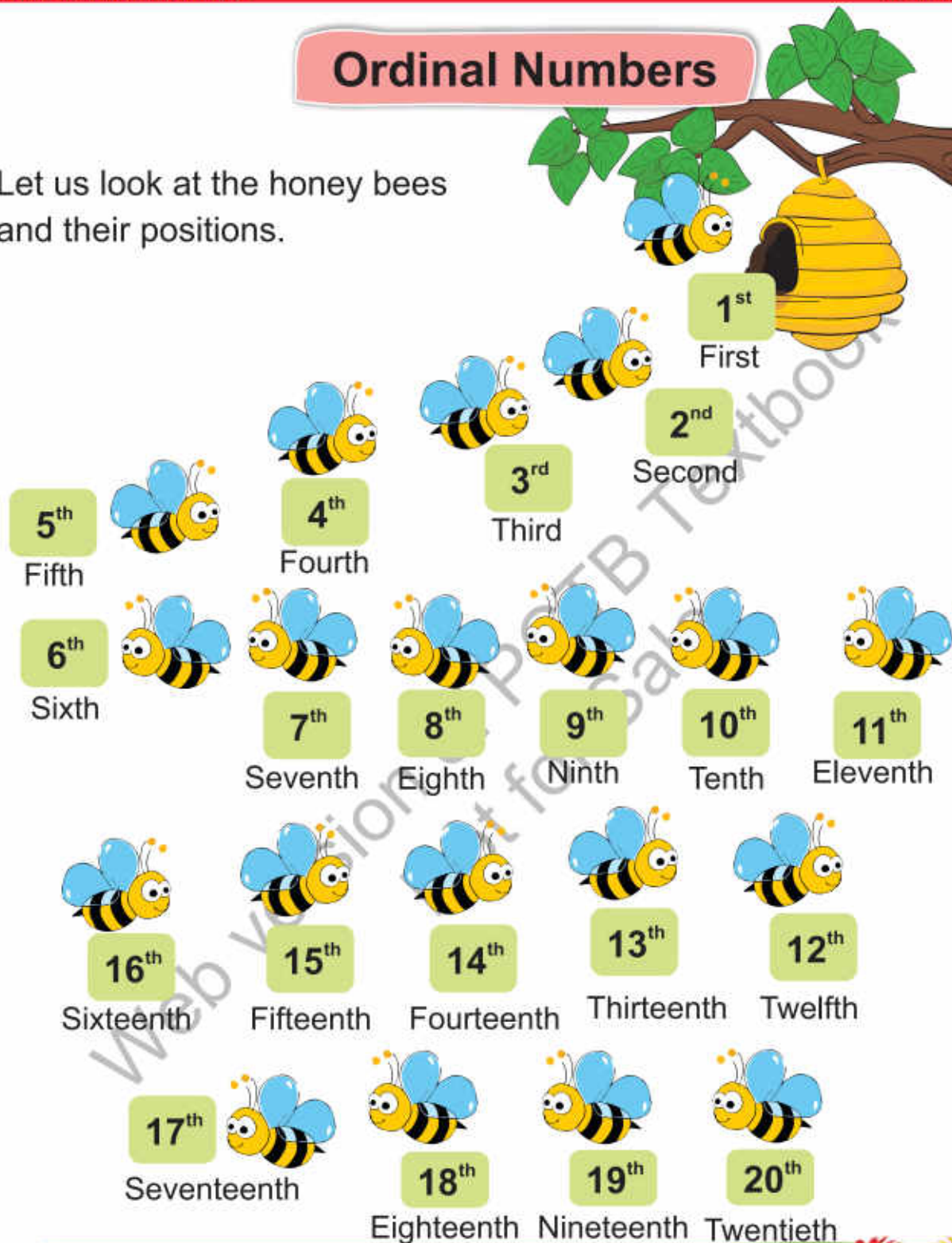
Ordinal numbers are used to represent the position of objects.

For effective teaching and learning, use 'urdu or local language' as medium of instruction to explain the concept of numbers.

Exercise 1

Write the position of first 20 English alphabet.

| | 3rd | 2nd | 1st |
| D | C | B | A |

E F G H

L K 10th J I

M N 15th O P

20th T S R Q

Ask the students to stand in a queue and explain their positions using ordinal numbers.

3

Counting up to 100 in words

Let us read and write counting up to 100.

1 One	8 Eight	15 Fifteen	22 Twenty-two
2 Two	9 Nine	16	23 Twenty-three
3 Three	10	17 Seventeen	24 Twenty-four
4 Four	☐ Eleven	18 Eighteen	25 Twenty-five
5 Five	12 Twelve	☐ Nineteen	☐
6 Six	☐ Thirteen	20	27 Twenty-seven
7 Seven	14 Fourteen	21 Twenty-one	28

29 Twenty-nine	37 Thirty-seven	45 Forty-five	53 Fifty-three
30 Thirty	38	46 Forty-six	54 Fifty-four
☐ Thirty-one	39 Thirty-nine	☐ Forty-seven	55 Fifty-five
32 Thirty-two	☐ Forty	48	56 Fifty-six
33	41 Forty-one	49 Forty-nine	57 Fifty-seven
34 Thirty-four	42 Forty-two	☐ Fifty	58
35 Thirty-five	43	51 Fifty-one	☐ Fifty-nine
36 Thirty-six	44	52 Fifty-two	60 Sixty

61 Sixty-one	69 Sixty-nine	77	☐ Eighty-five
62	70 Seventy	78 Seventy-eight	86 Eighty-six
☐ Sixty-three	71	☐ Seventy-nine	87 Eighty-seven
64 Sixty-four	☐ Seventy-two	80	88
65 Sixty-five	☐ Seventy-three	81 Eighty-one	89 Eighty-nine
☐ Sixty-six	74	82 Eighty-two	☐ Ninety
67 Sixty-seven	75 Seventy-five	83 Eighty-three	91
68 Sixty-eight	76 Seventy-six	84 Eighty-four	92 Ninety-two

93 Ninety-three	94 Ninety-four	☐ Ninety-five	96

97 Ninety-seven	☐ Ninety-eight	99

100
One Hundred

Key Fact

- 0 is the smallest 1-digit number.
- 9 is the greatest 1-digit number.
- 10 is the smallest 2-digit number.
- 99 is the greatest 2-digit number.
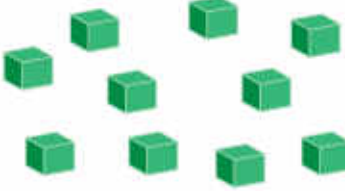
Try Yourself

Complete the following:

Eleven	11	Twenty-four	◯		46
Sixty-two	◯	Seventy-nine	◯		95

3-digit Numbers

10 ones ➡ 1 ten

| 1 tens = 10 | 2 tens = 20 | 3 tens = 30 | 4 tens = 40 | 5 tens = 50 |
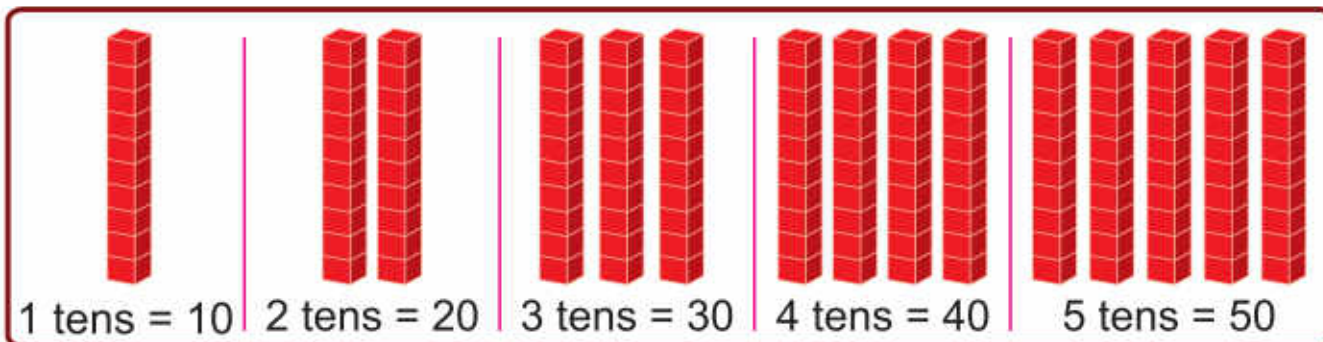
If we keep counting in tens, we get

60 70 80 90 100

Key Fact
- 100 is the smallest 3-digit number.

one hundred

10 tens

100 ones = 1 hundred

Let us count in 100s with the help of blocks.

| 100 ones 1 hundred | 200 ones 2 hundred | 300 ones 3 hundred |
| 400 ones 4 hundred | 500 ones 5 hundred | 600 ones 6 hundred |
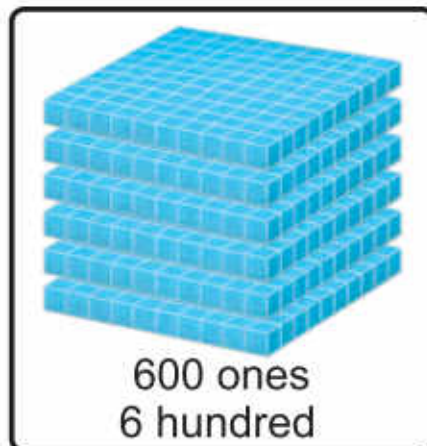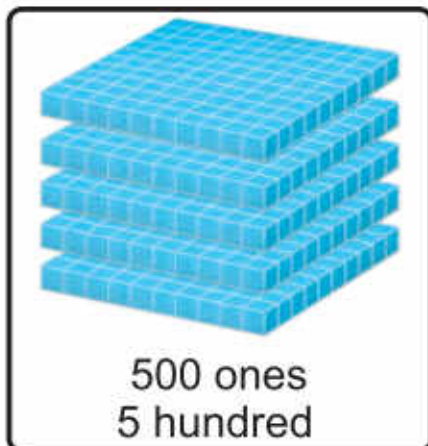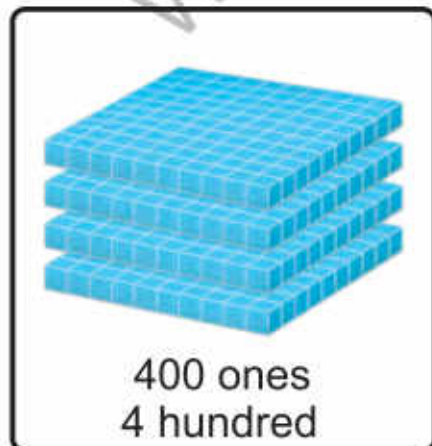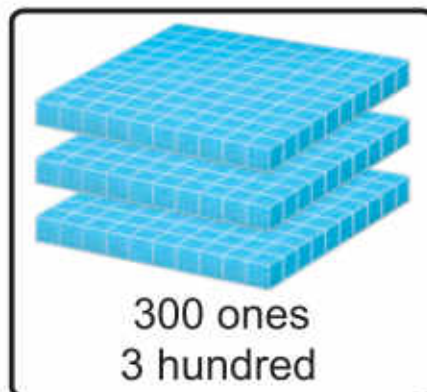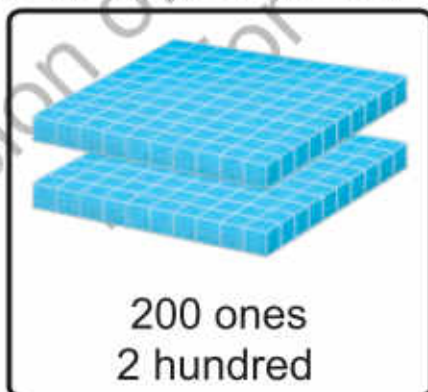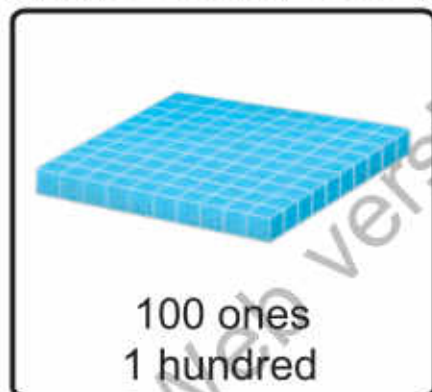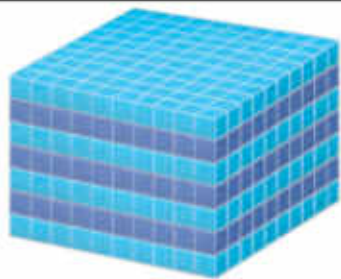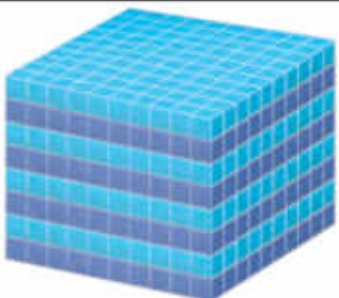
700 ones
7 hundred

800 ones
8 hundred
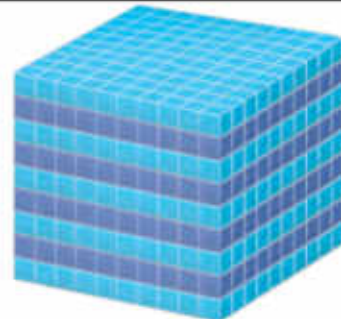
900 ones
9 hundred

Now, we learn to read and write 3-digit numbers with the help of blocks.
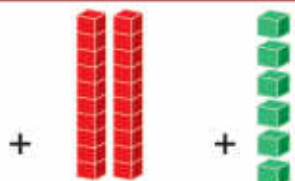
100   +   20   +   6   =   126
one hundred   twenty   six   one hundred twenty-six
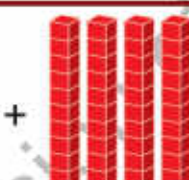
300   +   40   +   2   =   342
three hundred   forty   two   three hundred forty-two
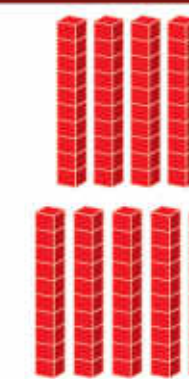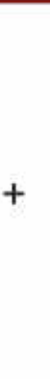
900   +   90   +   9   =   999
nine hundred   ninety   nine   nine hundred
                                              ninety-nine

Key Fact

999 is the greatest 3-digit number.

Exercise 2

1. Write the given numbers in numerals.

(a) Fifteen — 15
(b) Twenty-two — ( )
(c) Thirty-six — ( )

(d) Forty-one — ( )
(e) Fifty-eight — ( )
(f) Sixty-three — ( )

(g) Seventy — ( )
(h) Eighty-four — ( )
(i) Ninety-six — ( )

2. Write the given numbers in words.

(a) 18 — Eighteen
(b) 21 —
(c) 33 —

(d) 45 —
(e) 54 —
(f) 69 —

(g) 76 —
(h) 80 —
(i) 99 —

3. Complete the following:

(a) | 115 | 116 | 117 | | | 120 | |

(b) | 238 | 239 | | | 242 | | |

(c) | 582 | | | 585 | | | 588 |

(d) | 697 | | 699 | | | | 703 |

(e) | 877 | 878 | | | | 882 | |

4. Write the following numbers in numerals:

(a)	One hundred fifty-two	152
(b)	Three hundred thirty-eight	
(c)	Four hundred fifty	
(d)	Five hundred nine	
(e)	Six hundred fifty-eight	
(f)	Seven hundred eleven	
(g)	Eight hundred sixty-eight	
(h)	Nine hundred ninety-nine	

5. Write the following numbers in words:

(a)	275	Two hundred seventy-five
(b)	432	
(c)	560	
(d)	689	
(e)	345	
(f)	709	
(g)	811	
(h)	990	

Place Value of 3-digit Numbers

The place value of each digit is found by its position in a number.

Let us find the place value of 2 and 6 in 26.

Hundreds	Tens	Ones
	2 tens	6 ones
	20	6

$$20 + 6 = 26$$

The digit 2 is at the tens place. So, its value is 20.

The digit 6 is at the ones place. So, its value is 6.

Let us find the place value of each digit in 245.

Hundreds	Tens	Ones
2 hundreds	4 tens	5 ones
200	40	5

$$200 + 40 + 5 = 245$$

The digit 2 is at the hundreds place. So, its value is 200.

The digit 4 is at the tens place. So, its value is 40.

The digit 5 is at the ones place. So, its value is 5.

How many hundreds, tens and ones are there in the given numbers?
308, 400

Hundreds	Tens	Ones
300	0	8
3 hundreds	0 tens	8 ones

Hundreds	Tens	Ones
400	0	0
4 hundreds	0 tens	0 ones

Try Yourself

How many hundreds, tens and ones are there in 333?

Explain the concept of place value of numbers using teaching aids (chart, abacus, etc). Write different numbers on writing board and guide the students how to identify the place value of numbers.

Tell the place value of the coloured digits. 472, 238

4 hundreds = 400 ; 3 tens = 30

Exercise 3

1. How many hundreds, tens and ones are there in the given numbers?

(a)
6 ones
3 tens   136
1 hundreds

(b)
☐ ones   285
☐ hundreds
☐ tens

(c)
☐ tens
☐ ones   412
☐ hundreds

(d)
☐ hundreds
☐ tens   360
☐ ones

(e)
☐ hundreds
☐ tens   507
☐ ones

(f)
☐ tens
☐ ones   771
☐ hundreds

(g)
☐ tens
☐ hundreds   649
☐ ones

(h)
☐ hundreds
☐ tens   800
☐ ones

(i)
☐ ones
☐ hundreds   999
☐ tens

2. Write the place value of the coloured digits.

(a) 125 — 2 tens

(b) 270 —

(c) 598 —

(d) 418 —

(e) 600 —

(f) 301 —

(g) 764 —

(h) 996 —

(i) 850 —

3. Write the number with the help of values.

(a) 100 + 30 + 2 =   132

(b) 200 + 10 + 5 =

(c) 500 + 50 + 0 =

(d) 400 + 0 + 2 =

(e) 700 + 10 + 9 =

(f) 800 + 80 + 8 =

(g) 600 + 00 + 0 =

(h) 900 + 90 + 6 =

4. Write the number for the given place values.

	Place Values of the Numbers	Numbers
(a)	1 ones , 2 hundreds, 5 tens	251
(b)	3 tens, 5 hundreds, 4 ones	
(c)	6 tens, 0 ones, 6 hundreds	
(d)	5 hundreds, 7 ones, 0 tens	
(e)	8 ones, 9 tens, 1 hundreds	
(f)	0 ones, 3 hundreds, 0 tens	

Comparison of 3-digit Numbers

Fatima collects 435 coins and her friend collects 85 coins. Who has more coins?

To find who has more coins, we will compare both numbers.

435 is a 3-digit number.

85 is a 2-digit number.

So, 435 is greater than 85. Therefore, Fatima has more coins.

Hundreds	Tens	Ones
4	3	5
	8	5

While comparing a 3-digit number with a 2-digit number, the 3-digit number is always greater.

Let us compare 518 and 376·

Hundreds	Tens	Ones
5	1	8
3	7	6

First, we compare the digits at the hundreds place.

5 hundreds is greater than 3 hundreds.

So, 518 is greater than 375.

While comparing two or more 3-digit numbers, first we compare the digits at the hundreds place. The number with the greater digit at the hundreds place is greater.

Let us compare 368 and 321.

Hundreds	Tens	Ones
3	6	8
3	2	1

First, we compare the digits at the hundreds place. Both digits are same.

Now, we compare the digits at the tens place. 6 tens is greater than 2 tens.

So, 368 is greater than 321.

Let us compare 469 and 463.

Hundreds	Tens	Ones
4	6	9
4	6	3

First, we compare the digits at the hundreds place. Both digits are same.

Now, we compare the digits at the tens place. Both digits are also same. Now, we compare the digits at the ones place. 9 ones is greater than 3 ones. So, 469 is greater than 463.

Key Fact

While comparing two 3-digits numbers, if the digit at the hundreds place, tens place and ones place are same, then both numbers are same.

Ordering Numbers

Can we find the smallest and the greatest number in these numbers?

235 516 147

Yes, we can find the smallest and the greatest numbers by comparing place value of the given numbers.

Hundreds	Tens	Ones
2	3	5
5	1	6
1	4	7

First, we compare the digits at the hundreds place.

5 hundreds is the greatest.

So, 516 is the greatest number.

Similarly, 1 hundred is the smallest.

So, 147 is the smallest number.

Write different pairs of 3-digit numbers on writing board and explain how to compare numbers with the help of their place values without using symbols (<,>,=).

Now, we write 235 516 147 in an order as,

147   235   516

↓   ↓
The smallest   The greatest
number   number

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

516   235   147

↓   ↓
The greatest   The smallest
number   number
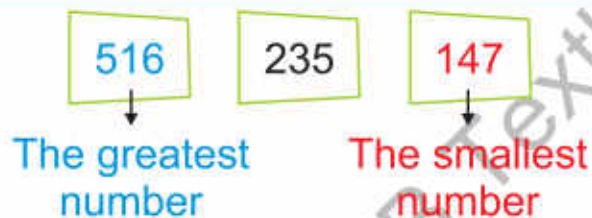
The arrangement of the numbers from the greatest to the smallest is called "descending order".

Write 162 203 168 in ascending and descending order.

First, we find the smallest and the greatest numbers by comparing place values of the given numbers. Then, we will write in an order.

2 hundreds is the greatest.

So, 203 is the greatest number.

Now, we compare 162 and 168.

The digits at the hundreds place and tens place are same. But, 2 ones are smaller than 8 ones.

So, 162 is the smallest number.

Hundreds	Tens	Ones
1	6	2
2	0	3
1	6	8

Ascending order: 162 168 203

Descending order: 203 168 162

Exercise 4

1. Encircle the greater number.

(a) 18 | 121

(b) 248 | 98

(c) 198 | 218

(d) 600 | 599

(e) 749 | 497

(f) 899 | 999

2. Encircle the smaller number.

(a) 89 | 100

(b) 212 | 169

(c) 309 | 289

(d) 550 | 505

(e) 700 | 699

(f) 998 | 989

3. Encircle the greatest number.

(a) 115 | 85 | 135

(b) 214 | 275 | 250

(c) 390 | 388 | 369

(d) 689 | 700 | 599

(e) 809 | 799 | 690

(f) 998 | 899 | 999

4. Encircle the smallest number.

(a) 105 | 98 | 101

(b) 318 | 381 | 183

(c) 510 | 500 | 482

(d) 142 | 241 | 412

(e) 689 | 660 | 691

(f) 989 | 998 | 889

5. Write the following numbers in the ascending order:

(a) 105 125 115 130 135

(b) 452 498 435 579 517

(c) 809 990 890 960 895

6. Write the following numbers in the descending order:

(a) 200 128 205 198 210

(b) 708 485 650 606 599

(c) 850 750 550 650 950

Backward Counting 10 Steps Down

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

10 9 8 7 6 5 4 3 2 1 0
Start
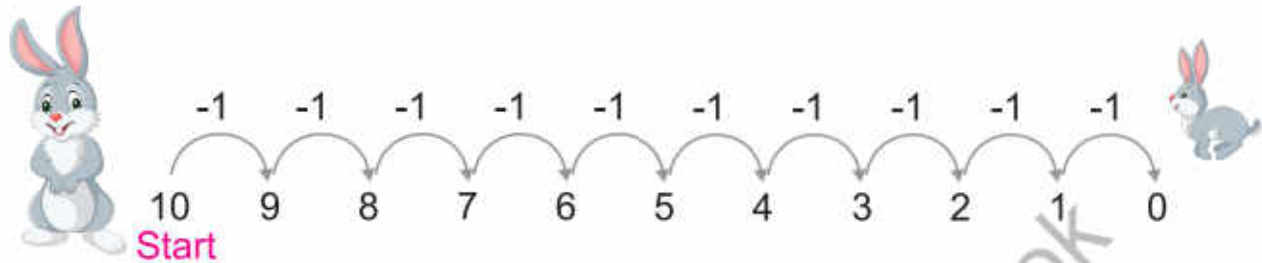
Let us count and write backward counting 10 steps down from 112 and 343.

112	111	110	109	108	107	106	105	104	103	102

343	342	341	340	339	338	337	336	335	334	333

Try Yourself

Write backward counting 10 steps down from the given numbers.

96										
125										
278										
350										

Divide the students in groups and give a number. Encourage and guide them to write backward counting 10 steps down from the given numbers on writing board.

Counting in 10s

Let us count in 10s.

| 10 | 20 | 30 | 40 | 50 |

10 →(+10)→ 20 →(+10)→ 30 →(+10)→ 40 →(+10)→ 50
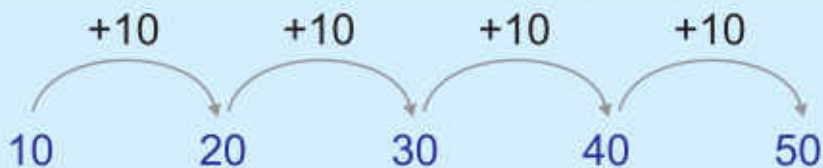
Try Yourself

1. Complete the following by counting in 10s:

40		60				100
110			140		160	
360				400		

2. Write the next 6 numbers by counting in 10s.

90						
220						
580						
690						

Encourage the students to read and write the next numbers from the given numbers by counting in 10s.
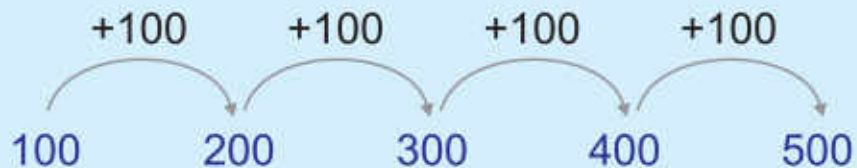
Counting in 100s

Let us count in 100s.

| 100 | 200 | 300 | 400 | 500 |

+100   +100   +100   +100

100   200   300   400   500

✏️ Try Yourself

1. Complete the following by counting in 100s:

300			600		
210	310			610	
450					950

2. Write the next 5 numbers by counting in 100s.

105					
330					
190					
444					

Encourage the students to read and write the next numbers from the given numbers by counting in 100s.

One Thousand

Hundreds	Tens	Ones
9	9	9

999 is the greatest 3-digit number. What will be the next number?

If we add 1 more to 999, what number will we get?

999 + 1 = 1000   **one thousand**

1000 is the first 4-digit number.

In the place value chart, we represent one thousand as:

Thousands	Hundreds	Tens	Ones
1	0	0	0

Key Fact

1000 is the smallest 4-digit number.

Explain the children to recognize 1000 as 'one more than 999'. Tell them that 1000 is the first and the smallest 4-digit number.

I have learnt to:

- use the ordinal numbers to represent the position of the objects.
- read and write numbers up to 3-digit.
- identify the place value of 3-digit numbers.
- compare 3-digit numbers.
- write 3-digit numbers in ascending and descending order.
- count 10 steps down from any given number.
- count and write in 10s and 100s.
- recognize 1000.

Vocabulary

- Ordinal Numbers
- Compare
- Ascending Order
- Descending Order

Review Exercise

1. Choose the correct options and fill in the blanks.

(i)   In words, 46 is written as _____ .

(a) thirty-six   (b) forty-six   (c) fifty-six   (d) sixty-six

(ii)   Ordinal numbers are used to represent the _____ of the objects.

(a) shapes   (b) quantity   (c) position   (d) place value

(iii) Nine hundred nine is written in numeral as _____ .

(a) 109   (b) 901   (c) 999   (d) 909

(iv)   In 158, the place value of 1 is _____ .

(a) 1   (b) 10   (c) 100   (d) 1000

(v)   In 989 990 909 999 ,which number is the greatest?

(a) 999   (b) 909   (c) 990   (d) 989

2. Recall English alphabet and write the position of the given alphabet.

(a) D 4th____   (b) G ____   (c) J ____   (d) M ____   (e) I ____

(f) T ____   (g) Q ____   (h) K ____   (i) S ____   (j) N ____

3. Write the numbers in numerals.

(a) Eighty-nine   _____

(b) Three hundred thirteen   _____

(c) Five hundred six   _____

(d) Seven hundred eighty-six   _____

(e) Eight hundred fifty-nine   _____

(f) Nine hundred seventy-six   _____

4. Write the numbers in words.

(a) 96 _____

(b) 269 _____

(c) 404 _____

(d) 890 _____

(e) 967 _____

5. Write the place value of coloured digits.

(a) 589 8 tens   (b) 490 _____   (c) 756 _____

(d) 600 _____   (e) 850 _____   (f) 915 _____

6. Write 10 steps down from the given number.

205										

7. Complete by counting in 10s.

180				220			

8. Complete by counting in 100s.

130			430			

9. Write the numbers in ascending and descending order.

415   105   145   514   501   405

(a) Ascending order: ⬭ ⬭ ⬭ ⬭ ⬭ ⬭

(b) Descending order: ⬭ ⬭ ⬭ ⬭ ⬭ ⬭

Number Operations
Addition

Learning Outcomes

After completing this portion, you will be able to:

- Add 1-digit number and 1-digit number.
- Add 1-digit number and 2-digit number with carrying.
- Add 2-digit number and 2-digit number with carrying.
- Solve real life number stories, involving addition of 2-digit number with carrying.
- Add 3-digit number and 1-digit without carrying.
- Add 3-digit number and 2-digit number without carrying.
- Add 3-digit number and 3-digit number without carrying.
- Solve real life number stories involving addition of 3-digit number without carrying.
- Add 3-digit number and 1-digit number with carrying of tens and hundreds.
- Add 3-digit number and 2-digit number with carrying of tens and hundreds.
- Add 3-digit number and 3-digit number with carrying of tens and hundreds.
- Solve real life number stories involving addition of 3-digit number with carrying of tens and hundreds.
- Add numbers up to 50 using mental calculation strategies.

Have you ever listened to the bell of the balloon seller?
Here he has 5 green balloons and 3 yellow balloons.
How many balloons are there altogether?
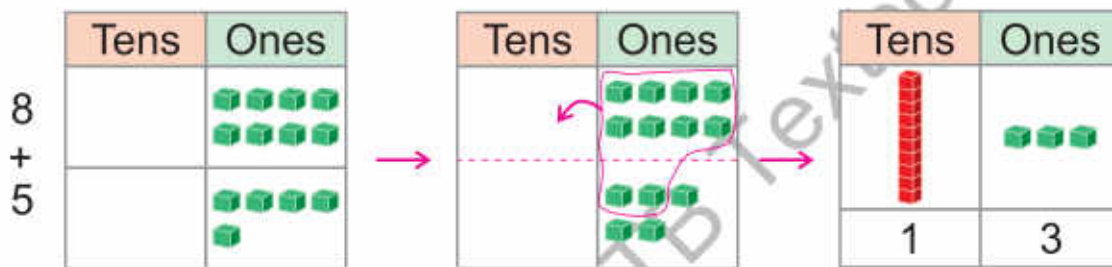
Addition of 1-digit Numbers

I have 8 candies.

I have 5 candies.

Let us find, how many candies both have?

8
+
5

Tens	Ones

Tens	Ones

Tens	Ones
1	3

When the sum of ones is more than 9 after adding, then 10 ones make 1 tens. Carry 1 tens to the tens place.

	T	O
Candies girl have =	①	8
Candies boy have = +		5
Total candies =	1	3

Step 1

Add the ones.
8 ones + 5 ones = 13 ones
because 10 ones = 1 tens
So, 13 ones = 1 tens + 3 ones
Carry ① tens to the tens place.

Step 2

Add the tens.
① tens + 0 tens = 1 tens

So, both have 13 candies.

- For effective teaching and learning, use 'urdu or local language' as medium of instruction to explain the concept of addition.
- Explain the concept of tens using teaching aids/common objects (matchsticks, pencils, etc).

Addition of 2-digit Numbers with Carrying

Ahmad's lawn has 25 plants. He adds 7 more plants in his lawn. How many plants are there in all?

We will find the total number of plants by adding 25 and 7.

Tens	Ones

25

+ 7

Tens	Ones
3	2
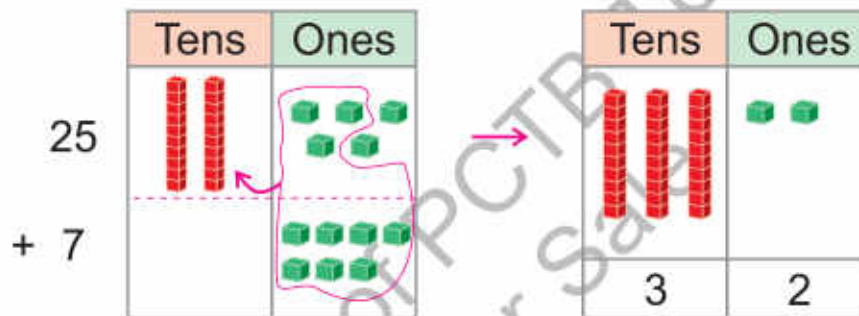
		T	O
Plants in the lawn	=	①2	5
Plants Ahmad added	= +		7
Total plants	=	3	2

Step 2
Add the tens.
① tens + 2 tens = 3 tens

So, Ahmad's lawn has 32 plants in all.

Step 1
Add the ones.
5 ones + 7 ones = 12 ones
because 10 ones = 1 tens
So, 12 ones = ① tens + 2 ones
Carry ① tens to the tens place.

Explain the concept of 'making ten from ones' and tell them that how to carry ten to the tens place.

Add 47 and 26.

Tens	Ones
①4	7
+ 2	6
7	3

Step 1

Add the ones.
7 ones + 6 ones = 13 ones
because 10 ones = 1 tens
So, 13 ones = ① tens + 3 ones
carry ① tens to the tens place.

Key Fact

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

Step 2

Add the tens.
① tens + 4 tens + 2 tens = 7 tens

Exercise 1

1. Solve the following:

(a)
T	O
1	7
+	5

(b)
T	O
3	5
+	6

(c)
T	O
4	8
+	7

(d)
T	O
5	5
+	8

(e)
T	O
8	9
+	3

(f)
T	O
2	5
+ 1	5

(g)
T	O
4	3
+ 2	9

(h)
T	O
5	6
+ 3	5

(i)
T	O
6	8
+ 2	5

(j)
T	O
1	2
+ 7	9

(k)
T	O
2	8
+ 5	4

(l)
T	O
6	7
+ 2	6

2. Amna has 24 books and Hina has 8 books. How many books do both girls have altogether?

		T	O
Books Amna has	=		
Books Hina has	= +		
Total books	=		

3.　　Raza　　　　　　　　　　　　　　　　　　　　Maryam

There are 35 students in my class.

There are 28 students in my class.

How many students are there in both classes?

		T	O
Students in Raza's class	=		
Students in Maryam's class	= +		
Total students	=		

4. A fruit seller sold 36 kinnos in the morning and 48 kinnos in the evening. How many kinnos did he sell in all?

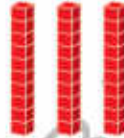|		T	O
Kinnos sold in the morning	=		
Kinnos sold in the evening	= +		
Total Kinnos sold	=		

Addition of 3-digit Numbers without Carrying

Sajid likes to collect coins. He has 132 coins.
His brother gives 6 coins to him. How many coins
does Sajid have altogether?

Add 132 and 6 to find the total number of coins.

Hundreds	Tens	Ones
132 +
6

| | 1 | 3 | 8 |

	H	T	O
Coins Sajid has =	1	3	2
Coins given by his brother = +			6
Total coins =	1	3	8

Step 2

Add the tens.
3 tens + 0 tens = 3 tens

Step 1

Add the ones.
2 ones + 6 ones = 8 ones

Step 3

Add the hundreds.
1 hundreds + 0 hundreds = 1 hundreds

So, Sajid has 138 coins altogether.

Key Fact

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

Add 316 and 82.

Hundreds	Tens	Ones
3	1	6
+	8	2
3	9	8

Step 2

Add the tens.
1 tens + 8 tens = 9 tens

Step 1

Add the ones.
6 ones + 2 ones = 8 ones

Step 3

Add the hundreds.
3 hundreds + 0 hundreds = 3 hundreds

A bookseller sold 435 books on Tuesday and 362 books on Wednesday. How many books did he sell in both the days altogether?

Bookshop

💡 **Hint**

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

		H	T	O
Books sold on Tuesday	=	4	3	5
Books sold on Wednesday	= +	3	6	2
Total books sold	=	7	9	7

So, 797 books sold in two days.

Exercise 2

1. Solve the following:

(a)
H	T	O
2	5	2
+		6

(b)
H	T	O
1	6	5
+		3

(c)
H	T	O
5	6	8
+		1

(d)
H	T	O
6	8	0
+		6

(e)
H	T	O
3	4	5
+	3	4

(f)
H	T	O
4	2	6
+	7	0

(g)
H	T	O
4	4	1
+	5	8

(h)
H	T	O
6	0	7
+	8	2

(i)
H	T	O
2	7	2
+ 1	2	7

(j)
H	T	O
5	6	2
+ 4	3	7

(k)
H	T	O
6	0	8
+ 2	9	1

(l)
H	T	O
2	4	2
+ 5	4	4

2. Rehan likes to play cricket. He buys a bat for Rs 390 and a ball for Rs 208. How much amount does Rehan spend in all?

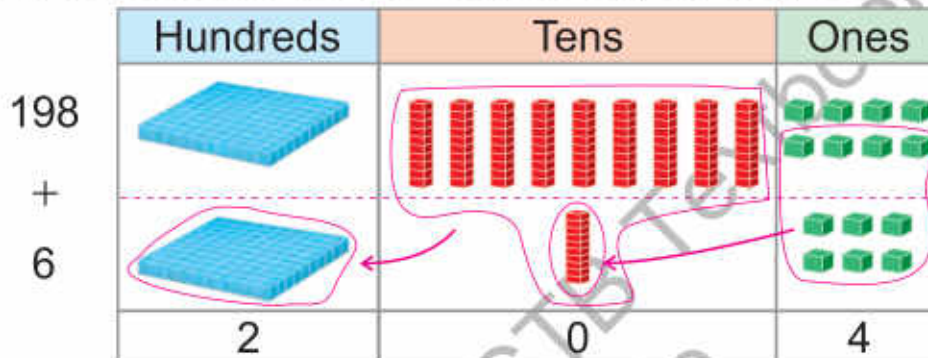|		H	T	O
Cost of the bat	=			
Cost of the ball	= +			
Total amount spent	=			

Addition of 3-digit Numbers with Carrying

There are 198 students in my school. 6 more students get admission. Find the total number of students in the school.

We can find the total number of students by adding 198 and 6.

	Hundreds	Tens	Ones
198 + 6			
	2	0	4

When the sum of tens is more than 9 after adding, then 10 tens make 1 hundred. Carry 1 hundred to the hundreds place.

	H	T	O
Number of students =	1	9	8
New students = +			6
Total students =	2	0	4

Step 1
Add the ones.
8 ones + 6 ones = 14 ones
because 10 ones = 1 tens
So, 14 ones = 1 tens + 4 ones
Carry 1 tens to the tens place.

Step 2
Add the tens.
1 tens + 9 tens + 0 tens = 10 tens
because 10 tens = 1 hundreds
Carry 1 hundreds to the hundreds place.

Step 3
Add the hundreds.
1 hundreds + 1 hundreds = 2 hundreds

So, total number of students in the school is 204.

Explain the students how to make hundred with tens and tell them that how to carry hundred to the hundreds place.

In our village, there is a garden. There are 254 mango trees and 78 guava trees. How many trees are there in the garden altogether?

We will find the total number of trees by adding 254 and 78.

Hundreds	Tens	Ones
3	3	2

254
+
78
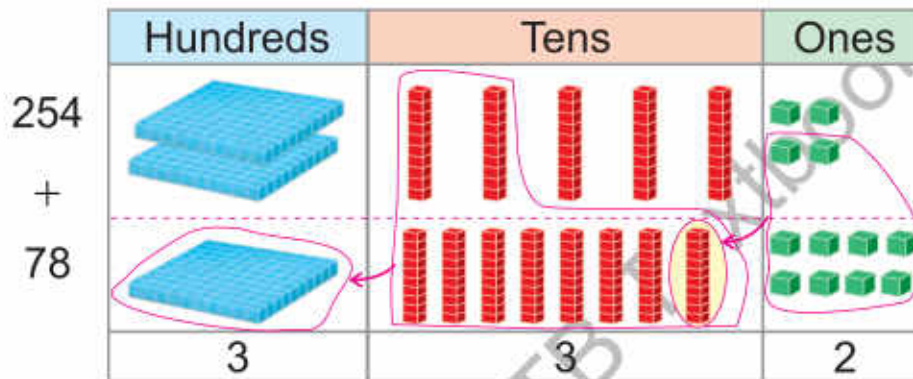
	H	T	O
Mango trees =	①2	①5	4
Guava trees = +		7	8
Total trees =	3	3	2

Step 1
Add the ones.
4 ones + 8 ones = 12 ones
12 ones = 1 tens + 2 ones
Carry ① tens to the tens place.

Step 2
Add the tens.
① tens + 5 tens + 7 tens = 13 tens
13 tens = 1 hundreds + 3 tens
Carry ① hundreds to the hundreds place.

Step 3
Add the hundreds .
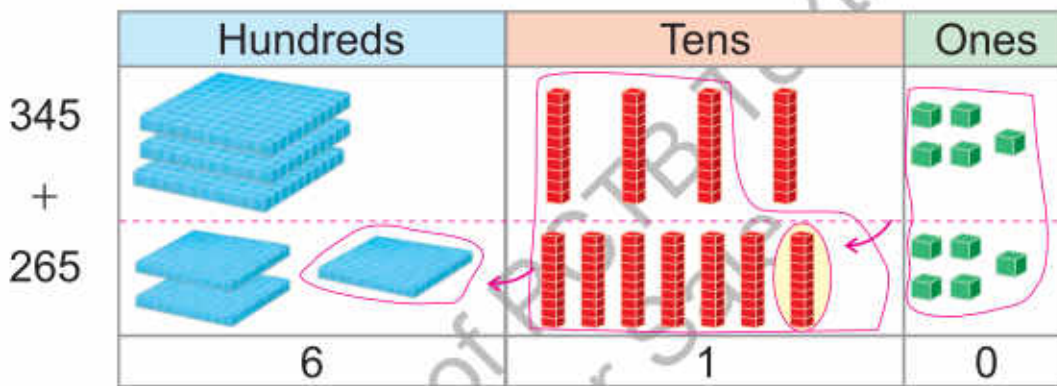① hundreds + 2 hundreds = 3 hundreds

So, there are 332 trees in the garden altogether.

In an animal farm, there are 345 cows and 265 sheep.
How many animals are there in the farm altogether?

We will find the total number of animals by adding 345 and 265.

Hundreds	Tens	Ones
345 + 265		
6	1	0

	H	T	O
Cows in the farm =	3	4	5
Sheep in the farm = +	2	6	5
Total animals =	6	1	0

Step 1

Add the ones.
5 ones + 5 ones = 10 ones
because 10 ones = 1 tens
Carry ①tens to the tens place.

Step 2

Add the tens.
①tens + 4 tens + 6 tens = 11 tens
because 10 tens = 1 hundreds
So, 11 tens = 1 hundreds + 1 tens
Carry ①hundreds to the hundreds place.

Step 3

Add the hundreds.
①hundreds + 3 hundreds + 2 hundreds = 6 hundreds

So, there are 610 animals in the farm altogether.

Exercise 3

1. Solve the following:

(a)

H	T	O
1	8	5
+		6

(b)

H	T	O
2	4	9
+		6

(c)

H	T	O
5	7	4
+		7

(d)

H	T	O
7	9	5
+		8

(e)

H	T	O
8	9	7
+		3

(f)

H	T	O
5	3	3
+		4	9

(g)

H	T	O
3	5	4
+		6	8

(h)

H	T	O
2	0	9
+		9	1

(i)

H	T	O
8	2	7
+		7	6

(j)

H	T	O
7	3	9
+		6	2

(k)

H	T	O
2	2	3
+	1	5	8

(l)

H	T	O
3	8	4
+	1	2	6

(m)

H	T	O
4	9	3
+	3	0	9

(n)

H	T	O
6	1	6
+	2	8	8

(o)

H	T	O
3	9	5
+	2	9	8

2. In a cricket test match, Pakistan cricket team scored 462 runs in the first innings and 378 runs in the second innings. Find the total runs scored by the Pakistan cricket team in both the innings.
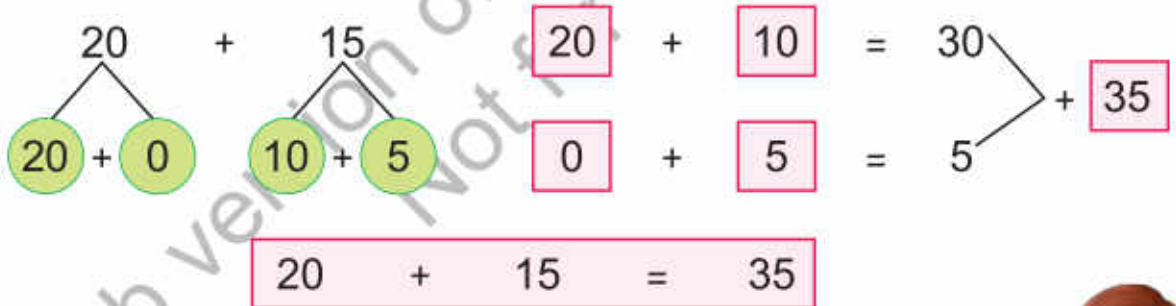
	H	T	O
Runs in the first innings =			
Runs in the second innings = +			
Total runs in both the innings =			

Addition of Numbers using Mental Strategy

Add 20 and 15 using mental strategy.

20 + 15

20 + 0　　10 + 5

| 20 | + | 10 | = | 30 |
| 0 | + | 5 | = | 5 |

+ 35

20 + 15 = 35

Add 32 and 17 using mental strategy.

32 + 17

30 + 2　　10 + 7

| 30 | + | 10 | = | 40 |
| 2 | + | 7 | = | 9 |

+ 49

32 + 17 = 49
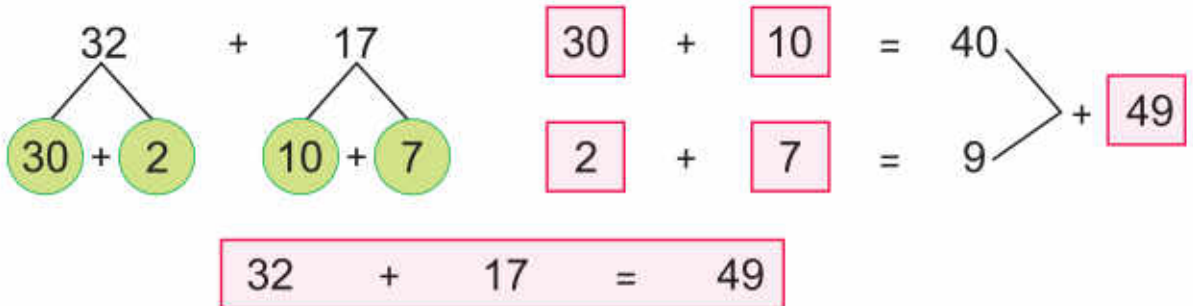
Add using mental strategy and complete the following:

(a)   20   +   18   [20] + [ ] = [ ]   ⎬ + [ ]
       20 + 0   10 + 8   [0]   + [ ] = [ ]

              20   +   18   =   [ ]

(b)   15   +   12   [10] + [ ] = [ ]   ⎬ + [ ]
       10 + 5   10 + 2   [ ]   + [2] = [ ]

              15   +   12   =   [ ]

(c)   30 + 10 = [ ]   (d) 20 + 10 = [ ]   (e) 30 + 20 = [ ]

(f)   10 + 12 = [ ]   (g) 20 + 11 = [ ]   (h) 14 + 12 = [ ]

(i)   23 + 15 = [ ]   (j) 35 + 13 = [ ]   (k) 42 + 7 = [ ]

I have learnt to:

- add numbers up to 3-digit without carrying.
- add numbers up to 3-digit with carrying.
  - when adding 3-digit numbers, first add the ones, then the tens and finally add the hundreds.
  - when the sum of ones is more than 9 after adding, then 10 ones make 1 ten. Carry 1 ten to the tens place.
  - when the sum of tens is more than 9 after adding, then 10 tens make 1 hundred. Carry 1 hundred to the hundred place.
- use addition of 3-digit numbers in real life.

Vocabulary
- Addition
- Without carrying addition
- With carrying addition

Review Exercise

1. Choose the correct options and fill in the blanks.

(i)　　25 + 0 = _____

(a) 250　　　　(b) 205　　　　(c) 25　　　　(d) 0

(ii)　　100 + 10 = _____

(a) 1000　　　(b) 101　　　　(c) 100　　　　(d) 110

(iii)　When adding 3-digit numbers, first add the_____ .

(a) ones　　　(b) tens　　　　(c) hundreds　　(d) carrying digit

(iv)　When zero is added to any number, the result is the _____ .

(a) zero　　　　　　　　　　　(b) number itself

(c) greater number　　　　　　(d) smaller number

(v)　　When adding 3-digit numbers, finally add the _____ .

(a) ones　　　(b) tens　　　　(c) hundreds　　(d) carrying digit

2. Solve the following:

(a)

T	O
	9
+	6

(b)

T	O
1	6
+	8

(c)

T	O
5	9
+	9

(d)

T	O
7	8
+	2

(e)

T	O
3	7
+ 2	5

(f)

T	O
5	1
+ 3	9

(g)

T	O
6	4
+ 1	6

(h)

T	O
7	3
+ 1	8

(i)

H	T	O
2	5	4
+		5

(j)

H	T	O
3	2	3
+		6

(k)

H	T	O
6	0	9
+	3	0

(l)

H	T	O
8	1	2
+	7	7

(m)

H	T	O
3	1	2
+ 1	8	5

(n)

H	T	O
6	0	2
+ 2	9	6

(o)

H	T	O
4	5	7
+		8

(p)

H	T	O
6	9	4
+		7

(q)

H	T	O
3	5	7
+	5	6

(r)

H	T	O
5	8	9
+	8	8

(s)

H	T	O
7	9	8
+ 1	3	3

(t)

H	T	O
5	5	5
+ 2	9	8

(u)

H	T	O
6	6	6
+ 1	9	5

(v)

H	T	O
5	9	9
+ 3	0	8

(w)

H	T	O
7	7	7
+ 1	6	9

(x)

H	T	O
6	9	6
+ 2	9	4

(y)

H	T	O
4	5	9
+ 3	6	7

(z)

H	T	O
8	8	8
+	7	7

Rs 384

Rs 75

Rs 196

Rs 245

💡 **Hint**

Look and write the price of toys from the given pictures.

3. Ahmed buys a car and a ball from toyshop. How much amount does Ahmed pay to the shopkeeper?

		H	T	O
Car price	=			
Ball price	= +			
Amount paid	=			

4. Amna buys a teddy bear and a ball from the toyshop. How much amount does she pay to the shopkeeper?

		H	T	O
Teddy bear price	=			
Ball price	= +			
Amount paid	=			

5. Irfan buys a bicycle and a car from toyshop. How much amount does Irfan spend?

		H	T	O
Bicycle price	=			
Car price	= +			
Amount spent	=			

6. Iram wants to buy a teddy bear and a bicycle from the toyshop. How much amount does Iram need to buy both the toys?
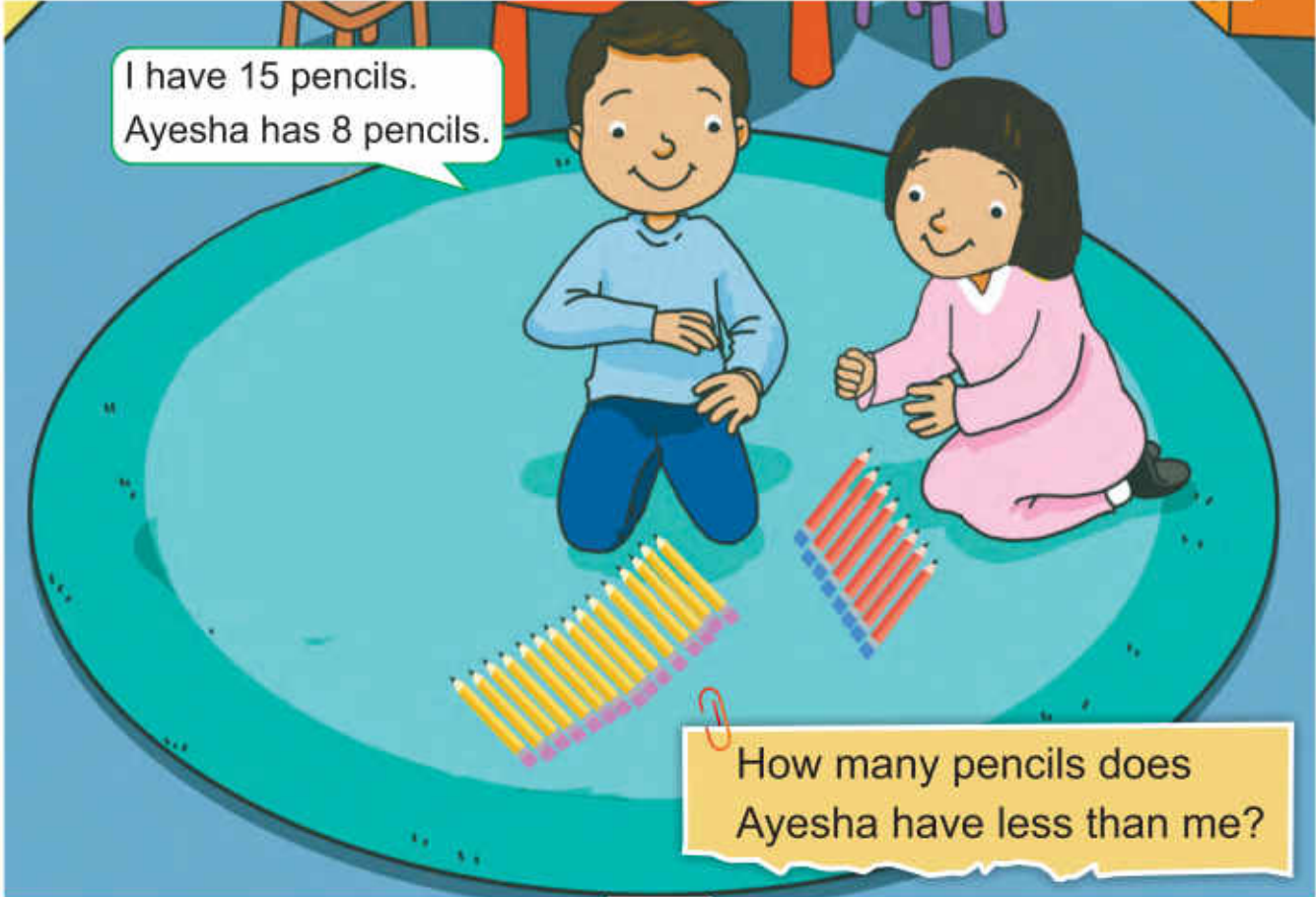
		H	T	O
Teddy bear price	=			
Bicycle price	= +			
Amount needed	=			

Subtraction

After completing this portion, you will be able to:

- Subtract 1-digit number from 2-digit number with borrowing.
- Subtract 2-digit number from 2-digit number with borrowing.
- Solve real life numbers stories of subtraction of 2-digit numbers with borrowing.
- Subtract 1-digit number from 3-digit number without borrowing.
- Subtract 2-digit number from 3-digit number without borrowing.
- Subtract 3-digit number from 3-digit number without borrowing.
- Solve real life number stories of subtraction up to 3-digits without borrowing.
- Subtract 1-digit number from 3-digit number with borrowing.
- Subtract 2-digit number from 3-digit number with borrowing.
- Subtract 3-digit number from 3-digit number with borrowing.
- Solve real life number stories of subtraction up to 3-digit numbers with borrowing.
- Analyze simple situations identifying correct operation of addition and subtraction with carrying/borrowing in mixed form.
- Subtract numbers up to 50 using mental calculation strategies.

I have 15 pencils.
Ayesha has 8 pencils.

How many pencils does Ayesha have less than me?

Subtraction of 1-digit Number from 2-digit Number with Borrowing

My age is 8 years.   My age is 24 years.

Salman

Raza

We can tell who is older by subtracting 8 from 24.
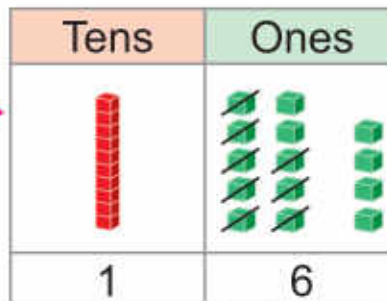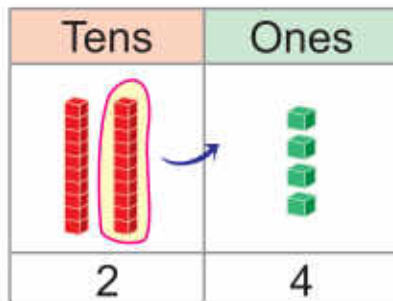
Tens	Ones
2	4

Tens	Ones
1	6

- For effective teaching and learning, use 'urdu or local language' as medium of instruction to explain the concept of subtraction.
- Explain the students how to borrow 1 ten as 10 ones from the tens place.

		T	O
Raza's age	=	$\cancel{2}^{1}$	4^{10}
Salman's age	= −		8
Difference	=	1	6

Step 1

Subtract the ones.
We cannot subtract 8 from 4.
Therefore, we borrow 1 tens as 10 ones from the tens place and carry to the ones place.
1 tens + 4 ones = 10 ones + 4 ones
                = 14 ones
14 ones − 8 ones = 6 ones

Step 2

Subtract the tens.
1 tens − 0 tens = 1 tens

So, Raza is 16 years older than Salman.

Subtraction of 2-digit Number from 2-digit Number with Borrowing

Nida has 42 apples.
She gives 15 apples to Ali.
How many apples are left with Nida?

We can tell how many apples are left with Nida by subtracting 15 from 42.

	T	O
Apples Nida has =	³A̶ (3)	²(10)
Apples given to Ali = _	1	5
Apples left =	2	7

Step 1

Subtract the ones.
We cannot subtract 5 from 2.
Therefore, we borrow 1 tens as 10 ones from the tens place and carry to the ones place.

1 tens + 2 ones = 10 ones + 2 ones
= 12 ones

12 ones – 5 ones = 7 ones

Clue Words for Subtraction

- left
- how many more
- how many less/fewer
- remaining
- difference

Step 2

Subtract the tens.
3 tens – 1 tens = 2 tens

So, 27 apples are left with Nida.

Describe the real life examples on subtraction and explain the clue words for subtraction.

Exercise 1

1. Solve the following:

(a)

T	O
2	3
–	5

(b)

T	O
3	4
–	8

(c)

T	O
9	1
–	2

(d)

T	O
4	0
–	6

(e)

T	O
6	3
– 2	7

(f)

T	O
5	7
– 1	8

(g)

T	O
9	5
– 3	6

(h)

T	O
6	1
– 4	2

(i)

T	O
7	0
– 4	1

(j)

T	O
8	2
– 5	5

(k)

T	O
9	8
– 5	9

(l)

T	O
8	0
– 7	2

2. There are 45 passengers in a bus. If there are 18 women, how many men are there?

		T	**O**
Passengers in the bus	=		
Number of women	= _		
Number of men	=		

Subtraction of 3-digit Numbers without Borrowing

In a goat farm, there are 148 goats. If 5 goats are sold, how many goats are left?

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

Hundreds	Tens	Ones
1	4	3

		H	**T**	**O**
Goats in the farm	=	1	4	8
Goats sold	= −			5
Goats left in the farm	=	1	4	3

Step 1
Subtract the ones.
8 ones − 5 ones = 3 ones

Step 2
Subtract the tens.
4 tens − 0 tens = 4 tens

Step 3
Subtract the hundreds.
1 hundreds − 0 hundreds = 1 hundreds

So, 143 goats are left in the farm.

Tell the students when subtracting 3-digit numbers, first subtract the ones, then the tens finally the hundreds.

A storybook has 287 pages. Hamza has read 63 pages. How many more does Hamza has to read?

		H	T	O
Pages in storybook	=	2	8	7
Pages Hamza has read	= −		6	3
Pages left	=	2	2	4

Step 1
Subtract the ones.
7 ones – 3 ones = 4 ones

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

Step 3
Subtract the hundreds.
2 hundreds – 0 hundreds = 2 hundreds

So, Hamza has to read 224 pages.

There are 475 workers in a factory. If there are 235 male workers, how many female workers are there?

		H	T	O
Workers in the factory	=	4	7	5
Male workers	= −	2	3	5
Female workers	=	2	4	0

Step 1
Subtract the ones.
5 ones – 5 ones = 0 ones

Step 2
Subtract the tens.
7 tens – 3 tens = 4 tens

Step 3
Subtract the hundreds.
4 hundreds – 2 hundreds = 2 hundreds

So, there are 240 female workers in the factory.

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

Exercise 2

1. Solve the following:

(a)

H	T	O
2	4	8
		− 6

(b)

H	T	O
3	0	9
		− 7

(c)

H	T	O
6	7	5
		− 4

(d)

H	T	O
7	6	3
	− 1	2

(e)

H	T	O
8	4	5
	− 4	2

(f)

H	T	O
6	8	7
− 2	3	1

(g)

H	T	O
4	3	8
− 2	3	8

(h)

H	T	O
7	8	6
− 4	3	3

(i)

H	T	O
5	6	9
− 3	0	7

(j)

H	T	O
8	5	2
− 4	2	1

(k)

H	T	O
7	0	1
− 2	0	1

(l)

H	T	O
9	8	7
− 8	7	6

2. There are 685 students in a school. If there are 384 girls, how many boys are there?

	H	T	O
Students in the school =			
Girls in the school = −			
Boys in the school =			

Subtraction of 3-digit Numbers with Borrowing

A shopkeeper bought 132 pens. He sold 9 pens in a day. How many pens were left with him?

We can get the result by subtracting 9 from 132. We cannot subtract 9 from 2. Therefore, we borrow 1 tens as 10 ones from the tens place and carry to the ones place.

Hundreds	Tens	Ones
1	3	2

Hundreds	Tens	Ones
1	2	3
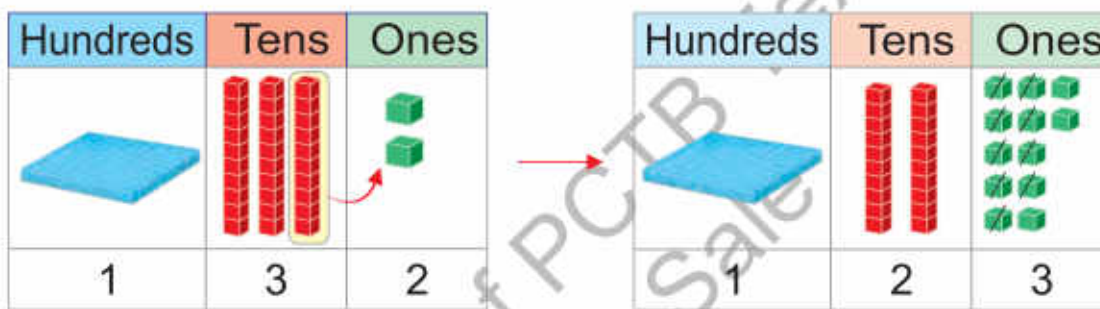
	H	T	O
Pens shopkeeper bought =	1	²$\cancel{3}$	¹⁰2
Pens sold = −			9
Pens left =	1	2	3

Step 2
Subtract the tens.
2 tens − 0 tens = 2 tens

Step 1
Subtract the ones.
Borrow 1 tens as 10 ones from the tens place and carry to the ones place.
12 ones − 9 ones = 3 ones

Step 3
Subtract the hundreds.
1 hundreds − 0 hundreds = 1 hundreds

So, 123 pens were left with the shopkeeper.

Demonstrate to the children how to borrow 1 ten as 10 ones from the tens place using teaching aids (blocks, matchstickes, etc).

In a festival, Maryam spent Rs 465. Her friend spent Rs 26 less than Maryam. How much amount did her friend spend?

Hundreds	Tens	Ones
4	6	5

→

Hundreds	Tens	Ones
4	3	9
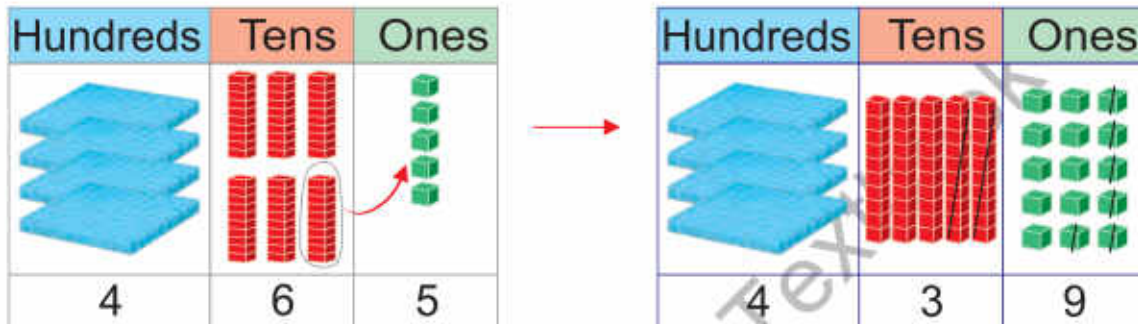
We cannot subtract 6 from 5. Therefore, we borrow 1 ten as 10 ones from the tens place.

		H	T	O
Amount spent by Maryam	=	4	⁵6̸	¹⁰5
Less amount spent by her friend	= −		2	6
Amount spent by her friend	=	4	3	9

Step 1

Subtract the ones. Borrow 1 tens as 10 ones from the tens place and carry to the ones place. 12 ones − 9 ones = 3 ones

Step 2

Subtract the tens. 5 tens − 2 tens = 3 tens

Step 3

Subtract the hundreds. 4 hundreds − 0 hundreds = 4 hundreds

So, Maryam's friend spent Rs 439.

There are 502 guava and apple trees in a garden. If there are 245 guava trees, how many apple trees are there?

Hundreds	Tens	Ones
5	0	2

Hundreds	Tens	Ones
2	5	7
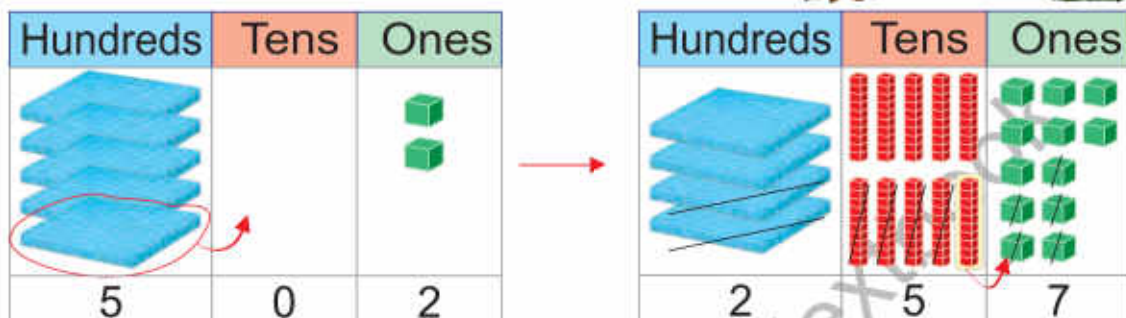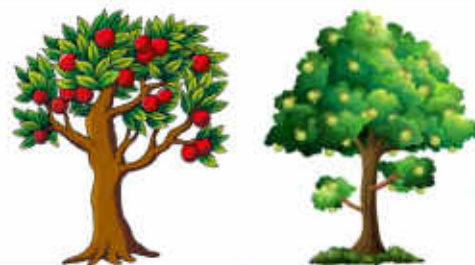
We cannot subtract 5 from 2. Therefore, we borrow from the tens place but, zero is at the tens place. So, we borrow from the hundreds place.

	H	T	O
Total trees =	$^4\cancel{5}$ ^{9}	$^{10}\cancel{0}$	$^{10}2$
Guava trees = −	2	4	5
Apple trees =	2	5	7

Step 1

Subtract the ones.
Zero is at the tens place. So, we borrow 1 hundreds as 10 tens from the hundreds place and carry to the tens place. Then, we borrow 1 tens as 10 ones from the tens place and carry to the ones place.
12 ones − 5 ones = 7 ones

Step 2

Subtract the tens.
9 tens − 4 tens = 5 tens

Step 3

Subtract the hundreds.
4 hundreds − 2 hundreds = 2 hundreds

So, there are 257 apple trees in the garden.

Exercise 3

1. Solve the following:

(a)

H	T	O
1	4	3
		− 6

(b)

H	T	O
5	6	4
		− 7

(c)

H	T	O
3	0	2
		− 5

(d)

H	T	O
6	5	1
		− 9

(e)

H	T	O
7	4	0
		− 3

(f)

H	T	O
5	6	2
	− 3	4

(g)

H	T	O
2	8	4
	− 5	6

(h)

H	T	O
4	4	5
	− 5	7

(i)

H	T	O
7	6	0
	− 7	1

(j)

H	T	O
8	3	2
	− 7	8

(k)

H	T	O
7	0	1
	− 5	4

(l)

H	T	O
3	4	2
− 1	5	8

(m)

H	T	O
4	5	2
− 1	5	4

(n)

H	T	O
7	1	1
− 2	6	7

(o)

H	T	O
8	0	3
− 2	8	9

(p)

H	T	O
9	0	0
− 6	1	2

2. There are 658 passengers in a train. 269 passengers get off the train at a station. How many passengers are left in the train?

		H	T	O
Total passengers	=			
Passengers get off	= −			
Passengers left	=			

Addition and Subtraction in Mixed Form

Read the stories carefully. Solve the question by identifying the operation of addition and subtraction.

Hint

Find the clue words to identify the operation and then solve the questions.

1. There are 528 birds and 395 animals in a zoo.

   (a) How many more birds are there than animals?

Number of birds	=	
Number of animals	=	
Number of more birds	=	

   (b) Also tell total number of birds and animals altogether in the zoo.

Number of birds	=	
Number of animals	=	
Total number of birds and animals	=	

2. A bookseller has 385 books. He buys 145 books more.

   (a) Find the total number of books.

Number of books	=	
Bought books	=	
Total books	=	

   (b) If he sells 265 books, then how many books are left with him?

Total books	=	
Sold books	=	
Books left	=	

Help the students to find clue words for the identification of correct operations in word problems.

Subtraction of Numbers using Mental Strategy

Subtract 10 from 26 using mental strategy.

```
  26   −   10

20 + 6   10 + 0
```
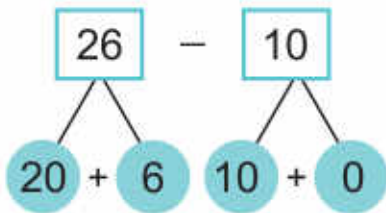
20	−	10	=	10
6	−	0	=	6
26	−	10	=	**16**

Subtract 12 from 39 using mental strategy.

```
  39        12

30 + 9   10 + 2
```
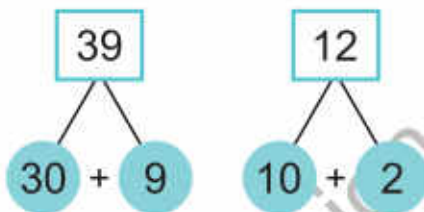
30	−	10	=	20
9	−	2	=	7
39	−	12	=	**27**

1. Subtract and complete the following using mental strategy .

(a)
```
  34   −   20

30 + 4   20 + 0
```

30	−	☐	=	☐
4	−	☐	=	☐
34	−	12	=	☐

(b)
```
  28   −   13

20 + 8   10 + 3
```

20	−	☐	=	☐
☐	−	3	=	☐
28	−	13	=	☐
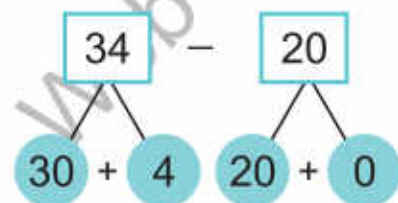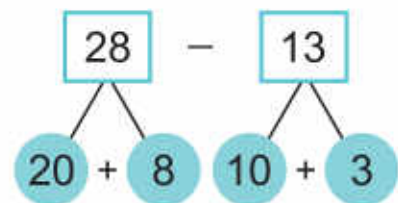
(c) 20 − 10 = ☐   (d) 30 − 20 = ☐   (e) 50 − 30 = ☐

(f) 15 − 10 = ☐   (g) 27 − 12 = ☐   (h) 36 − 11 = ☐

(i) 38 − 17 = ☐   (j) 42 − 22 = ☐   (k) 49 − 14 = ☐

I have learnt to:

Vocabulary

- Subtraction
- Subtraction without borrowing
- Subtraction with borrowing

- subtract numbers up to 3-digit without borrowing.
- subtract numbers up to 3-digit with borrowing.
  - when subtracting 3-digit numbers, first subtract the ones, then tens and finally the hundreds.
  - when borrow 1 ten as 10 ones from the tens place and carry to the ones place.
  - when borrow 1 hundred as 10 tens from the hundreds place and carry to the tens place.
- use subtraction of 3-digit numbers in real life.

Review Exercise

1. Choose the correct options and fill in the blanks.

(i)   In the subtraction of numbers, first subtract _____ .

(a) ones   (b) tens   (c) hundreds   (d) borrow

(ii)   500 − 300 = _____

(a) 100   (b) 200   (c) 500   (d) 300

(iii)   100 – 10 = _____

(a) 90   (b) 99   (c) 101   (d) 110

(iv)   When any number is subtracted from itself, the result is _____ .

(a) zero   (b) 1   (c) number itself (d) greater number

(v)   18 – 0 = _____

(a) 0   (b) 8   (c) 18   (d) 108

2. Solve the following:

(a)
T	O
5	3
–	8

(b)
T	O
8	0
–	5

(c)
T	O
7	2
– 2	7

(d)
T	O
9	6
– 1	9

(e)
T	O
6	1
– 3	7

(f)
T	O
5	1
– 3	9

(g)
T	O
4	9
– 2	0

(h)
T	O
6	8
– 5	4

(i)
H	T	O
6	1	9
– 2	0	9

(j)
H	T	O
1	3	1
–		5

(k)
H	T	O
7	8	0
–	7	1

(l)
H	T	O
5	0	0
–	5	5

(m)
H	T	O
3	4	9
– 1	4	9

(n)
H	T	O
8	1	7
– 4	0	8

(o)	H	T	O
	5	1	1
_	3	1	2

(p)	H	T	O
	7	5	0
_	1	6	9

(q)	H	T	O
	9	0	5
_	5	0	9

3. Umer has 42 toys. He distributes 18 toys among his friends. How many toys are left with Umer?

Toys Umer has	=	[ ]
Toys distributed among his friends	= _	[ ]
Toys left with Umer	=	[ ]

4. A factory produced 624 bicycles in a month. 435 bicycles were sold. What is the number of remaining bicycles?

Bicycles produced	=	[ ]
Bicycles sold	= _	[ ]
Remaining bicycles	=	[ ]

5. Sana got Rs 850 as Eidi. She gave Rs. 375 to her younger brother Ahmad. What amount was left with Sana?

Eidi of Sana	=	[ ]
Eidi given to Ahmad	= _	[ ]
Amount left with Sana	=	[ ]

6. A train has 965 seats. If there are 780 passengers in the train, how many seats are vacant?

Total seats	=	[ ]
Total passengers	= _	[ ]
Vacant seats	=	[ ]

Multiplication

Learning Outcomes

After completing this portion, you will be able to:

- Recognize multiplication as repeated addition and use multiplication symbol '×'.
- Complete number sequences in steps of 2, 3, 4, 5 and 10.
- Develop multiplication tables of 2, 3, 4, 5 and 10 till the multiplication of 10 x 10.
- Multiply numbers within multiplication tables.
- Write number sentence for multiplication from the picture.
- Solve number stories on multiplication up to 1-digit numbers.

There are 3 fishes in each jar.
Total fishes = 3 + 3 + 3 = 9

Think! Can you find the total number of fishes without repeated addition?

Multiplication as Repeated Addition

We are four friends.

Can you tell how many hands the

four friends have altogether?

$2 + 2 + 2 + 2 = 8$

We can read it as　　4 times 2　$= 8$

We can write it as　　　$4 \times 2 = 8$

Key Fact

'$4 \times 2 = 8$ is read as '4 times 2' equals 8'.

The symbol of multiplication is '$\times$'.

$5 + 5 + 5 + 5 + 5 + 5 = 30$

6 times $5 = 30$

$6 \times 5 = 30$

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

5 times $3 = 15$

$5 \times 3 = 15$

- For effective learning and teaching, use 'Urdu or local language' as medium of instruction to explain the concept of multiplication.
- Explain the concept of 'multiplication as repeated addition' using teaching aids.

Exercise 1

1. How many stars are there altogether?

Total stars $= 3 + 3 + 3 + 3$

$=$ ———times———

$=$ —— $\times$ ——

So, there are——— stars altogether.

$=$ ———————

2. How many flowers are there in all?

Total flowers = ___ + ___ + ___ + ___ + ___

= ___ times ___

= ___ × ___

= _____

So, there are _____ flowers in all.

3. Find total number of cherries.

Total cherries = ___ + ___ + ___ + ___ + ___ + ___ + ___

= ___ times ___

= ___ × ___

= _____

So, total number of cherries is ___.

4. Count the sweets.

(a)

Total sweets = ___ + ___ + ___

= ___ times ___

= ___ × ___

= _____

(b)

Total sweets = ___ + ___ + ___

= ___ times ___

= ___ × ___

= _____

(c)

Total sweets = ___ + ___ + ___ + ___

= ___ times ___

= ___ × ___

= _____

(d)

Total sweets = ___ + ___

= ___ times ___

= ___ × ___

= _____

5. Fill in the blanks.

(a) $2 + 2 + 2 + 2 + 2$ = 5×2 = 10

(b) $4 + 4 + \boxed{} + \boxed{} + 4 + 4$ = $6 \times \boxed{}$ =

(c) $5 + 5 + 5 + 5 + 5$ = $\boxed{} \times 5$ =

(d) $\boxed{} + \boxed{} + \boxed{}$ = 3×10 =

Counting in Steps

Counting in Steps of 2

Let us count the cherries by counting in steps of 2.

2   4   6   8   10   12   14   16   18   20
+2   +2   +2   +2   +2   +2   +2   +2   +2
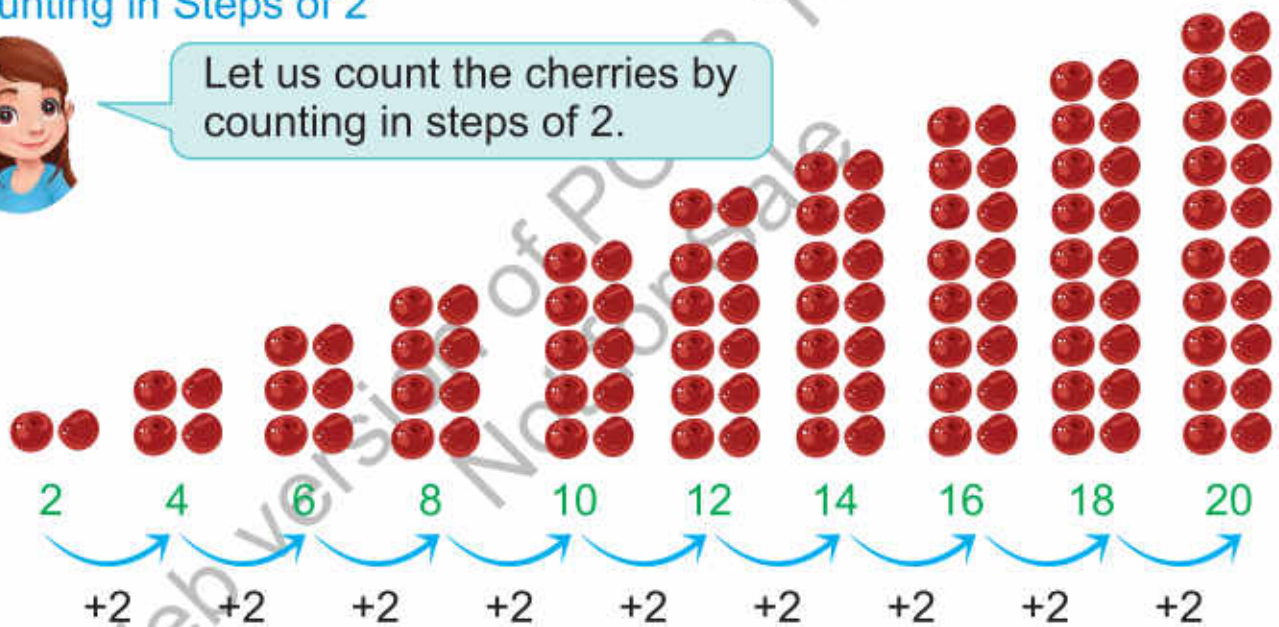
So, there are 20 cherries.
We can write it as

10 times 2 = 20
10 × 2 = 20

Counting in Steps of 3

3   6   9   12   15   18   21   24   27   30
+3   +3   +3   +3   +3   +3   +3   +3   +3

10 times 3 = 30
10 × 3 = 30

Counting in Steps of 4

| 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |

+4　+4　+4　+4　+4　+4　+4　+4　+4

> 10 times 4 = 40
> $10 \times 4 = 40$

Counting in Steps of 5

| 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |

+5　+5　+5　+5　+5　+5　+5　+5　+5

> 10 times 5 = 50
> $10 \times 5 = 50$

Counting in Steps of 10

| 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

+10　+10　+10　+10　+10　+10　+10　+10　+10

> 10 times 10 = 100
> $10 \times 10 = 100$

Try Yourself

Complete the following:

1. By counting in steps of 2

(2) (4) (6) ( ) ( ) ( ) ( ) (16) ( ) (20)

2. By counting in steps of 4

(4) (8) ( ) (16) ( ) ( ) (28) ( ) ( ) (40)

3. By counting in steps of 5

(5) (10) ( ) ( ) (25) ( ) ( ) ( ) (45) ( )

Table of 2

We can develop 'the table of 2' by counting in steps of 2.

1 time 2 is	$1 \times 2 = 2$
2 times 2 is	$2 \times 2 = 4$
3 times 2 is	$3 \times 2 = 6$
4 times 2 is	$4 \times 2 = 8$
5 times 2 is	$5 \times 2 = 10$
6 times 2 is	$6 \times 2 = 12$
7 times 2 is	$7 \times 2 = 14$
8 times 2 is	$8 \times 2 = 16$
9 times 2 is	$9 \times 2 = 18$
10 times 2 is	$10 \times 2 = 20$

Make the groups of students and help them to learn the '2 times table' using teaching aids (chart, etc).

Table of 3

We can develop 'the table of 3' by counting in steps of 3.

1 time 3 is	$1 \times 3 = 3$
2 times 3 is	$2 \times 3 = 6$
3 times 3 is	$3 \times 3 = 9$
4 times 3 is	$4 \times 3 = 12$
5 times 3 is	$5 \times 3 = 15$
6 times 3 is	$6 \times 3 = 18$
7 times 3 is	$7 \times 3 = 21$
8 times 3 is	$8 \times 3 = 24$
9 times 3 is	$9 \times 3 = 27$
10 times 3 is	$10 \times 3 = 30$

Make the groups of students and help them to learn the '3 times table' using teaching aids (chart, etc).

Table of 4

We can develop 'the table of 4' by counting in steps of 4.

1 time 4 is	$1 \times 4 = 4$
2 times 4 is	$2 \times 4 = 8$
3 times 4 is	$3 \times 4 = 12$
4 times 4 is	$4 \times 4 = 16$
5 times 4 is	$5 \times 4 = 20$
6 times 4 is	$6 \times 4 = 24$
7 times 4 is	$7 \times 4 = 28$
8 times 4 is	$8 \times 4 = 32$
9 times 4 is	$9 \times 4 = 36$
10 times 4 is	$10 \times 4 = 40$

Make the groups of students and help them to learn the '4 times table' using teaching aids (chart, etc).

Table of 5

We can develop 'the table of 5' by counting in steps of 5.

1 time 5 is	$1 \times 5 =$	5
2 times 5 is	$2 \times 5 =$	10
3 times 5 is	$3 \times 5 =$	15
4 times 5 is	$4 \times 5 =$	20
5 times 5 is	$5 \times 5 =$	25
6 times 5 is	$6 \times 5 =$	30
7 times 5 is	$7 \times 5 =$	35
8 times 5 is	$8 \times 5 =$	40
9 times 5 is	$9 \times 5 =$	45
10 times 5 is	$10 \times 5 =$	50

Make the groups of students and help them to learn the '5 times table' using teaching aids (chart, etc).

Table of 10

We can develop 'the table of 10' by counting in steps of 10.

1 time 10 is	$1 \times 10 = 10$
2 times 10 is	$2 \times 10 = 20$
3 times 10 is	$3 \times 10 = 30$
4 times 10 is	$4 \times 10 = 40$
5 times 10 is	$5 \times 10 = 50$
6 times 10 is	$6 \times 10 = 60$
7 times 10 is	$7 \times 10 = 70$
8 times 10 is	$8 \times 10 = 80$
9 times 10 is	$9 \times 10 = 90$
10 times 10 is	$10 \times 10 = 100$

Make the groups of students and help them to learn the '10 times table' using teaching aids (chart, etc).

Multiplication of 1-digit Numbers

Flowers bloom in my lawn today. There are 3 flowerpots in the lawn. Each flowerpot has 4 flowers. How many flowers are there altogether?

$3 \times 4 = 12$

can be written as

$$\begin{array}{r} 4 \\ \times\ 3 \\ \hline 12 \end{array}$$

$$4\quad +\quad 4\quad +\quad 4\ =\ 12$$

3 times 4 = 12

$3 \times 4 = 12$

Read '3 times table' up to 4, we get 12. Now, we will do each multiplication operation with the help of multiplication tables.

So, there are 12 flowers altogether.

Clue Words for Multiplication

| Product | In all |
| Times | Altogether |

Try Yourself

If there are 6 flowerpots, how many flowers are there altogether?

Explain to the students to solve real life problems related to multiplication using clue words.

Exercise 2

1. Match the following:

| 2×3 | 5×3 | 8×3 | 10×3 | 6×3 |

| 24 | 6 | 18 | 15 | 30 |

3×10   5×10   10×10   7×10   8×10

100   80   30   50   70

5 × 2   8 × 2   2 × 2   9 × 2   6 × 2

16   18   10   12   4

2. Complete the multiplication tables.

4×
4 1 2 3 4 5 6 7 8 9 10
28

5×
5 1 2 3 4 5 6 7 8 9 10
25
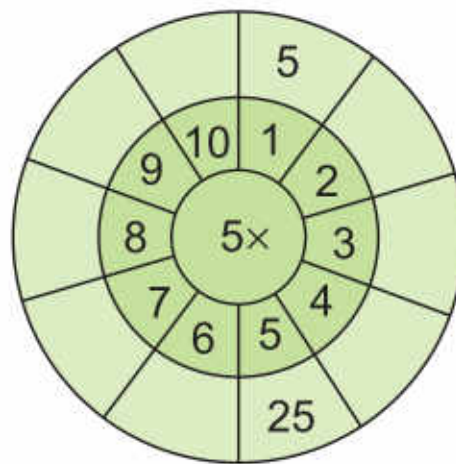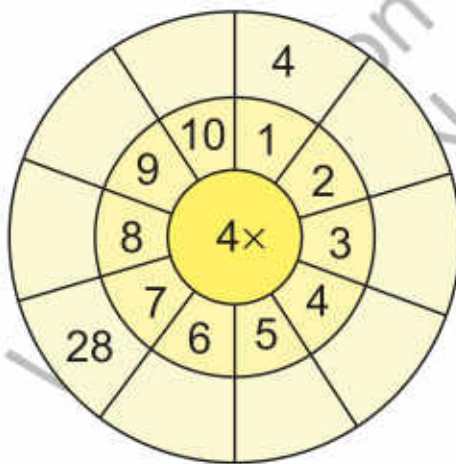
3. Multiply and fill in the boxes.

(a) 3 × 3 = 9

(b) 5 × 2 = ☐

(c) 4 × 5 = ☐

(d) 1 × 10 = ☐

(e) 7 × 4 = ☐

(f) 7 × 3 = ☐

(g) $10 \times 4 = \boxed{}$ (h) $10 \times 10 = \boxed{}$ (i) $8 \times 2 = \boxed{}$

4. Multiply the following:

(a)
$$\begin{array}{r} 3 \\ \times\,5 \\ \hline 15 \end{array}$$

(b)
$$\begin{array}{r} 6 \\ \times\,4 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 4 \\ \times\,2 \\ \hline \end{array}$$

(d)
$$\begin{array}{r} 6 \\ \times\,3 \\ \hline \end{array}$$

(e)
$$\begin{array}{r} 9 \\ \times\,4 \\ \hline \end{array}$$

(f)
$$\begin{array}{r} 8 \\ \times\,5 \\ \hline \end{array}$$

(g)
$$\begin{array}{r} 9 \\ \times\,3 \\ \hline \end{array}$$

(h)
$$\begin{array}{r} 10 \\ \times\,2 \\ \hline \end{array}$$

(i)
$$\begin{array}{r} 4 \\ \times\,4 \\ \hline \end{array}$$

(j)
$$\begin{array}{r} 7 \\ \times\,2 \\ \hline \end{array}$$

(k)
$$\begin{array}{r} 10 \\ \times\,5 \\ \hline \end{array}$$

(l)
$$\begin{array}{r} 10 \\ \times\,10 \\ \hline \end{array}$$

5. There are 6 cats. Each cat has 4 kittens. How many kittens are there in all?

6. If each flower has 9 petals then, how many petals are there in 10 flowers altogether?

7. If one bicycle has two wheels then, how many wheels do 4 bicycles have?

8. If one spider has 8 legs then, how many legs are there in 5 spiders?

I have learnt to:

- recognize multiplication as repeated addition.
- use symbol 'x' for multiplication.
- count in steps of 2, 3, 4, 5 and 10.
- read and write the multiplication tables of 2, 3, 4, 5 and 10.
- multiply numbers using multiplication tables.
- use multiplication in real life.

Vocabulary

- Repeated addition
- Multiplication
- Counting in steps
- Multiplication table

Review Exercise

1. Choose the correct options and fill in the blanks.

(i) $2 + 2 + 2 + 2 =$ _____

   (a) 2 times 2   (b) 2 times 4   (c) 4 times 2   (d) 4 times 4

(ii) 3, 6, 9, 12, _____

    (a) 13   (b) 14   (c) 15   (d) 16

(iii) $10 \times 5 =$ _____

    (a) 10   (b) 15   (c) 25   (d) 50

(iv) 7 times 3 = _____

    (a) 12   (b) 15   (c) 18   (d) 21

(v) 4, 8, 12, 16, _____, 24

    (a) 17   (b) 18   (c) 19   (d) 20

2. Count the balloons and fill in the blanks.

(a)

Total balloons = ___+___+___+___+___+___
           = _____ times _____
           = _____ × _____
           = _____

(b)

Total balloons = ___+___+___+___
           = _____ times _____
           = _____ × _____
           = _____

(c)

Total balloons = ___+___+___
           = _____ times _____
           = _____ × _____
           = _____

(d)

Total balloons = ___+___+___+___+___+___
           = _____ times _____
           = _____ × _____
           = _____

3. Complete the following:

(a) By counting in steps of 3

(3) (6) ( ) (12) ( ) ( ) (21) ( ) ( ) (30)

(b) By counting in steps of 10

(10) (20) ( ) ( ) (50) ( ) ( ) ( ) ( ) (100)

4. Match with the correct answer.

50   32   21   12

20   9×3 100

5×9

5×10

27   18 7×5 35   45

6×2

10×2

7×3

8×4

9×2

10×10

5. Multiply the following:

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

(b)
$$\begin{array}{r} 4 \\ \times\ 3 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 5 \\ \times\ 5 \\ \hline \end{array}$$

(d)
$$\begin{array}{r} 6 \\ \times\ 4 \\ \hline \end{array}$$

(e)
$$\begin{array}{r} 8 \\ \times\ 10 \\ \hline \end{array}$$

(f)
$$\begin{array}{r} 9 \\ \times\ 4 \\ \hline \end{array}$$

(g)
$$\begin{array}{r} 1 \\ \times\ 2 \\ \hline \end{array}$$

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

(i)
$$6 \\ \times\ 3$$

(j)
$$1 \\ \times 10$$

(k)
$$8 \\ \times\ 5$$

(l)
$$9 \\ \times 10$$

6. There are 10 pencils in a packet. How many pencils are there in 4 packets in all?

$$\times$$

7. If each flowerpot has 8 flowers then, how many flowers do 3 flowerpots have altogether?

$$\times$$

8. There are 5 oranges in a basket. How many oranges are there in 7 baskets in all?

$$\times$$

9. There are 7 birds sitting on the branch of a tree. Find how many legs these birds have altogether.

$$\times$$

Division

Learning Outcomes

After completing this portion, you will be able to:

- Recognize and use division symbols '÷'.
- Recognize division as successive subtraction.
- Divide numbers within the multiplication tables with remainder zero.
- Solve number stories involving division up to 1 - digit numbers.
- Solve real life situations (using Pakistani currency as well) involving addition, subtraction, multiplication, and division. Give reasons for choosing the correct operation.

How many biscuits will be there in each box?

Let us put 12 biscuits in 3 boxes equally.

OPEN

Division as Successive Subtraction

I have 6 balloons.
I shall distribute equally among all children.
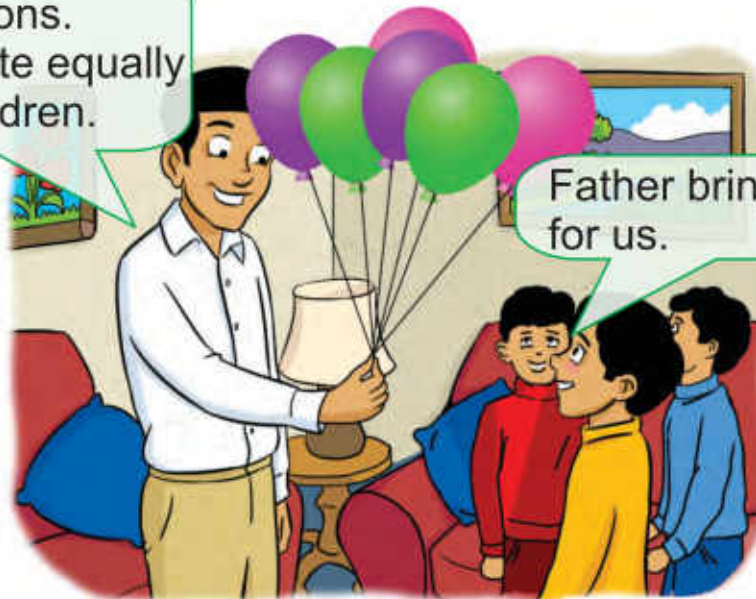
Father brings balloons for us.

The father gives 1 balloon to each child.

6 – 3 = 3

3 balloons are left with father.

Again, the father gives 1 balloon more to each child.
Now, each child has 2 balloons.
3 – 3 = 0

0 balloons are left with father.

So, each child gets 2 balloons.

2 times subtraction of 3 from 6 gets 0.
6 – 3 – 3 = 0

- For effective learning and teaching, use 'Urdu or local language' as medium of instruction to explain the concept of division.
- Demonstrate the concept of successive subtraction using teaching aids.

Divide 10 apples between 2 children using successive subtraction.

$$10$$
$$- 2 \longrightarrow \text{First time}$$
$$8$$
$$- 2 \longrightarrow \text{Second time}$$
$$6$$
$$- 2 \longrightarrow \text{Third time}$$
$$4$$
$$- 2 \longrightarrow \text{Fourth time}$$
$$2$$
$$- 2 \longrightarrow \text{Fifth time}$$
$$0$$

$10 - 2 - 2 - 2 - 2 - 2 = 0$

5 times subtraction of 2 from 10 gets 0.

So, each child gets 5 apples.

Try Yourself

Divide 20 eggs among 4 children using successive subtraction.

$$20$$
$$- 4$$
$$-$$
$$-$$
$$-$$
$$-$$
$$0$$

____times subtraction of 4 from 20, we get 0. So, each child gets____eggs.

Divide 12 balloons among 3 children using successive subtraction.

$$12$$
$$- 3$$
$$-$$
$$-$$
$$-$$
$$0$$

____times subtraction of 3 from 12, we get 0. So, each child gets____balloons.

Division

I want to distribute 8 carrots equally among 4 rabbits.

I give 1 carrot to each rabbit.

Total carrots =	8
carrots divided =	− 4
Carrots left =	4

I give 1 more carrot to each rabbit.

Remaining carrots =	4
Carrots divided =	− 4
Carrots left =	0

$8 - 4 - 4 = 0$

2 times subtraction of 4 from 8, we get 0.

We can write as,

$8 \div 4 = 2$

So, each rabbit gets 2 carrots.

Recall the table of 4 up to 2.

$2 \times 4 = 8$

Key Fact

- Division is a successive subtraction.
- The symbol of division is '÷'.

Divide the children in groups. Explain the concept of 'division as successive subtraction' using concrete objects. Let them practice by changing objects and number of children in the groups.

Exercise 1

1. Put 15 flowers equally in 3 flowerpots.

Total flowers　　　=　　15

Total flowerpots　=　　3

Flowers in each　=　　15　÷　3
flowerpot

　　　　　　　　　=

Hint

Recall the table of 3.

2. Put 24 pencils equally in 4 boxes.

Hint

Recall the table of 4.

Total pencils　　　　　　　=

Total boxes　　　　　　　　=

Pencils in each box　　　=　　　　÷

　　　　　　　　　　　　　　　=

3. Divide 20 ice-creams equally among 10 children.

Total ice-creams　　　　=

Total children　　　　　　=

Ice-creams each　　　　=　　　　÷
child gets

　　　　　　　　　　　　　　=

Hint

Recall the table of 10.

4. Make groups and fill in the blanks.

8 ÷ 4 = 2

So, each group has 2 balloons.

15 ÷ 3 =
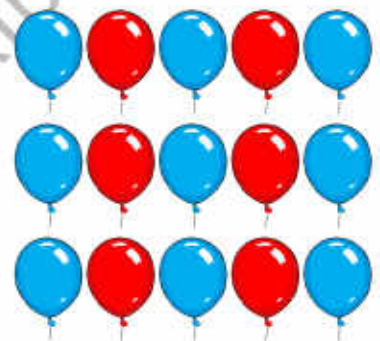
So, each group has ⬜ balloons.

24 ÷ 6 =
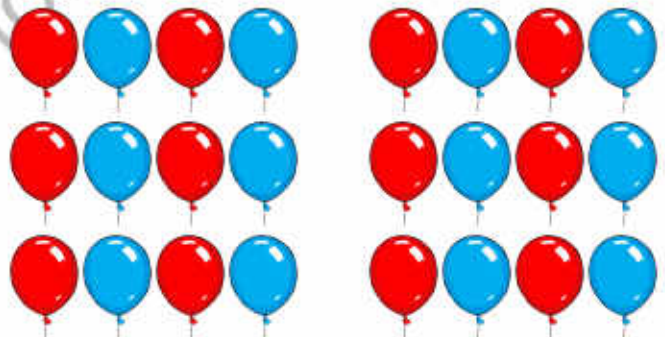
So, each group has ⬜ balloons.

18 ÷ 3 =
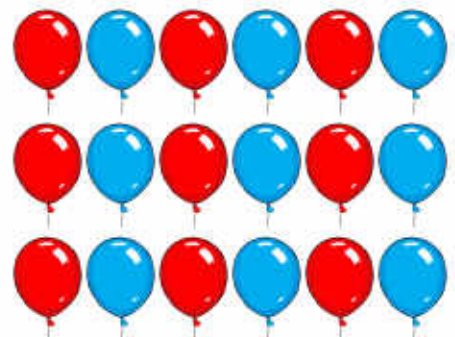
So, each group has ⬜ balloons.

5. Solve the following:

$12 \div 2 = \boxed{}$

$28 \div 4 = \boxed{}$

$40 \div 5 = \boxed{}$

$20 \div 2 = \boxed{}$

$70 \div 10 = \boxed{}$

$45 \div 5 = \boxed{}$

$100 \div 10 = \boxed{}$

$30 \div 5 = \boxed{}$

$27 \div 3 = \boxed{}$

$32 \div 8 = \boxed{}$

$50 \div 5 = \boxed{}$

$4 \div 4 = \boxed{}$
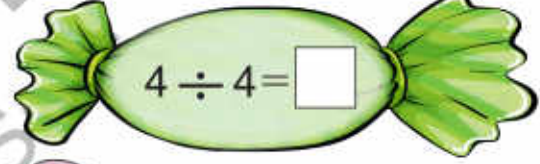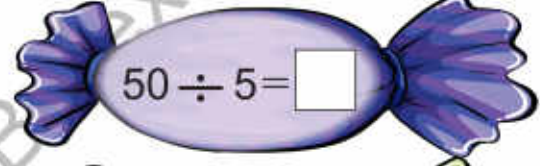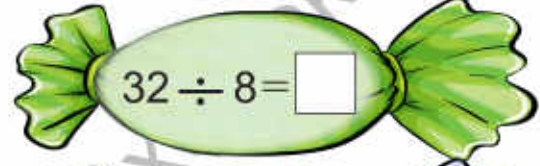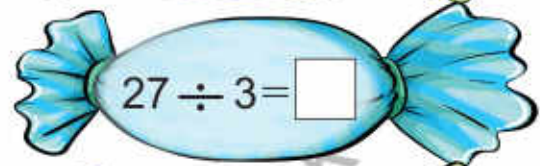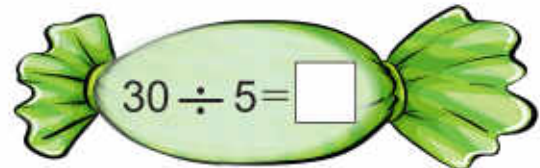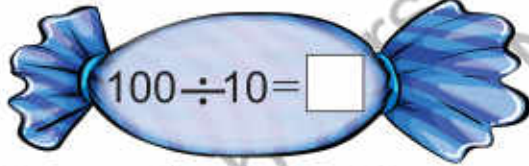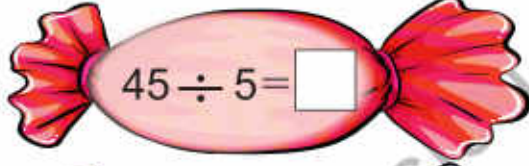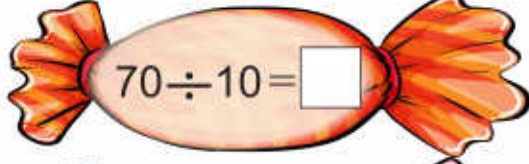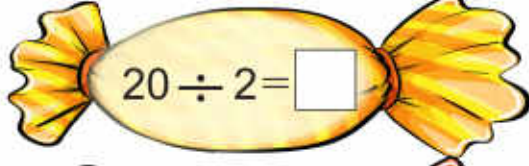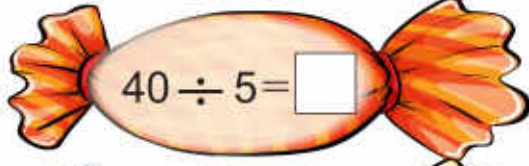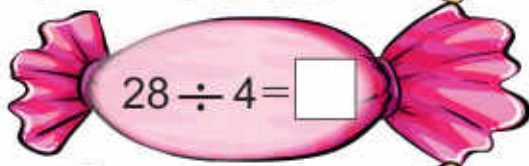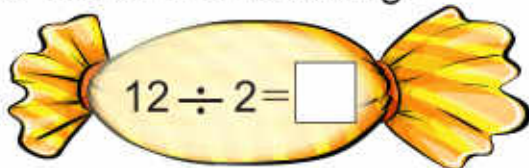
Key Fact

When any number (except zero) is divided by number itself, the result is 1.

6. Sara distributes 21 cupcakes equally among 7 friends. How many cupcakes does each friend get?

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

So, each friend gets .... cupcakes.

7. If we put 32 oranges equally in 4 baskets, how many oranges are there in each basket?

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

So, each basket has .... oranges.

Clue Words for Number Stories

Clue Words for Addition
• Total
• Altogether
• In all
• Sum
• Added to

Clue Words for Subtraction
• Left
• More than
• How many less/fewer
• Remain
• Difference

Clue Words for Multiplication
• Product
• Times
• In all
• Altogether

Clue Words for Division
• How many will each get
• How many in each group
• Shared
• Divided
• Equal/equally

Solve the number stories using following steps:

Step 1 — Read the problem carefully.

Step 2 — Underline the clue words to identify the correct operation.

Step 3 — Draw a picture, if needed.

Step 4 — Write a number sentence.

Step 5 — Solve the word problems.

Read the following word problems carefully. Solve the problem with the identification of correct operation. Write reason to choose the operation.

1. A tailor stitched 65 suits in the first month and 58 suits in the second month. How many suits did he stitch altogether?

Stitched suits in the first month	=	_____
Stitched suits in the second month	= $+$	_____
_____	=	_____

Tell the Reason

Clue word is altogether. So, we add.

2. Ahmed has Rs. 500. He buys grocery for Rs. 225. How much amount is left with Ahmed?

Total amount	=	_____
Cost of grocery	= ☐	_____
_____	=	_____

Tell the Reason

Clue word is _____.
So, we _____.

3. Ahmed has 5 books in a bag. How many books will there be in 6 such bags?

Books in bag	=	_____
Number of bags	= ☐	_____
_____	=	_____

Tell the Reason

Clue word is _____.
So, we _____.

4. Divide 27 bananas among 3 monkeys equally.

Total bananas	=	_____
Total monkeys	= ☐	_____
_____	=	_____

Tell the Reason

Clue word is _____.
So, we _____.

Help to the students to identify the correct operation using clue words. Explain to the students how to solve the words problem.

I have learnt to:

- recognize division as successive subtraction.
- use symbol '÷' for division.
- divide using the multiplication tables.
  - when any number (except zero) is divided by number itself, the result is 1.
  - when any number is divided by 1, the result is number itself.
- use division in real life situations.

Vocabulary

- Divide
- Successive subtraction
- Equally sharing

Review Exercise

1. Choose the correct options and fill in the blanks.

(i) Division is a _____.

    (a) equally add   (b) repeated multiplication

    (c) successive subtraction   (d) repeated addition

(ii) The symbol '÷' is used for _____.

    (a) addition   (b) multiplication (c) subtraction   (d) division

(iii) $100 \div 10 = $ _____

    (a) 101   (b) 100   (c) 110   (d) 10

(iv) When any number is divided by 1, the result is _____

    (a) 0   (b) 1   (c) bigger number (d) number itself

(v) $5 \div 5 = $ _____

    (a) 0   (b) 1   (c) 5   (d) 10

2. Complete the following:

```
        12
      −  4
      --------
       ------
      −  4
      --------
       ------
      − ------
      --------
         0
```

☐ ÷ ☐ = ☐

```
        20
      −  5
      --------
       -----
      −  5
      --------
       -----
      − -----
      --------
       -----
      −  5
      --------
         0
```

☐ ÷ ☐ = ☐

3. Solve the following:

(a) Divide 10 pigeons among 5 groups equally.

☐ ÷ ☐ = ☐

(b) Divide 6 toys among 3 children equally.

☐ ÷ ☐ = ☐

(c) Divide 8 balls in 2 teams equally.

☐ ÷ ☐ = ☐

(d) Divide 12 rings among 4 girls equally.

☐ ÷ ☐ = ☐

4. Solve the following:

$10 \div 10 = \square$

$8 \div 4 = \square$

$6 \div 2 = \square$

$20 \div 5 = \square$

$40 \div 10 = \square$

$25 \div 5 = \square$

$28 \div 4 = \square$

$24 \div 3 = \square$

$36 \div 4 = \square$
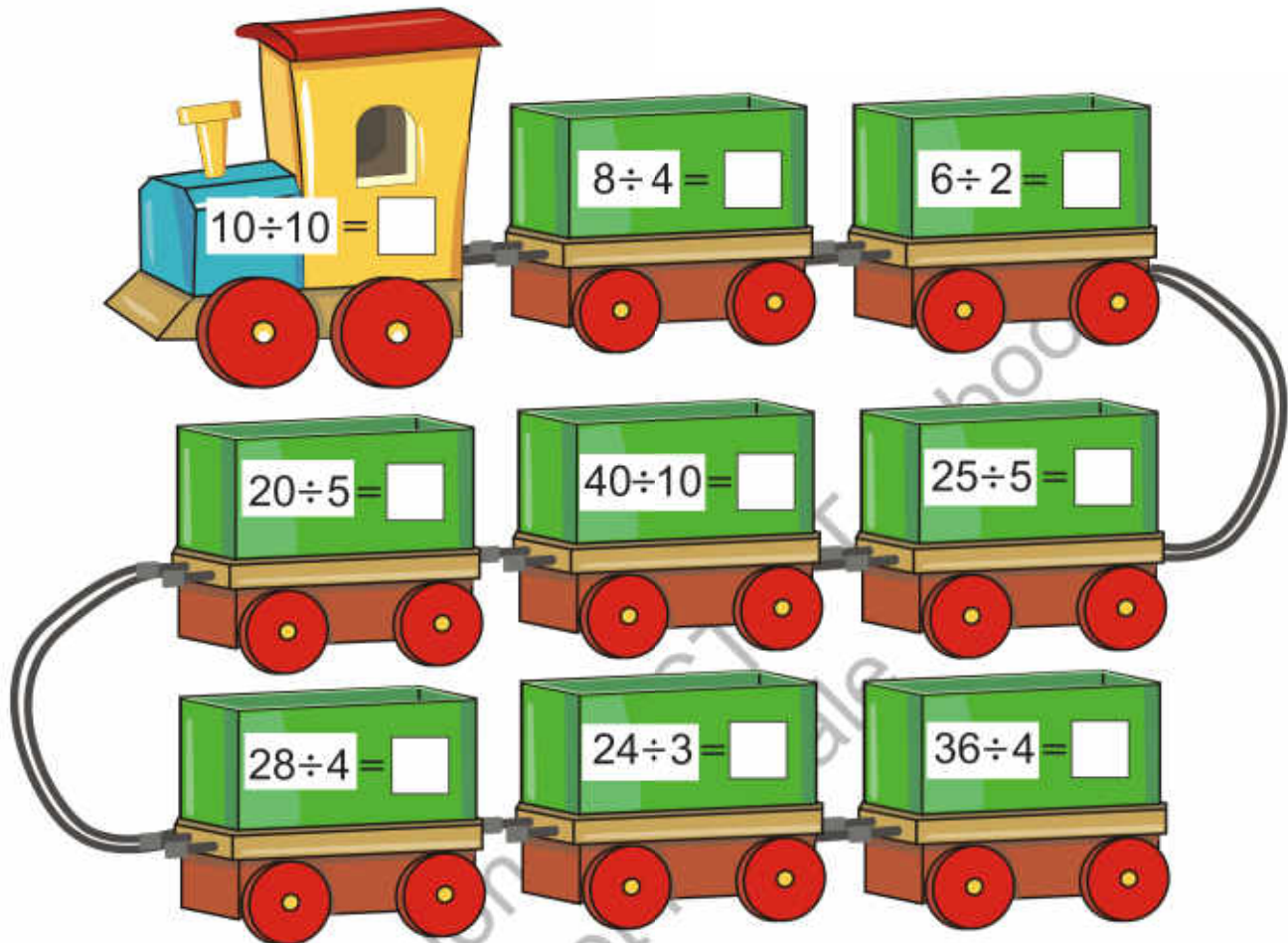
5. Ali distributes 30 chocolates equally in 5 friends. How many chocolates does each friend get?

$\square \div \square = \square$

So, each friend gets _____ chocolates.

6. Ramsha distributes 20 suites equally between 2 children. How many suits does each child get?

$\square \div \square = \square$

So, each child gets _____ suits.

Fractions

After completing this unit, you will be able to:

- Recognize fractions as equal parts of a whole.
- Identify half, one third and quarter with the help of objects and figures(without writing 1/2, 1/3, 1/4).
- Represent half, one third and quarter in numerical form (1/2, 1/3 and 1/4).
- Shade the equal parts of a given figure to match a given fraction.
- Recognize and name unit fractions up to 1/10.
- Recognize fractions like two thirds (2/3), three fourths (3/4), four fifths (4/5), up to nine tenths (9/10).

Amna

Happy Birthday

Happy Birthday

Amna divides her birthday cake into three equal parts and gives to her friends.

Fractions

Equal Parts

I divide a cake into two parts.

I divide a cake into two parts.

Hina

Raza

Who has divided cake in equal parts?

These are equal parts because the shape and size are the same.

Cake

These are unequal parts because the shape and size are not the same.
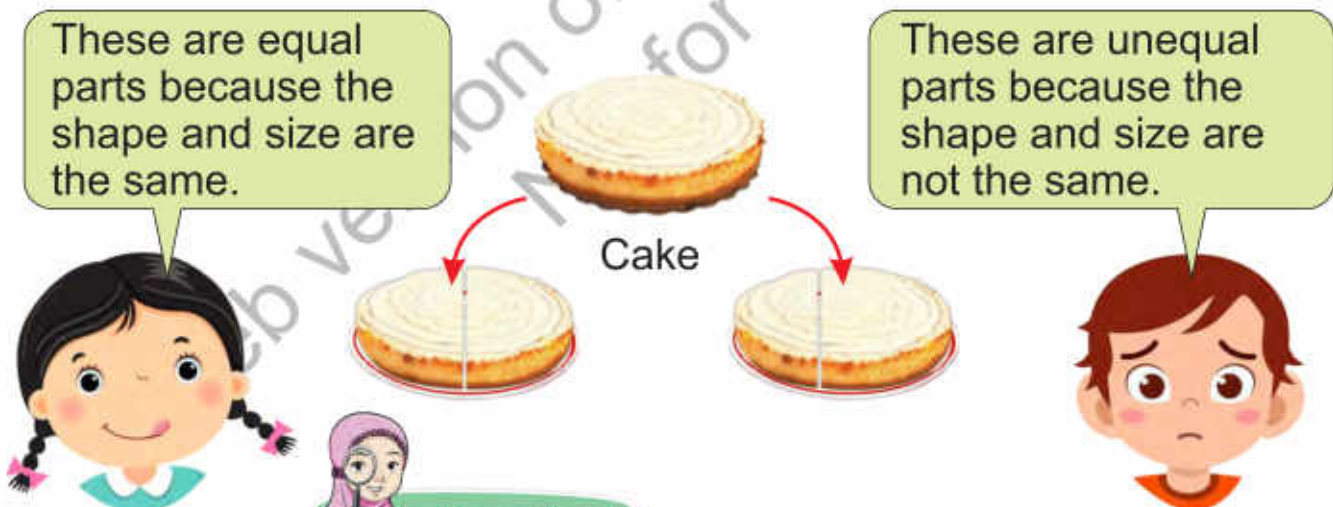
Key Fact

Equal parts have the same shape and the size.

- For effective teaching and learning, use 'Urdu or local language' as medium of instruction to explain the concept of fractions.
- Demonstrate the concept of fractions using teaching aids (pieces of paper, chart, equal wooden parts, etc).

One-half

Let us divide this pizza.

I have divided the pizza into two equal parts.

Whole pizza

Two equal parts

One-half

One-half

When something is divided into two equal parts, each equal part is called one-half.

Key Fact

Two halves together make one whole.

Try Yourself

Colour one-half of the shapes that are divided into two equal parts.
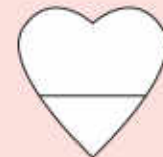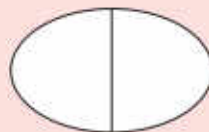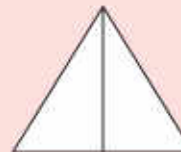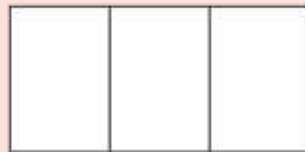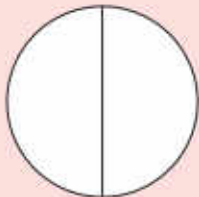
Explain the concept of one-half with the participation of students using teaching aids (chart, two equal wooden pieces, etc.).

Observe the following shapes.

Shapes which have unequal parts

Shapes which have equal parts
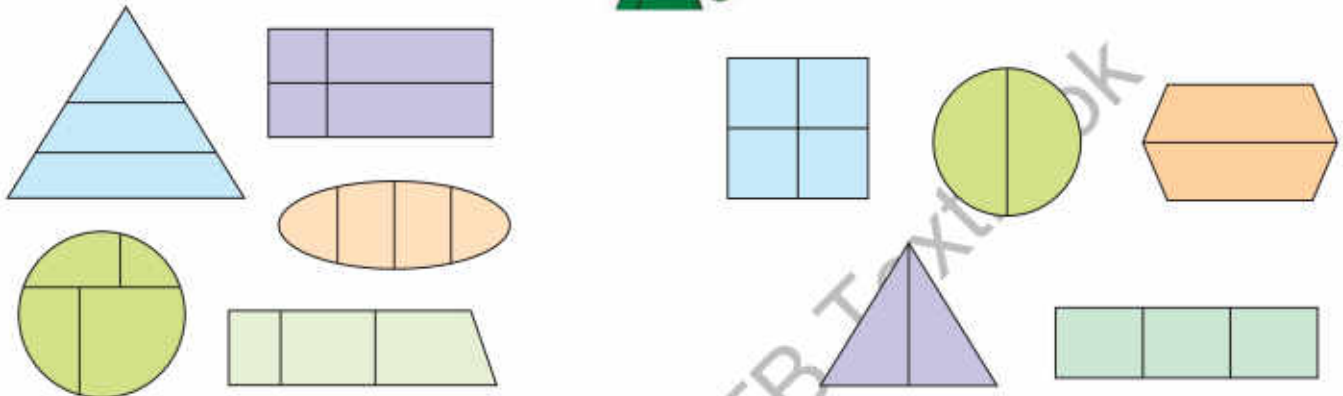
Try Yourself

1. Tick (✓) the following objects that are divided into equal parts.

(i)
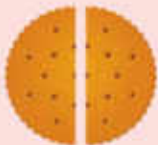
(ii)

(iii)

(iv)

2. Tick (✓) the shapes that are divided into equal parts.
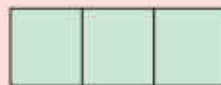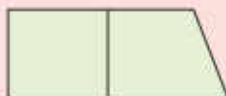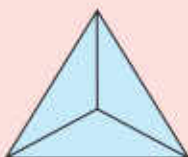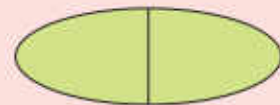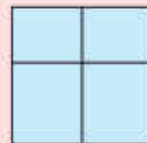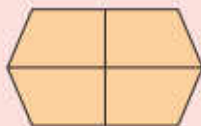
One-quarter

I have already divided a pizza into two equal parts. Now, it is further divided into more equal parts.

Whole pizza ➤ Two equal parts ➤ Four equal parts

One-quarter

One-quarter

One-quarter

One-quarter

When something is divided into four equal parts, each equal part is called one-quarter.

Key Fact

Four quarters together make one whole.

✎ **Try Yourself**

Colour one-quarter of the shapes that are divided into four equal parts.
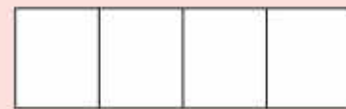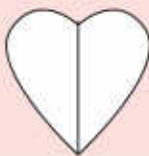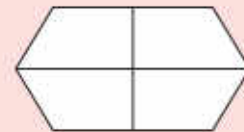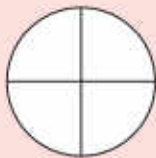
🎓 Explain the concept of one-quarter using teaching aids.

One-third

My father brought a cake. I divided the cake into three equal parts. Then, we ate the cake. The cake was delicious.

Whole cake

Three equal parts

One-third

One-third

One-third

When something is divided into three equal parts, each equal part is called one-third.

Key Fact

Three thirds together make one whole.

Try Yourself

Colour one-third of the shapes that are divided into three equal parts.
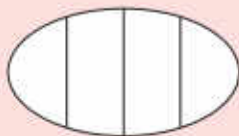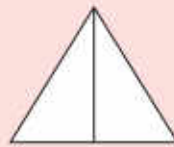
Explain the concept of one-third using teaching aids.

Fraction in Numerical Form

A triangle has two equal parts. One part is coloured which represents one-half. It is written as $\frac{1}{2}$.

$\frac{1}{2}$
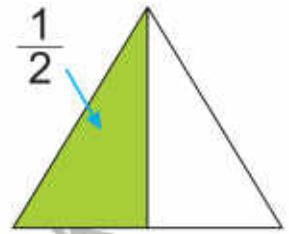
$\frac{1}{3}$
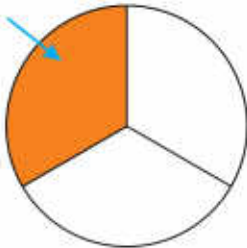
A circle has three equal parts. One part is coloured which represents one-third. It is written as $\frac{1}{3}$.

$\frac{1}{4}$

A square has four equal parts. One part is coloured which represents one-quarter. It is written as $\frac{1}{4}$.
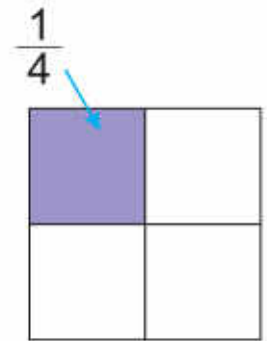
Try Yourself

Colour one part of each shape and write fraction for the coloured part.

$\frac{1}{2}$
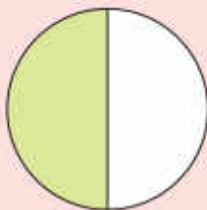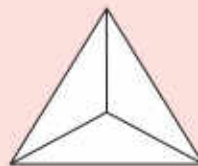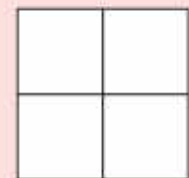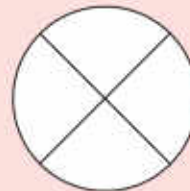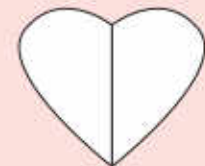
Students have learnt the concept of fractions. So, explain the numerical form of fraction and tell them how to write fractions.

Fractions from $\frac{1}{2}$ to $\frac{1}{10}$

Figure	Number of parts	Name of Fraction	Fraction
	2	One-half	$\frac{1}{2}$
	3	One-third	$\frac{1}{3}$
	4	One-fourth	$\frac{1}{4}$
	5	One-fifth	$\frac{1}{5}$
	6	One-sixth	$\frac{1}{6}$
	7	One-seventh	$\frac{1}{7}$
	8	One-eighth	$\frac{1}{8}$
	9	One-ninth	$\frac{1}{9}$
	10	One-tenth	$\frac{1}{10}$

Try Yourself

Can two quarters together make a whole?
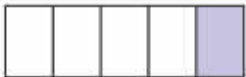
Explain the fractions ($\frac{1}{2}$ to $\frac{1}{10}$) by drawing figures on the board (or by using flashcards or charts).

Exercise 1
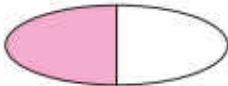
1. Match the shape with the given fraction.
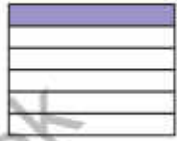
(a)
$\dfrac{1}{3}$

$\dfrac{1}{4}$
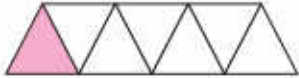
$\dfrac{1}{2}$

$\dfrac{1}{5}$
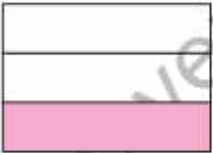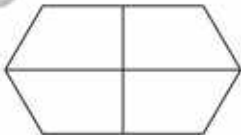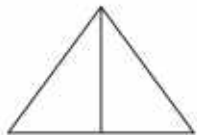
(b)
$\dfrac{1}{7}$
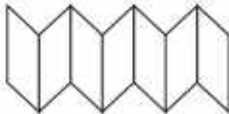
$\dfrac{1}{9}$
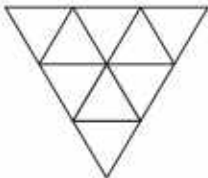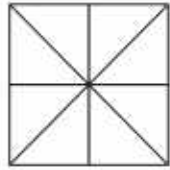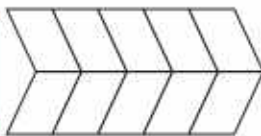
$\dfrac{1}{8}$

$\dfrac{1}{6}$

2. Colour one part of each shape and write fraction for the coloured part.

(a) $\dfrac{1}{3}$

(b)

(c)

(d)

(e)

(f)

(g)

(h)

(i)

More About Fractions
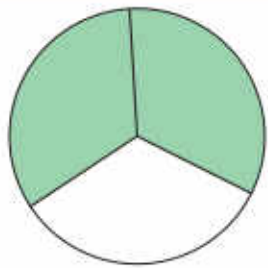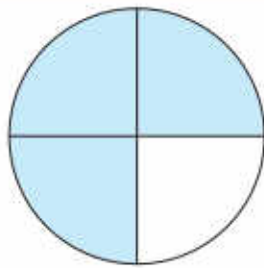
|		
$\frac{2}{3}$ Two-thirds	$\frac{3}{4}$ Three-forths	$\frac{4}{5}$ Four-fifths
$\frac{5}{6}$ Five-sixths	$\frac{6}{7}$ Six-sevenths	$\frac{7}{8}$ Seven-eights
$\frac{8}{9}$ Eight-ninths	$\frac{9}{10}$ Nine-tenths	
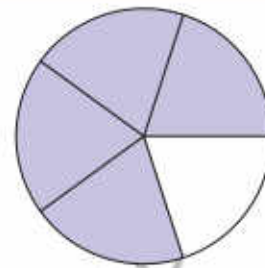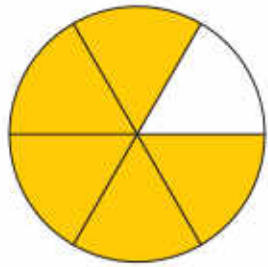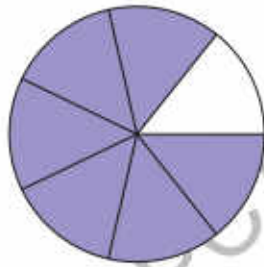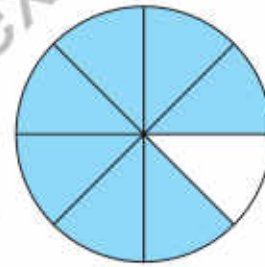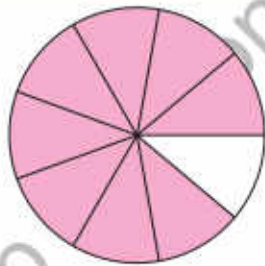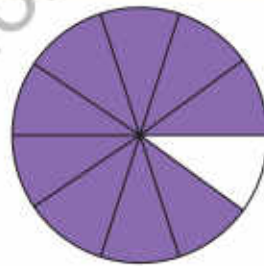
$$\text{Fraction of coloured parts} = \frac{\text{Number of coloured parts}}{\text{Total number of equal parts}}$$

Ask the students to learn the names of fractions using teaching aids (charts, flashcards, etc) and also explain with figures.

Exercise 2

1. Look at the coloured part of each shape and write the fraction.

(a) $\dfrac{2}{5}$

(b)

(c)

(d)

(e)

(f)

(g)

(h)

(i)
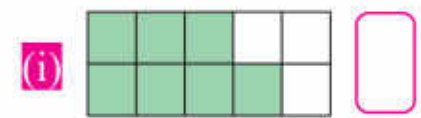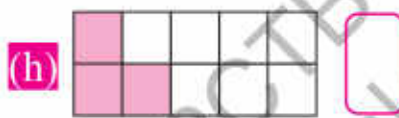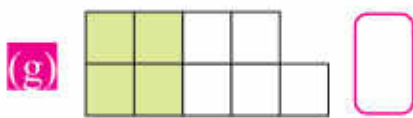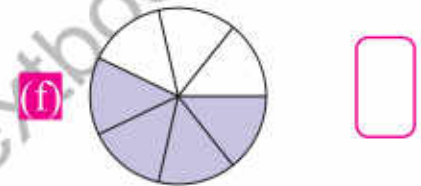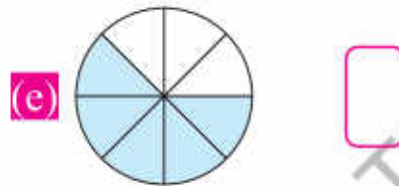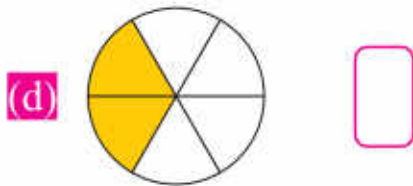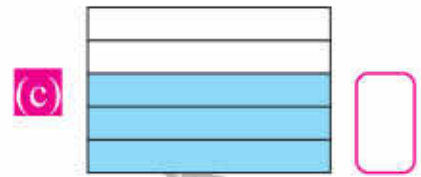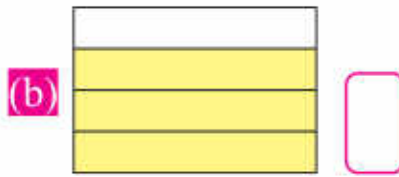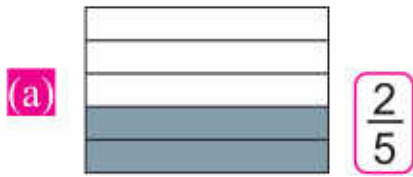
2. Colour the shape for the given fraction.

(a) $\dfrac{3}{5}$

(b) $\dfrac{5}{6}$

(c) $\dfrac{3}{4}$

(d) $\dfrac{7}{8}$

(e) $\dfrac{2}{7}$

(f) $\dfrac{5}{10}$

(g) $\dfrac{6}{10}$

(h) $\dfrac{7}{9}$

(i) $\dfrac{9}{10}$
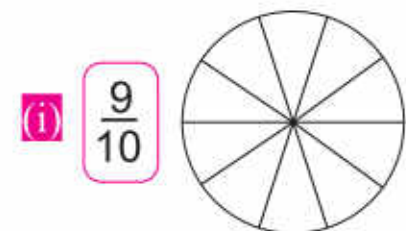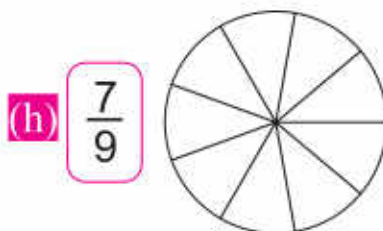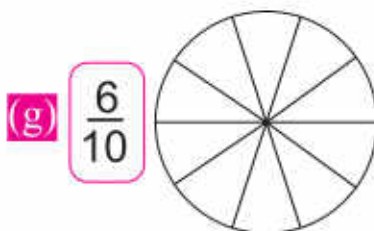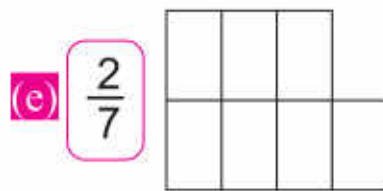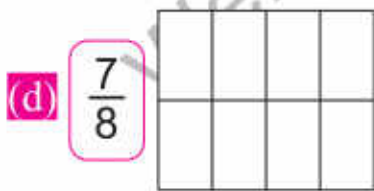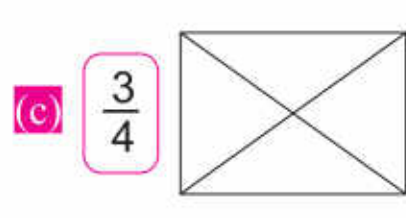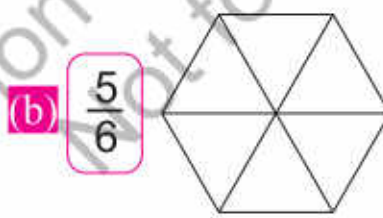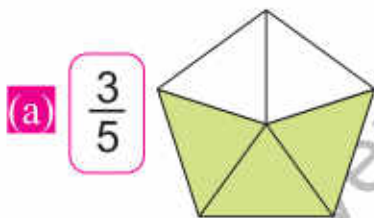
I have learnt to:

- recognize fractions as equal parts of a whole.
- identify half, one third and quarter with the help of objects and figures(without writing 1/2, 1/3, 1/4).
- represent half, one third and quarter in numerical form (1/2, 1/3 and 1/4).
- shade the equal parts of a given figure to match a given fraction.
- recognize and name unit fractions up to 1/10.
- recognize fractions like two thirds (2/3), three fourths (3/4), four fifths (4/5), up to nine tenths (9/10).

Vocabulary

- Fraction
- One-half
- One-third
- One-quarter

Review Exercise

1. Choose the correct options and fill in the blanks.

(i) One-quarter is written as _____.

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) $\frac{4}{1}$

(ii) [figure] The coloured parts of the shape represent _____.

(a) $\frac{3}{7}$ (b) $\frac{7}{4}$ (c) $\frac{7}{3}$ (d) $\frac{4}{7}$

(iii) Equal parts have the same shape and the same _____.

(a) length   (b) size   (c) colour   (d) width

(iv) _____ is called four-fifths.

(a) $\dfrac{4}{5}$ (b) $\dfrac{5}{4}$ (c) $\dfrac{4}{6}$ (d) $\dfrac{5}{6}$

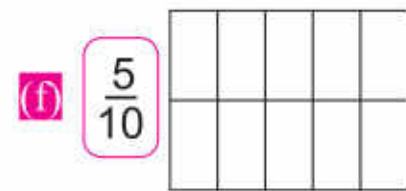(v) _____ $= \dfrac{\text{Number of coloured part}}{\text{Total number of equal part}}$

(a) One-half (b) One-third (c) One-quarter (d) Fraction of coloured parts

2. Colour the shapes that are divided into halves.
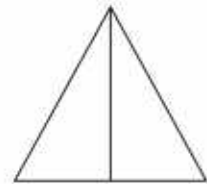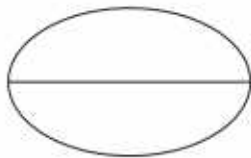
3. Match the coloured shapes with the correct fraction.
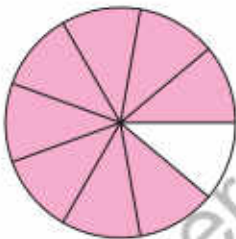
$\dfrac{3}{4}$
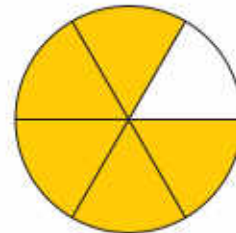
$\dfrac{1}{5}$
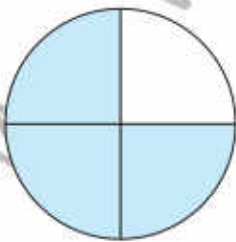
$\dfrac{2}{7}$
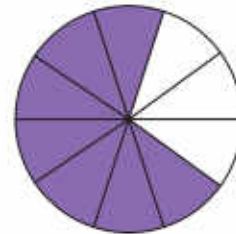
$\dfrac{8}{9}$
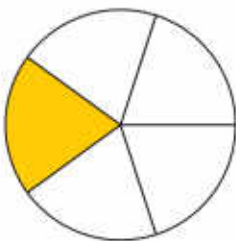
$\dfrac{5}{6}$
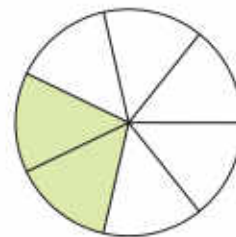
$\dfrac{7}{10}$

4. Look at the fraction and colour each shape.

(a) $\dfrac{1}{2}$

(b) $\dfrac{1}{3}$

(c) $\dfrac{1}{4}$

(d) $\dfrac{5}{6}$

(e) $\dfrac{3}{5}$

(f) $\dfrac{7}{9}$
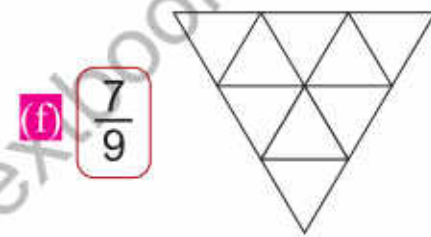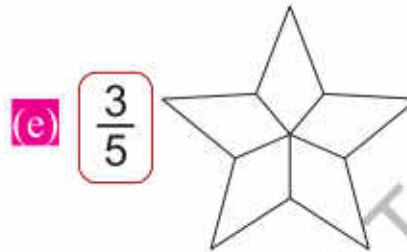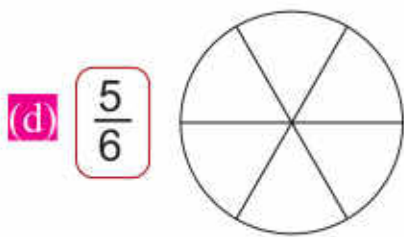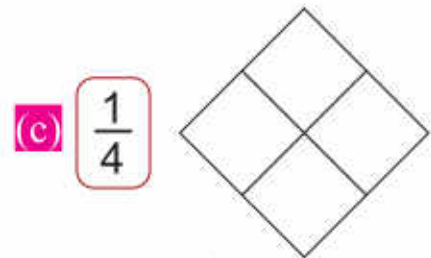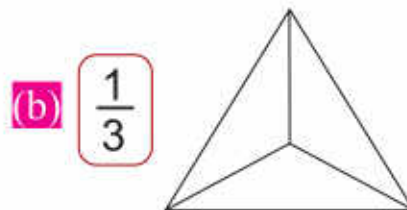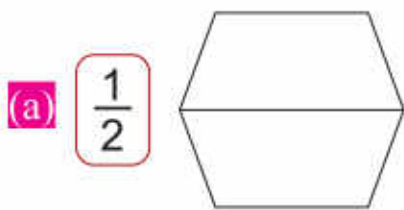
5. Write the fraction for the coloured part of each shape.

Hint

Count the coloured parts and write the fraction.

(a)

(b)

(c)

(d)

(e)

(f)
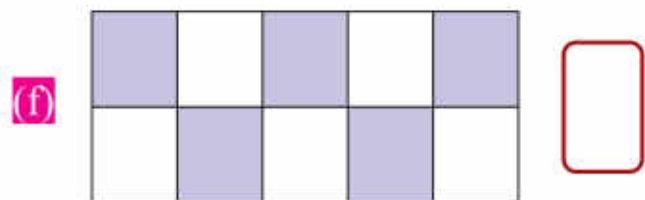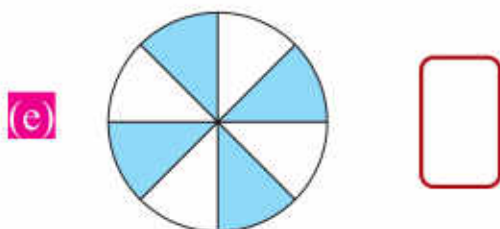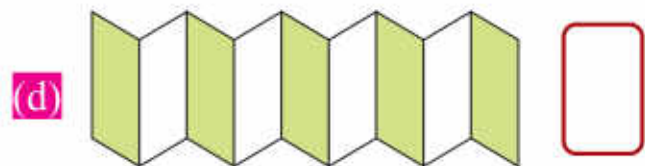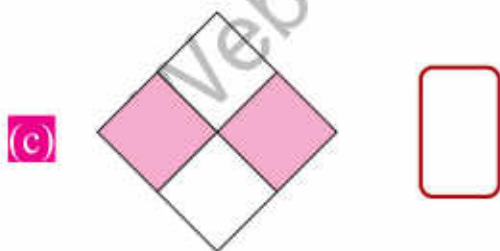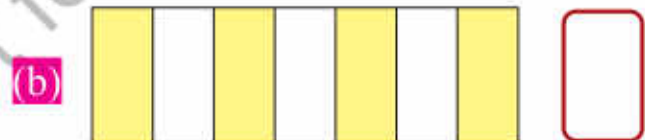
Measurement
Length, Mass and Capacity

Learning Outcomes

After completing this unit, you will be able to:

- Compare the lengths of different objects.
- Recognize the units of length (metre and centimetre).
- Use standard metric units of length (metre and centimetre) and their abbreviation to measure and record lengths of variety of objects.
- Use addition and subtraction within 100 to solve real life situations involving lengths in same units.
- Compare the mass of different objects.
- Recognize the units of mass, i.e. kilogram, gram.
- Use standard metric units of mass (kilograms and grams) and their abbreviation to measure and record mass of variety of objects.
- Use addition and subtraction within 100 to solve real life situations involving mass in same units.
- Compare capacity of different objects using nonstandard units (jug, glass, cup, etc.).
- Recognize and use the standard metric units of capacity, i.e. litre and millilitre.
- Use addition and subtraction within 100 to solve real life situations involving capacity in same units.

My mother is taller than I.
Is there any instrument with
which we can measure our
heights?

Length

How much longer is the car than the motorbike?
How can we find?

The car is longer than the motorbike.

To measure the exact length of objects, we need the standard units of length.

Metre

Metre is the standard unit of length. The symbol 'm' is used for metre.

The length of rope, wire, ribbon, table, etc., are measured in metres.

Key Fact

The length, width and height of longer objects are measured in metres.

For effective teaching and learning, use 'Urdu or local language' as medium of instruction to explain the concepts of measurement.

How much longer is the blue pencil than the red pencil?

Can we use metre scale to measure the length of a pencil?
No, let us learn how to measure the length of shorter objects.

Centimetre

Centimetre is also the unit of length. The symbol 'cm' is used for centimetre.

The ruler is divided into 15 equal parts. The length of each part is 1 cm.

The length of pencil, notebook, chocolate, etc are measured in centimetres.

The length of chocolate is 8 cm.
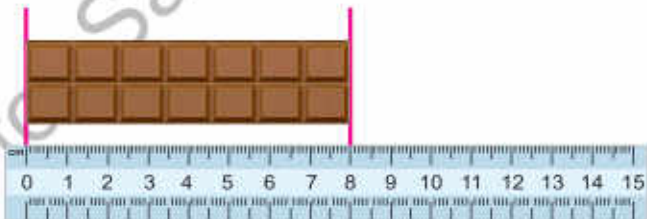
Key Fact

- Centimetres are used to measure the lengths of shorter objects.
- 1m = 100 cm

Class Activity

Measure and record the lengths of objects which are in the classroom using metre rod and ruler.

Length of the longest object in the classroom = —————————

Length of the shortest object in the classroom = —————————

- Help the children to measure the lengths of short objects (pencil, eraser, sharpener, notebook, etc) using ruler.
- To perform the classroom activity, measure the lengths of objects (board, door, notebook, pencil, etc).

Exercise 1

1. Which of the following objects can be measured in metres (m) or centimetres (cm)?

i. The length of a table

ii. The length of your notebook

iii. The length of school bus

iv. The length of cricket bat

v. The length of your lunch box

vi. The length of a tissue box

2. (a) Write the lengths of the given objects.

i. The length of the pencil _____

ii. The length of the key   _____

iii. The length of the toothbrush   _____

iv. The length of the eraser   _____
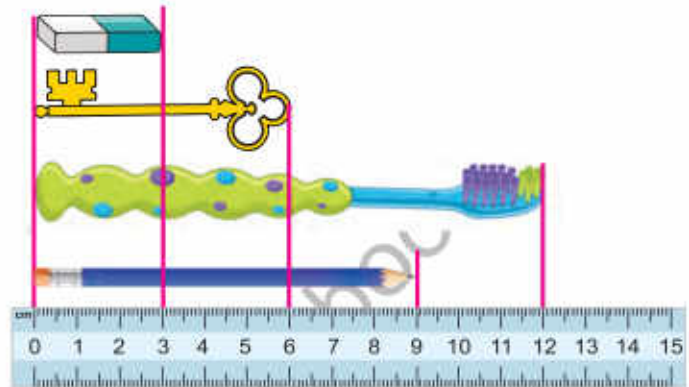
(b). Read the lengths of the above objects and fill in the blanks.

i. The pencil is longer than the _____.

ii. The toothbrush is longer than the _____.

iii. The key is shorter than the _____.

iv. The eraser is shorter than _____.

Try Yourself

In your school bag, find an object which is smaller than your eraser and measure its length.

3. Measure the lengths of the following objects using ruler.

_____ cm   _____ cm   _____ cm

Addition and Subtraction of Lengths

I have 25 cm long red ribbon and 18 cm long green ribbon. What is the total length of both ribbons?

Length of the red ribbon =	2 5 cm
Length of the green ribbon =	+ 1 8 cm
Total length =	4 3 cm

So, the total length of both ribbons is 43 cm.

Also tell which ribbon is longer and how much?

Length of the red ribbon =	2 5 cm
Length of the green ribbon =	− 1 8 cm
Difference in lengths =	7 cm

So, the red ribbon is longer and 7cm longer than the green ribbon.

Observe the following:

5 3 m	7 2 cm
+ 2 9 m	− 3 4 cm
8 2 m	3 8 cm

Addition and subtraction of lengths are same as addition and subtraction of whole numbers. Tell the students to write the units of length when adding and subtracting the lengths.

Exercise 2

1. Solve the following:

(a)
$$10\ m + 8\ m$$

(b)
$$16\ m + 14\ m$$

(c)
$$39\ cm + 24\ cm$$

(d)
$$50\ cm + 17\ cm$$

(e)
$$48\ m + 43\ m$$

(f)
$$67\ cm + 27\ cm$$

(g)
$$79\ m + 12\ m$$

(h)
$$89\ cm + 8\ cm$$

2. Solve the following:

(a)
$$15\ m - 6\ m$$

(b)
$$28\ m - 12\ m$$

(c)
$$57\ cm - 28\ cm$$

(d)
$$40\ cm - 13\ cm$$

(e)
$$71\ m - 32\ m$$

(f)
$$69\ cm - 19\ cm$$

(g)
$$85\ m - 58\ m$$

(h)
$$98\ cm - 29\ cm$$

3. Nadia bought 18 m of white cloth and 15 m of green cloth. How much cloth did Nadia buy altogether?

So, Nadia bought _____ m cloth altogether.

4. The length of Ahmad's lunch box is 24 cm and the length of his brother's lunch box is 18cm. Which lunch box is longer and how much?

So, _____ lunch box is longer and _____ long.

Mass

How much heavier is the flour bag than the watermelon?
How will we find?

Flour

To measure the accurate mass of objects, we need the standard unit of mass.

Kilogram

The standard unit of mass is kilogram. The symbol 'kg' is used for kilogram. It is used to measure the mass of heavy objects like flour bag, watermelon, etc.

To measure the mass of heavy objects, we use different type of balances and weighing machines.

00 kg   00 kg

Flour

6 kg   10 kg

The mass of watermelon is 6 kg.

The mass of flour is 10 kg.

Key Fact

Kilogram is used to measure the mass of heavy objects.

So, the mass of flour bag is 4 kg more than the watermelon.

Measure the mass of classroom objects using weighing machine and teach them using participatory approach.

The book is heavier than the pencil.
How much heavier is the book?
How can we find it?

Let us learn how we measure the mass of lighter objects.

Gram

Gram is the unit of mass. The symbol 'g' is used for gram. It is used to measure the mass of lighter objects like pencil, biscuit, etc.

To measure the mass of lighter objects, we use different type of balances and weighing machines.
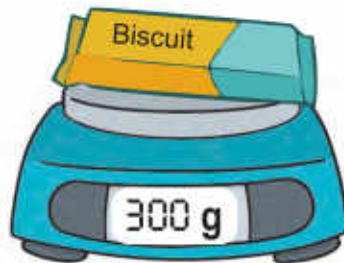
The mass of biscuit pack is 300 g.

Key Fact

- Gram is used to measure the mass of lighter objects.
- 1 kg = 1000 g

Class Activity

Measure and record the mass of school bags of students in the classroom using a weighing machine.

The mass of the heaviest school bag = ...

The mass of the lightest school bag = ...

Tell the students that in our daily life the word 'weight' is also used instead of 'mass'.

Exercise 3

1. In the following objects, which will be measured in kilograms (kg) and which will be measured in grams (g)?

i. The mass of a biscuit. ☐

ii. The mass of apples. ☐

iii. The mass of a geometry. ☐

iv. The mass of Mangos. ☐

v. The mass of a sugar bag. ☐

2. Read and write the mass in the given boxes.

250 g ☐

2 kg ☐

80 g ☐

4 kg ☐
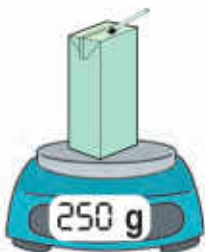
Try Yourself

Read the mass of a watermelon and salt. Which is heavier? Write its name.

Salt 500 g

2 kg

_____

Addition and Subtraction of Masses

My father bought 20 kg apples and 15 kg guavas. What is the total mass of fruits?

Mass of the apples =	2 0	kg
Mass of the guavas =	+ 1 5	kg
Total mass of fruits =	3 5	kg

So, the total mass of fruits is 35 kg.

Also tell which fruit has more mass and how much?

Mass of the apples =	2 0	kg
Mass of the guavas =	− 1 5	kg
Difference in mass =	5	kg

So, mass of the apples is 5 kg more than the guavas.

Observe the following:

```
  ¹4 5 g
+   1 7 g
    6 2 g
```

```
  6 6 g
−  2 8 g
   3 8 g
```

Addition and subtraction of masses are same as the addition and subtraction of whole numbers. Tell the students to write units of mass when adding and subtracting the masses.

Exercise 4

1. Solve the following:

(a)
```
  1 6 kg
+     9 kg
```

(b)
```
  2 7 kg
+ 1 9 kg
```

(c)
```
  4 0 g
+ 3 0 g
```

(d)
```
  5 3 g
+ 2 7 g
```

(e)
```
  6 3 kg
+ 2 9 kg
```

(f)
```
  4 6 g
+ 3 6 g
```

(g)
```
  7 2 g
+ 2 7 g
```

(h)
```
  8 5 kg
+     9 kg
```

2. Solve the following:

(a)
```
  1 8 kg
−     9 kg
```

(b)
```
  3 5 kg
− 1 6 kg
```

(c)
```
  4 2 g
− 2 3 g
```

(d)
```
  6 0 g
− 2 5 g
```

(e)
```
  6 7 kg
− 2 9 kg
```

(f)
```
  5 1 g
− 2 2 g
```

(g)
```
  8 8 g
− 4 9 g
```

(h)
```
  9 9 kg
− 3 6 kg
```

3. Maryam bought 60 g red pepper and 35 g black pepper. Tell the total mass both peppers.

So, the total mass of both peppers is _____.

4. A grocer buys 85 kg potatoes. He sells 48 kg potatoes. How much potatoes are left?

So, _____ potatoes are left.

Capacity

I fill three glasses of water with a jug.

The jug holds more water.
The glass holds less water than the jug.

The bucket holds more water than the bowl.

Key Fact

The larger the container, the more capacity it will have.

Try Yourself

Tick (✓) the container which has more capacity.

Demonstrate to the students to fill glasses of water with a jug. Explain the capacity of different containers.

Standard Unit of Capacity

A teapot holds more tea than a cup. How can we find that the teapot holds more tea?

To measure accurate capacity of the containers, we need the standard units of capacity.

Litre

Litre is the standard unit of capacity.
The symbol 'ℓ' is used for litre.
Water, milk and petrol are measured in litres.

Millilitre

Millilitre is also the unit of capacity.
The symbol 'mℓ' is used for millilitre.
It is used to measure the capacity of small containers.
The capacity of glass, cup, etc are measured in millilitres.

Key Fact

- The capacity of large containers is measured in litres and the capacity of small containers is measured in millilitres.
- $1\ell = 1000\ m\ell$

Exercise 5

1. In the following containers, what will be measured in litres (ℓ) and what will be in millilitres (mℓ)?

i. The capacity of a tub `ℓ`

ii. The capacity of a cup

iii. The capacity of a spoon

iv. The capacity of a jug

v. The capacity of an inkpot

2. Encircle the containers that have capacity in litres.

Addition and Subtraction of Capacity

I live in a village. My cow gives 12 ℓ of milk in the morning and 9 ℓ of milk in the evening. How much milk cow gives in one day.

	①	
The quantity of milk in the morning =	1	2 ℓ
The quantity of milk in the evening = +		9 ℓ
Total quantity of milk =	2	1 ℓ

So, the cow gives 21 ℓ of milk in a day.

I know, my cow gives more milk in the morning. How much more milk?

	⓪ ⑩	
The quantity of milk in the morning =	1̸	2 ℓ
The quantity of milk in the evening = −		9 ℓ
Difference in quantity =		3 ℓ

So, the cow gives 3 ℓ more milk in the morning.
Observe the following:

```
  ①
  3 5 mℓ
+ 4 6 mℓ
───────
  8 1 mℓ
```

```
  ③ ⑩
  4̸ 3 mℓ
− 1 6 mℓ
───────
  2 7 mℓ
```

Addition and subtraction of capacities is same as the addition and subtraction of whole numbers. Tell the students to write the units of capacity when adding and subtracting the capacities.

Exercise 6

1. Solve the following:

(a)
```
    2 2 mℓ
  + 1 4 mℓ
```

(b)
```
    3 8 ℓ
  + 1 5 ℓ
```

(c)
```
    4 0 mℓ
  + 1 8 mℓ
```

(d)
```
    5 4 mℓ
  + 3 7 mℓ
```

(e)
```
    7 1 ℓ
  + 1 9 ℓ
```

(f)
```
    6 5 mℓ
  + 2 5 mℓ
```

(g)
```
    8 5 ℓ
  + 1 0 ℓ
```

(h)
```
    4 9 mℓ
  + 4 9 mℓ
```

2. Solve the following:

(a)
```
    1 1 mℓ
  −   9 mℓ
```

(b)
```
    2 0 ℓ
  − 1 2 ℓ
```

(c)
```
    3 2 mℓ
  − 1 3 mℓ
```

(d)
```
    5 5 mℓ
  − 2 6 mℓ
```

(e)
```
    7 3 ℓ
  − 4 8 ℓ
```

(f)
```
    6 7 mℓ
  − 2 8 mℓ
```

(g)
```
    8 1 ℓ
  − 5 9 ℓ
```

(h)
```
    9 0 mℓ
  − 4 5 mℓ
```

3. Irfan put 18 ℓ of petrol on Monday and 14 ℓ of petrol on Tuesday in his car. How much total petrol did he put in his car in two days?

4. A milkman bought 75 ℓ of milk and sold 68 ℓ of milk. How much milk is left with him?

I have learnt to:

- compare the length of different objects.
- recognize the metre and centimetre as the standard units of length.
- add and subtract the standard units of length.
- use the standard units of length in real life.
- compare the mass of different objects.
- recognize the kilogram and gram as the standard unit of mass.
- add and subtract the standard units of mass.
- use the standard units of mass in real life.
- compare the capacity of different objects.
- recognize the litre and millilitre as the standard units of capacity.
- add and subtract the standard units of capacity.
- use the standard units of capacity in real life.

Vocabulary
- Length
- Metre
- Centimetre
- Mass
- Kilogram
- Gram
- Capacity
- Litre
- Millilitre

Review Exercise

1. Choose the correct options and fill in the blanks.

(i) The height of a tree is measured in _____.

(a) millilitres   (b) litres   (c) kilograms   (d) metres

(ii) The standard unit of capacity is _____.

(a) metre   (b) litre   (c) gram   (d) kilogram

(iii) The symbol of kilogram is _____.

(a) g   (b) mℓ   (c) kg   (d) m

(iv) The length of short objects is measured in _____.

(a) millilitres   (b) centimetres   (c) grams   (d) metres

(v) Kilogram is the standard unit of _____.

(a) length   (b) width   (c) capacity   (d) mass

2. Tick (✓) the suitable unit to measure the following objects:

The mass of packet of chips	g	kg
The length of geometry box	cm	m
The capacity of a water tank	mℓ	ℓ
The height of a pole	cm	m
The mass of a chair	g	kg

3. Solve the following:

(a)
```
  3 7 cm
+ 1 8 cm
```

(b)
```
  8 3 kg
+ 1 6 kg
```

(c)
```
  5 9 mℓ
+ 2 9 mℓ
```

(d)
```
  6 7 g
+ 1 3 g
```

4. Solve the following:

(a)
```
  6 5 mℓ
− 5 6 mℓ
```

(b)
```
  9 3 ℓ
− 4 7 ℓ
```

(c)
```
  7 7 kg
− 5 8 kg
```

(d)
```
  9 1 m
− 2 2 m
```

5. A shopkeeper bought 80 ℓ of ice-cream. He sold 52 ℓ of ice-cream in a day. How much ice-cream was left with him?

_____ = _____

_____ = _____

_____ = _____

6. The mass of a wheat bag is 15 kg more than a rice bag. If the mass of the rice bag is 48 kg, then find the mass of the wheat bag.

_____ = _____

_____ = _____

_____ = _____

Wheat

Rice

7. The length of a red wire is 90 m while the length of a yellow wire is 72 m. Which wire is longer and how much?

_____ = _____

_____ = _____

_____ = _____
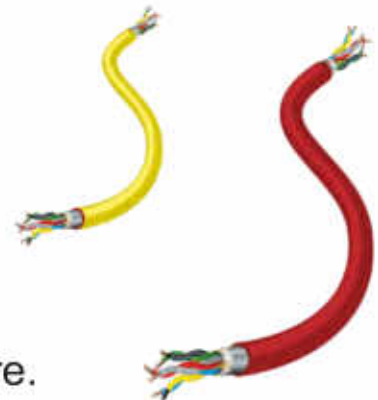
So, _____ wire is longer.

It is _____ longer than the _____ wire.

Unit 5

Time

Learning Outcomes

After completing this unit, you will be able to:

- Recognize the number of hours in a day and number of minutes in an hour.
- Read and write the time from a clock in hours and minutes (with five-minute intervals).
- Recognize a.m. and p.m.
- Draw hands of a clock to show time in hours and minutes (with five minutes intervals).
- Use Solar calendar to find a particular date/day.
- Use Islamic calendar to find a particular date/day.

Amna goes to school at 7 o'clock in the morning.

She does her homework at 5 o'clock in the evening.

Is there any difference in writing the time of morning and evening?
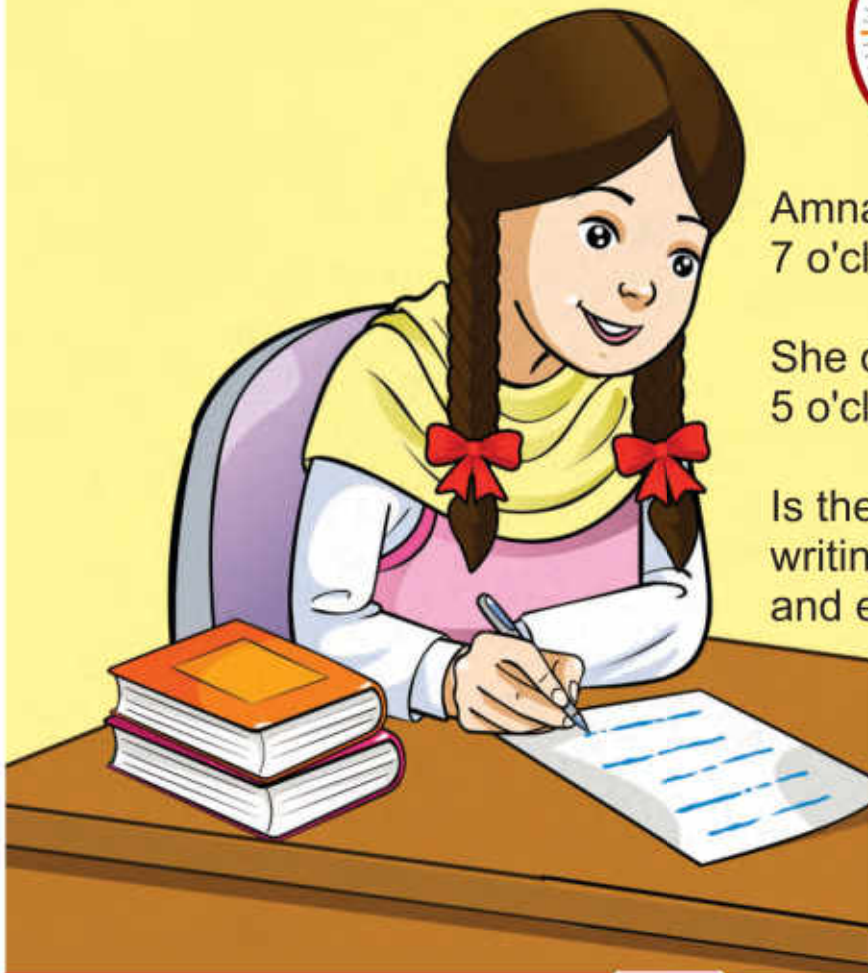
Hours and Minutes

Ahmad takes breakfast and goes to school.
Can you write the time of the clock?
Let us write the time of the clock.
Look at the clock carefully.

The dial of the clock is divided into 12 big parts. Each big part is further divided into 5 equal small parts. One small part represents one minute.

The dial of the clock is divided into 60 equal small parts.
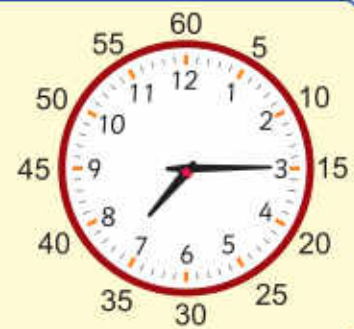
The minute hand moves from one number to the other number in 5 minutes.
When the minute hand completes one round in 60 minutes, then the hour hand moves to the next number. So, there are 60 minutes in an hour.

Key Fact

60 minutes = 1 hour
24 hours   = 1 day

There are 24 hours in a day because hour hand completes two rounds in a day.

- For effective teaching and learning, use 'Urdu or local language' as medium of instruction to explain the concept of time.
- Demonstrate about the minute and hour hands using a big clock.

Reading and Writing the Time

Let us learn to read and write time.
The hour hand is at 6. The minute hand is at 2. It means that 10 minutes have passed. So, the time is 6:10. We read it as 'six ten'.

1:45
One forty-five

3:20
Three twenty

✏️ Try Yourself

Write the time for each clock.

:

:

:

:

:

:
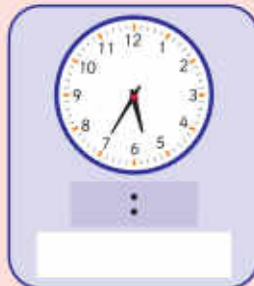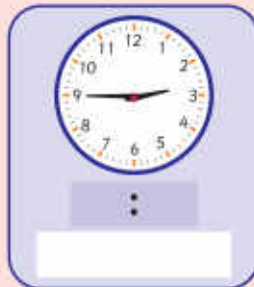
🔍 Key Fact

When minute hand is at 12, then we write '00' (zero) minutes.

Encourage the students to read and write time (with 5 minute-intervals) using a clock or chart.

Usage of a.m. and p.m. in Time

There are 24 hours in a day. Hour hand of a clock completes two rounds in 24 hours.

12 hours

Noon

12 hours
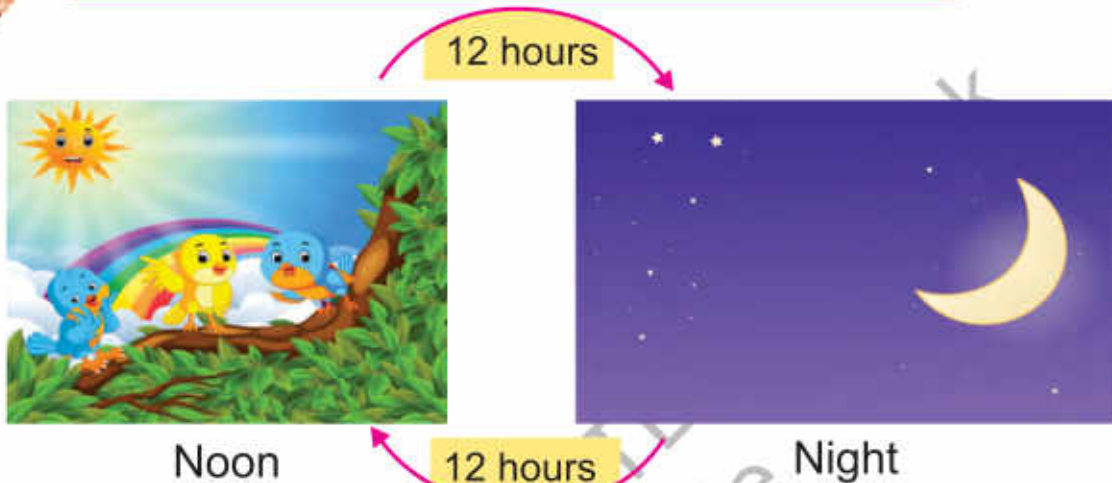
Night

We write a.m.(ante-meridiem) with time which lies between 12:00 mid-night to 12:00 noon.

We write p.m (post-meridiem) with time which lies between 12:00 noon to 12:00 mid-night.

Ali goes to school in the morning at 7 o'clock. We write it as 7:00 a.m.

Ali completes homework in the evening at 7 o'clock. We write it as 7:00 p.m.

Encourage/help the students to use of a.m. or p.m. with time using the textbook page or chart or flashcards (including pictures showing different activities in a day).

Look at the each picture and clock. Write time in a.m.and p.m.

At what time does Fatima wake up?

At what time does Fatima take breakfast?

At what time does Fatima come back from school?

At what time does Fatima do homework?

At what time does Fatima offer Asr namaz?

At what time does Fatima play in the evening?

Instruct and guide the students to make a chart showing different activities of a day (wake up time to sleeping time) using 'a.m.' or 'p.m.' time.

Drawing Hands of the Clock

The small hand shows 'hours' and the big hand shows 'minutes'.

4:35   1:15

✎ Try Yourself

Read the time and draw hands of the clock.
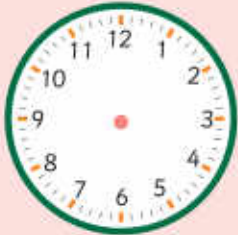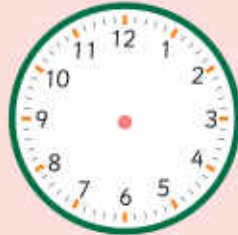
9:40   8:05   2:20   7:55

10:10   6:30   3:30   11:25

Key Fact

We do not write a.m. and p.m. with 12 o'clock.
We write it as 12:00 noon or 12:00 mid-night.

Guide and help the students to draw the hands of the clock and advise them to take care about the size of the hands (small and big) of the clock.

Solar Calendar

There are 365 or 366 days in a solar year. There are 12 months in the year. A calendar is the record of all months, dates and days of the year.

Calendar

January

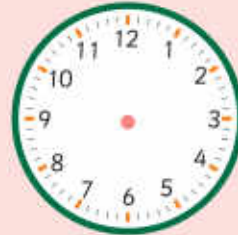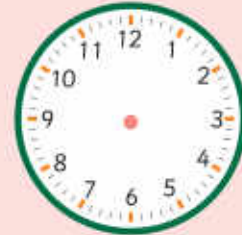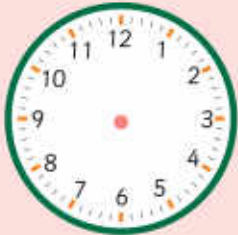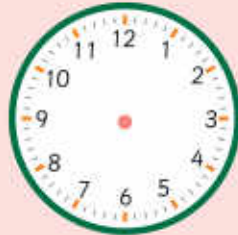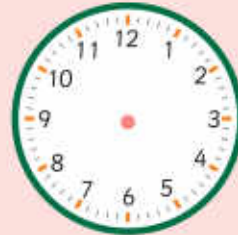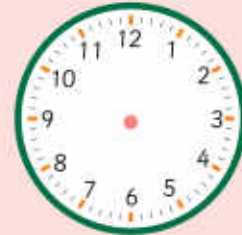| Mon	Tue	Wed	Thur	Fri	Sat	Sun
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

February

Mon	Tue	Wed	Thur	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

March

Mon	Tue	Wed	Thur	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April

Mon	Tue	Wed	Thur	Fri	Sat	Sun
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May

Mon	Tue	Wed	Thur	Fri	Sat	Sun
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June

Mon	Tue	Wed	Thur	Fri	Sat	Sun
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July

Mon	Tue	Wed	Thur	Fri	Sat	Sun
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August

Mon	Tue	Wed	Thur	Fri	Sat	Sun
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September

Mon	Tue	Wed	Thur	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October

Mon	Tue	Wed	Thur	Fri	Sat	Sun
			1	2	3	4
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November

Mon	Tue	Wed	Thur	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December

Mon	Tue	Wed	Thur	Fri	Sat	Sun
	1	2	3		4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Display a calendar on the board and explain the method to find a date and a day in the calender.

Try Yourself

Write the name of days for the given dates using the calendar.

Date	Day	Date	Day
10 January	Sunday	14 August	
23 March		31 July	
5 October		9 November	
6 September		1 May	
22 June		25 December	
5 February		21 April	

- Encircle the date and month of your birthday on the calendar.
- Tick (✓) the date and month of the independance of Pakistan.

Key Fact

- The Earth completes one revolution around the sun in 365 days. Therefore, there are 365 days in a year.
- February is the shortest month of the year. It has 28 or 29 days.
- There are 30 or 31 days in a solar month in general.

Lunar Calendar

There are 354 or 365 days in a lunar year.
There are 12 months in the year.

Calendar

Muharram

Sun	Mon	Tue	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Safar

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Rabi-ul-Awwal

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Rabi-ul-Sani

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

Jammadi-ul-Awwal

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Jammadi-ul-Sani

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29						

Rajab

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Sha'ban

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

Ramadan

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

Shawwal

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Zul-Qadah

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29						

Zul-Hajjah

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Tell and help the students to learn the names of the months of a lunar year in order, with the help of chart or textbook page or lunar calendar.

✏️ Try Yourself

Write the name of days for the given dates using the calendar.

Date	Day	Date	Day
10 Muharram	Monday	27 Ramadan	
18 Jammadi-ul-Awwal		12 Rabi-ul-Awwal	
5 Safar		1 Shawal	
20 Jammadi-ul-Sani		19 Zul-Qadah	
29 Rajab		10 Zul-Hajjah	
25 Rabi-ul-Sani		25 Sha'ban	

- Encircle the months on the calendar in which we celebrate Eids.
- Tick (✓) the month in which Muslims fast.

🔍 Key Fact

- The lunar calendar is also known as the Hijri and Islamic calendar.
- There are 29 or 30 days in a lunar month, depending upon the sighting of the new moon.

I have learnt to:

- recognize the number of hours in a day and numbers of minutes in an hour.
- read and write the time from a clock in hours and minutes (with five-minute intervals).
- recognize a.m. and p.m.
- draw hands of a clock to show time in hours and minutes (with five minutes intervals).
- use Solar calendar to find a particular date/day.
- use Islamic calendar to find a particular date/day.

Vocabulary

- p.m. and a.m.
- Solar year
- Lunar year
- Calendar

Review Exercise

1. Choose the correct options and fill in the blanks.

(i) 1 hour = _____ minutes

   (a) 10   (b) 30   (c) 50   (d) 60

(ii) The hour hand completes _____ rounds in a day.

   (a) 1   (b) 2   (c) 3   (d) 4

(iii) We write _____ with time which lies between 12:00 mid-night to 12:00 noon.

   (a) a.m   (b) p.m   (c) noon   (d) night

(iv) In the solar year, the shortest month is _____.

   (a) January   (b) May   (c) February   (d) December

(v) Muslims fast in the month of _____.

   (a) Muharram   (b) Rajab   (c) Shaban   (d) Ramadan

2. Write the time in the given space.

(a)

(b)

(c)

(d)

(e)

(f)
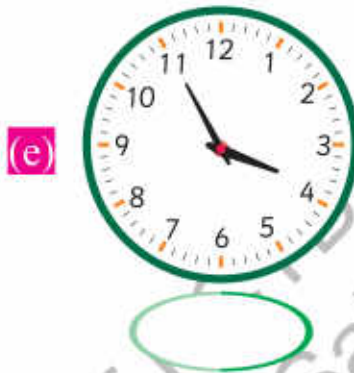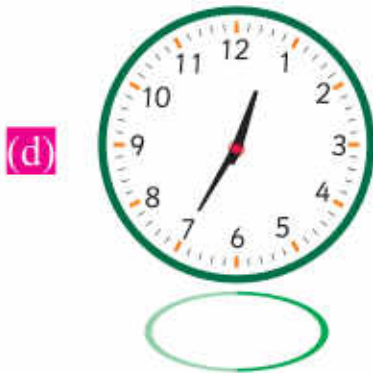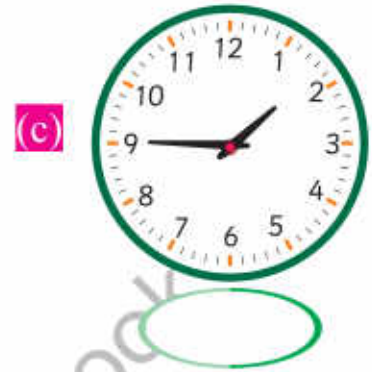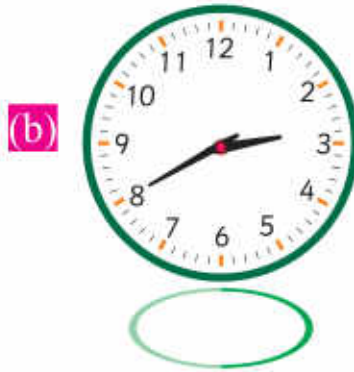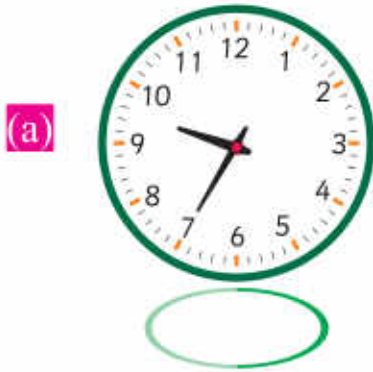
3. Draw the hands of each clock according to the given time.

(a) 3:40

(b) 8:50

(c) 10:10

(d) 2:20

(e) 7:55

(f) 12:00
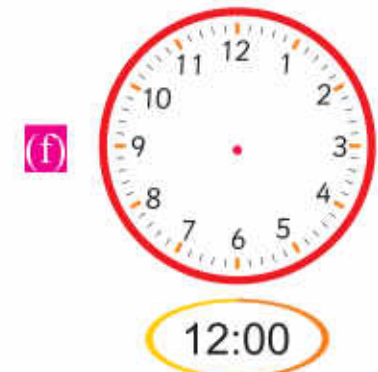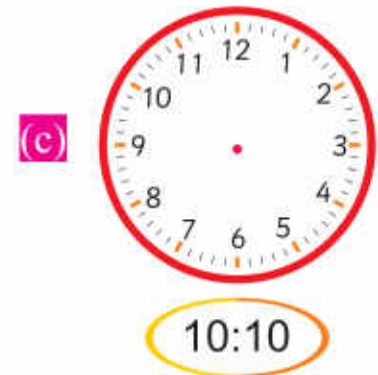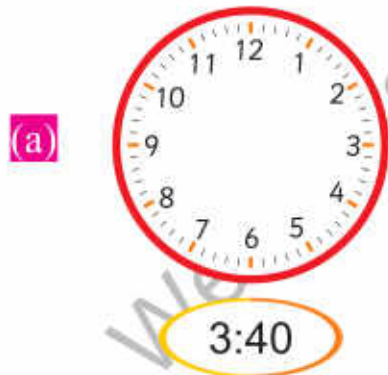
4. Write time with a.m. or p.m. by reading the sentence.

(a) Ahmad goes to school at 8 o'clock.

(b) Our family takes dinner at 9:15.

(c) Ayesha wakes up in the morning at 5:30.

(d) Badar plays football in the evening at 4:45.

(e) Maryam offers Maghrib prayer at 6 o'clock.

(f) Hina takes breakfast at 7:25.

5. Write the correct order of the given months.

(a) 5th — May

(b) August

(c) April

(d) October

(e) January

(f) November

(a) 3rd — Rabi-ul-Awwal

(b) Jammadi-ul-Sani

(c) Safar

(d) Ramadan

(e) Rajab

(f) Zul-Hajjah

Unit 6

Geometry

Learning Outcomes

After completing this unit, you will be able to:

- Identify the figures like square, rectangle, triangle, circle, semi-circle, and quarter-circle.
- Identify vertices and sides of a triangle, rectangle and square.
- Differentiate between a straight line and a curve.
- Identify straight lines and curves from the given drawings.
- Use ruler to draw a straight line of given length (exclude fractional length).
- Make/ complete geometrical patterns on square grid according to one or two of the following attributes.   • Shape   • Size   • Orientation
- Recognize and name 3-D objects (cubes, cuboids, cylinder, cone, sphere).

Do you tell the name of 2-D shapes in the given picture?

Shapes

Let us colour.
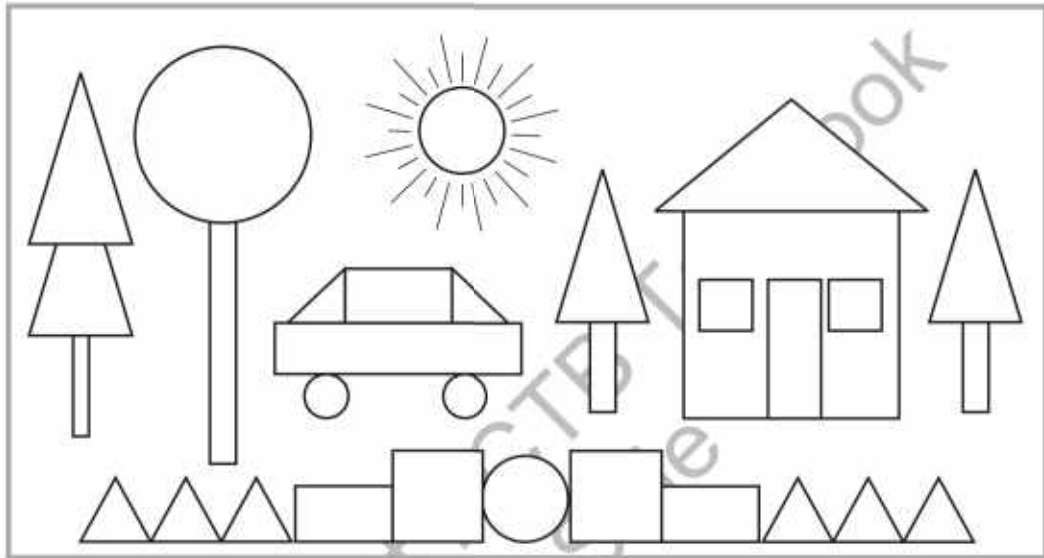
Complete the following table by writing the name and number of shapes given above.

Shape	Name	Number of shapes
▢		
◯		
▭		
△		

For effective teaching and learning, use 'Urdu or local language' as medium of instruction to explain the concepts of geometry.

Semi-circle and Quarter-circle

Let us divide a circle into two equal parts. Can you name the half part of the circle?
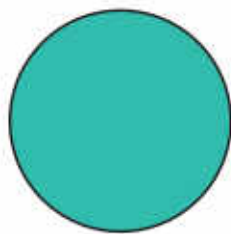
Circle
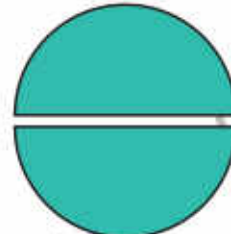
2 equal parts

One half part of the circle is called semi-circle.

Semi circle

Let us divide the circle into more equal parts. We get more new shapes.
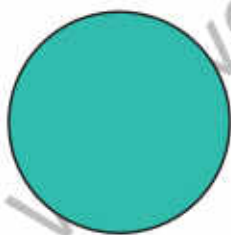
Semi-circles

Circle

2 equal parts

4 equal parts

One quarter part of the circle is called quarter-circle.
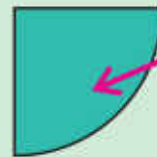
Quarter-circle

Using the demonstration method, draw a circle on paper. Cut it with scissors. cut the circle at the centre equally and again cut it into more equal parts. Now, explain the concept of semi-circle and quarter-circle.

Try Yourself

Colour the circle red, semi-circle green and quarter-circle yellow. Write the total number of each shape.
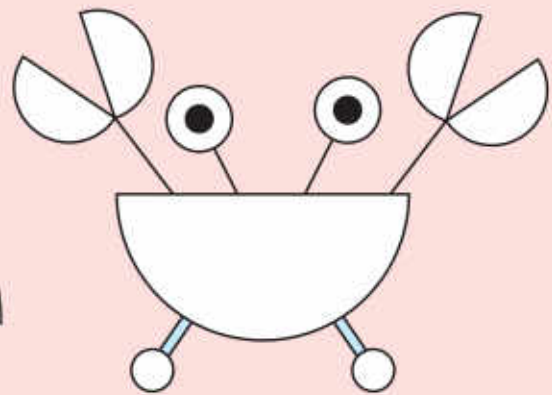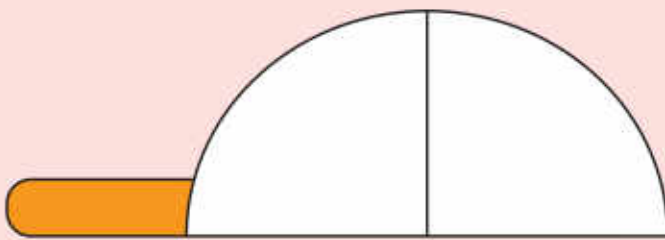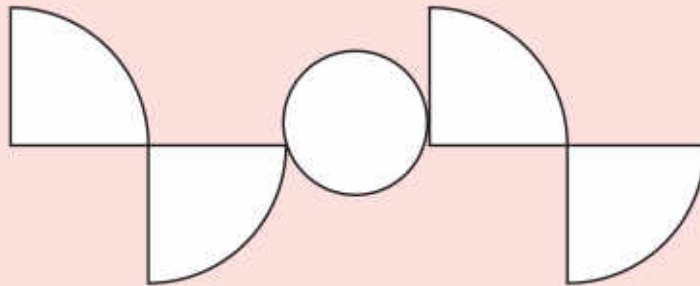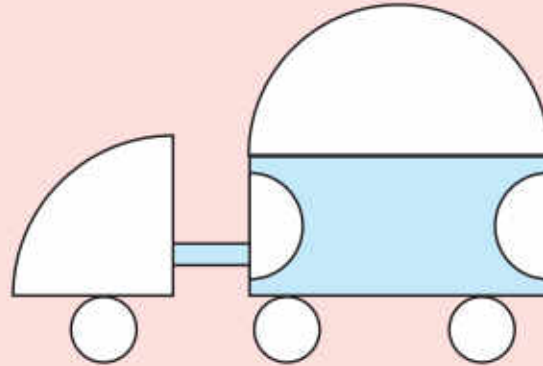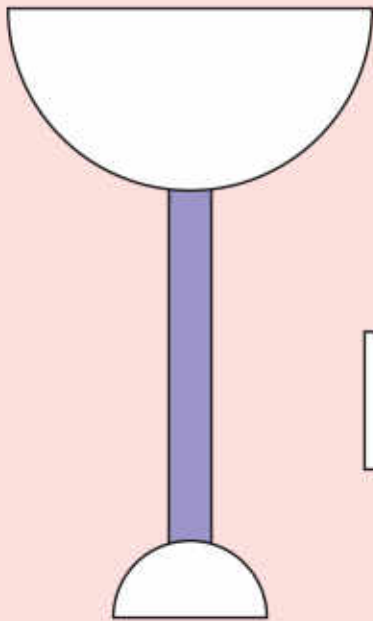
Circles _____   Semi-circles _____   Quarter-circles _____

Draw different shapes (circle, semi-circle and quarter-circle) on the board and explain.

Unit 6: Geometry   **138**   **Mathematics - 2**

Sides and Vertices of the Shapes

It is a rectangle.
It has 4 sides and
4 vertices.
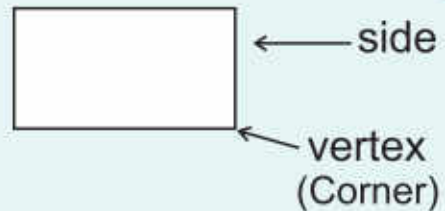
← side
← vertex (Corner)

Key Fact

- The plural of side is sides.
- Corner of any shape is called vertex. The plural of vertex is vertices.

It is a square.
It has 4 sides and 4 vertices.
Its all sides are equal in length.
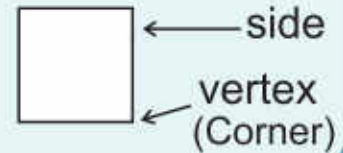
← side
← vertex (Corner)

It is a triangle.
It has 3 sides and 3 vertices.
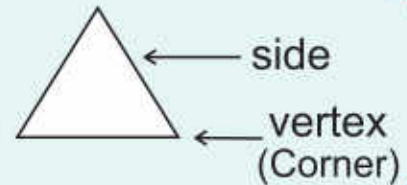
← side
← vertex (Corner)

Key Fact

- All sides of a sqaure are equal in length.
- Opposite sides of a rectangle are equal in length.
- The sides of a triangle may or may not be equal in length.

Try Yourself

How many sides and vertices does a circle have?

Differentiate between sides and vertices using teaching aids (chart/wooden shapes). Help the students to find sides and vertices of each shape.

Exercise 1

Look at the 2-D shapes and fill in the blanks.

My name is _____ .

I have _____ sides and _____ vertices.

My all sides are equal in length.
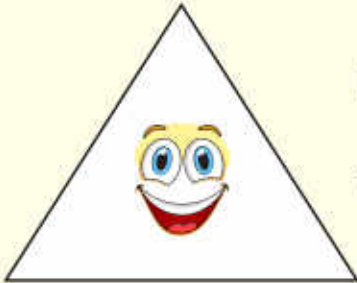
I have _____ sides and _____ vertices.

Who am I? _____

I am a rectangle.

I have _____ sides and _____ vertices.

Try Yourself

My name is oval.

I have _____ sides and _____ vertices.

Straight and Curved Lines

I hold a piece of thread in both hands and pull it tightly.

It is like a straight line.

Straight Path

Different Straight Lines
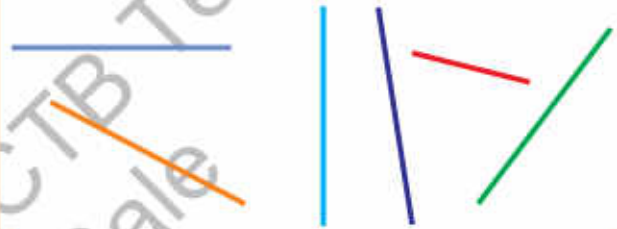
I hold a piece of thread in both hands and loose it.

It is like a curved line.

Curved Path
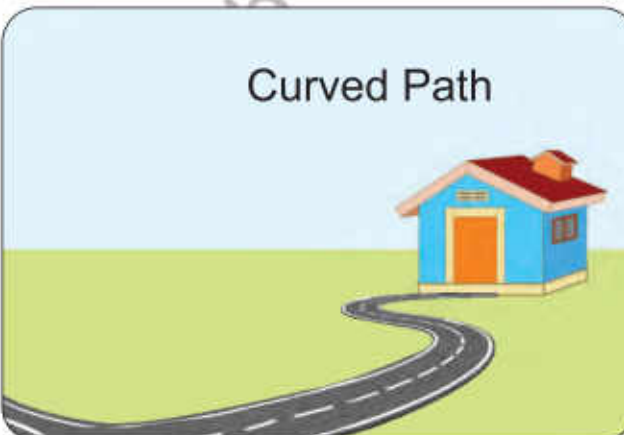
Different Curved Lines

Using demonstration method, learn them to draw/make lines on board (or using rope or thread).

Exercise 2

1. Match the lines with the correct names.
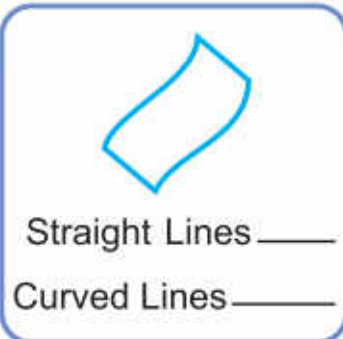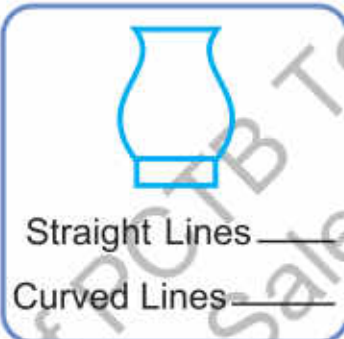
Straight Lines
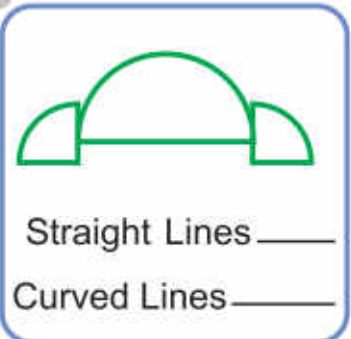
Curved Lines

2. Write the total number of straight and curved lines in the given shapes.

(a)

Straight Lines _____

Curved Lines _____

(b)

Straight Lines _____

Curved Lines _____

(c)

Straight Lines _____

Curved Lines _____

3. Write the total number of straight and curved lines in the given shapes.

Shapes	Straight lines	Curved lines
(a)		
(b)		
(c)		

Drawing Straight Line

It is a ruler.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cm
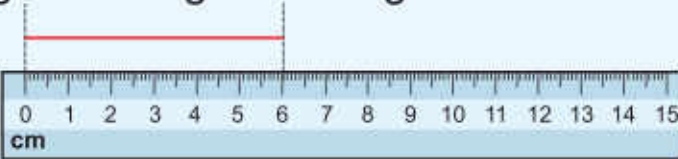
We measure and draw a straight line with the help of the ruler.

Let us measure the length of the given straight line. _____

So, length of the straight line is 6 cm.
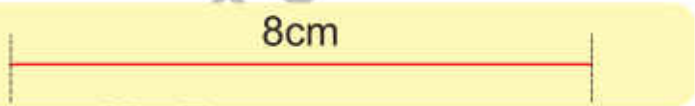
Let us draw a straight line that is 8 cm long using the ruler.

Hold the ruler firmly on the paper. Draw a straight line from 0 cm to 8 cm with pencil and remove the ruler.
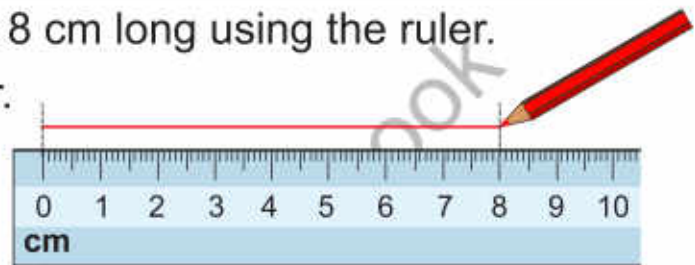
So, you have drawn 8cm long straight line.

8cm

Key Fact

To measure and draw a straight line using the ruler, we start from 0 cm.

Introduce a ruler and tell about its use. Guide and help the students to measure and draw the straight lines using the ruler.

Exercise 3

1. Measure the following straight lines using ruler and write its lengths.

(a) _____ ....cm

(b) _____ ....cm

(c) _____ ....cm

2. Draw the straight lines for the given lengths using ruler.

(a) 4 cm long straight line

(b) 6 cm long straight line

(c) 10 cm long straight line

Patterns

Let us observe the different patterns on a grid.
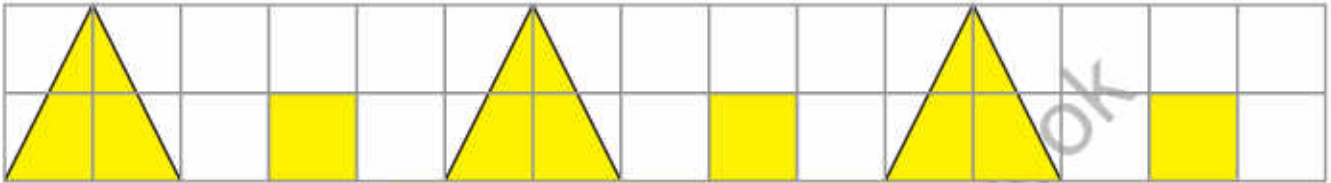
Pattern of change in shape
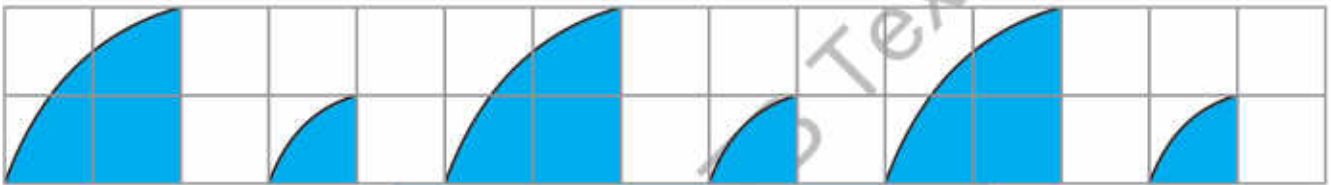
Pattern of change in size
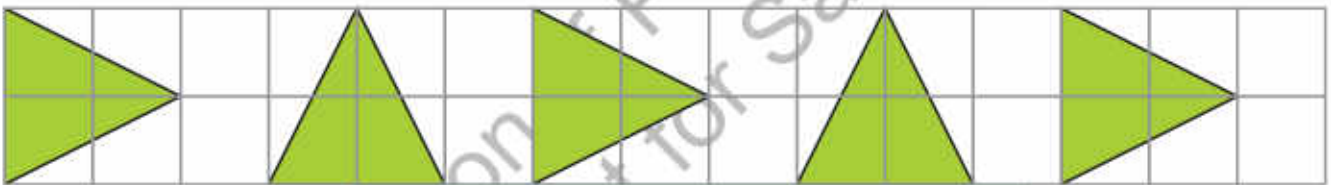
Pattern of change in direction
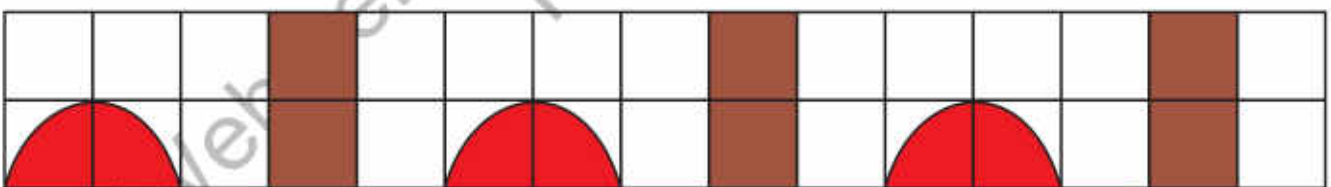
Pattern of change in shape and colour
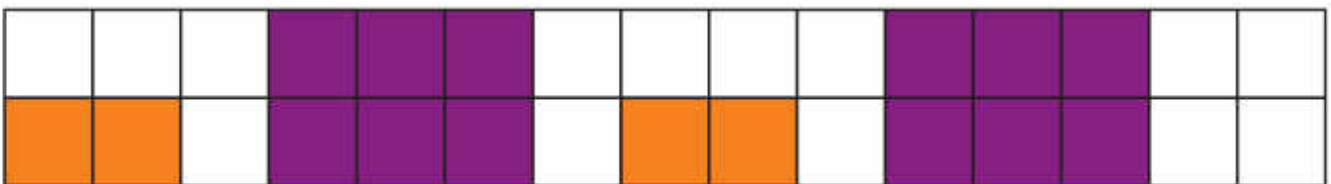
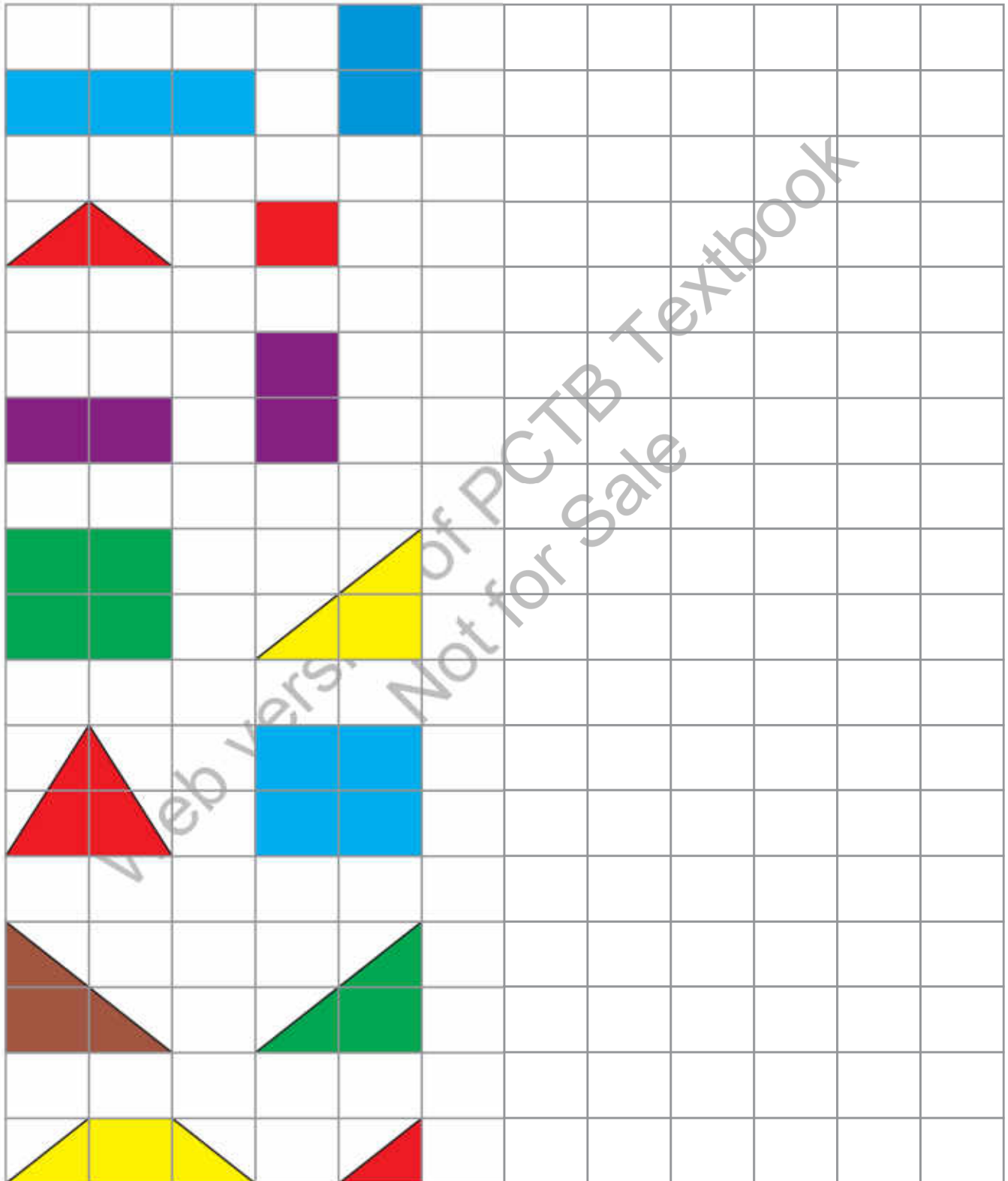Pattern of change in size and colour

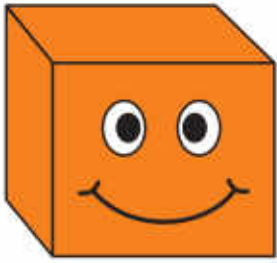Guide and help the students to make patterns. Provide square grid to the students.
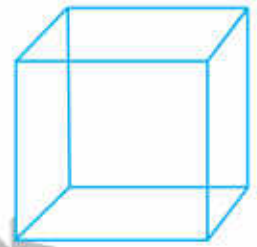
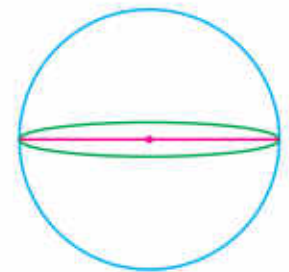## Exercise 4

Complete the following patterns and colour.
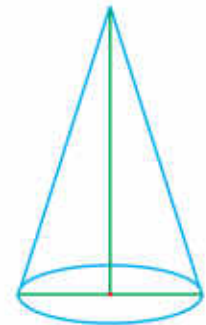
3-D Shapes
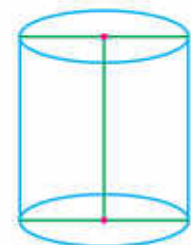
My name is cube.

My name is cuboid.

My name is sphere.

My name is cone.
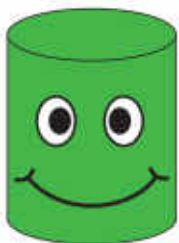
My name is cylinder.

Explain the concept of 3-D shapes using different objects which are in classroom (book, sharpener, etc). Tell the students to learn their names and difference among them.

Exercise 5

Write the name of each 3-D shape and match with the same shaped objects.

I have learnt to:

- identify square, triangle, circle, semi-circle and quarter-circle.

- identify and differentiate between straight line and curved line.

- draw a straight line using a ruler.

- make and complete patterns according to the shape, size and orientation.

- recognize the 3-D shapes; cube, cuboid, cylinder, cone and sphere.

Vocabulary

- Semi-circle
- Quarter-circle
- Straight line
- Curved line
- Ruler
- Patterns
- Grid
- 3-D Shapes
- Cube
- Cuboid
- Cylinder
- Sphere
- Cone

Review Exercise

1. Choose the correct options and fill in the blanks.

(i) Which shape has 3 sides and 3 vertices?

    (a) rectangle   (b) square   (c) triangle   (d) circle

(ii) _____ is the shape of a quarter-circle.

    (a)   (b)   (c)   (d)

(iii) ▽ is the shape of _____ .

    (a) cylinder   (b) cone   (c) cube   (d) sphere

(iv) How many curved lines a semi-circle have?

    (a) 0   (b) 1   (c) 2   (d) 3

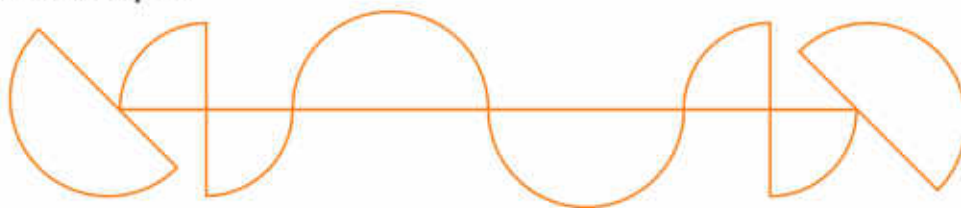(v) How many sides a circle have?

    (a) 0   (b) 1   (c) 3   (d) 4

2. Draw a rectangle, triangle and square using the grid.

3. Write the total number of semi-circles and quarter-circles in the given shape.

Semi-circles _____   Quarter-circles _____
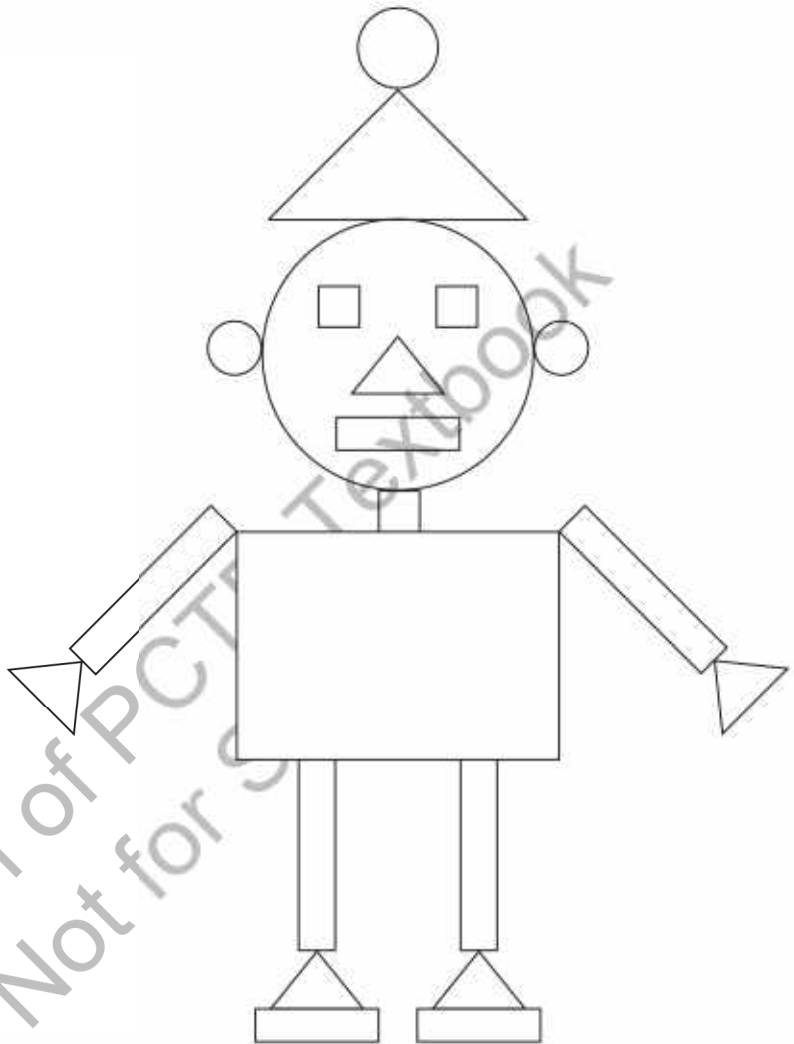
4. Write the name of each shape and its total number in the given drawing. Colour it.

<u>   Circle   </u>   <u>   4   </u>

<u>   </u>   <u>   </u>

<u>   </u>   <u>   </u>

<u>   </u>   <u>   </u>

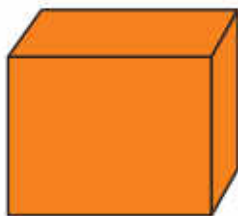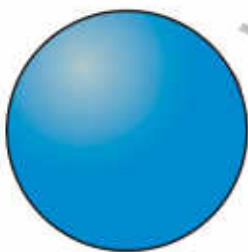5. Draw a straight line of your own choice.

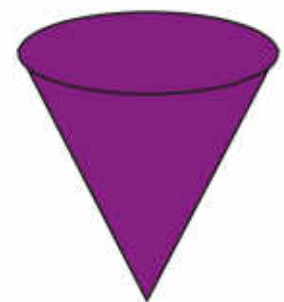6. Draw two pattern of your own choice and colour them.

(a)

(b)

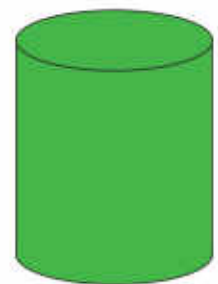7. Match the each 3-D shape with its name.

Sphere

Cone

Cube

Cylinder

Cuboid

قومی ترانہ

پاک سَرزمین شاد باد   کِشورِ حسین شاد باد

تُو نِشانِ عزمِ عالی شان   ارضِ پاکستان

مرکزِ یقین شاد باد

پاک سَرزمین کا نِظام   قُوّتِ اُخُوّتِ عوام

قوم، ملک، سلطنت   پائندہ تابندہ باد

شاد باد منزلِ مُراد

پَرچمِ ستارہ و ہلال   رہبرِ ترقّی و کمال

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