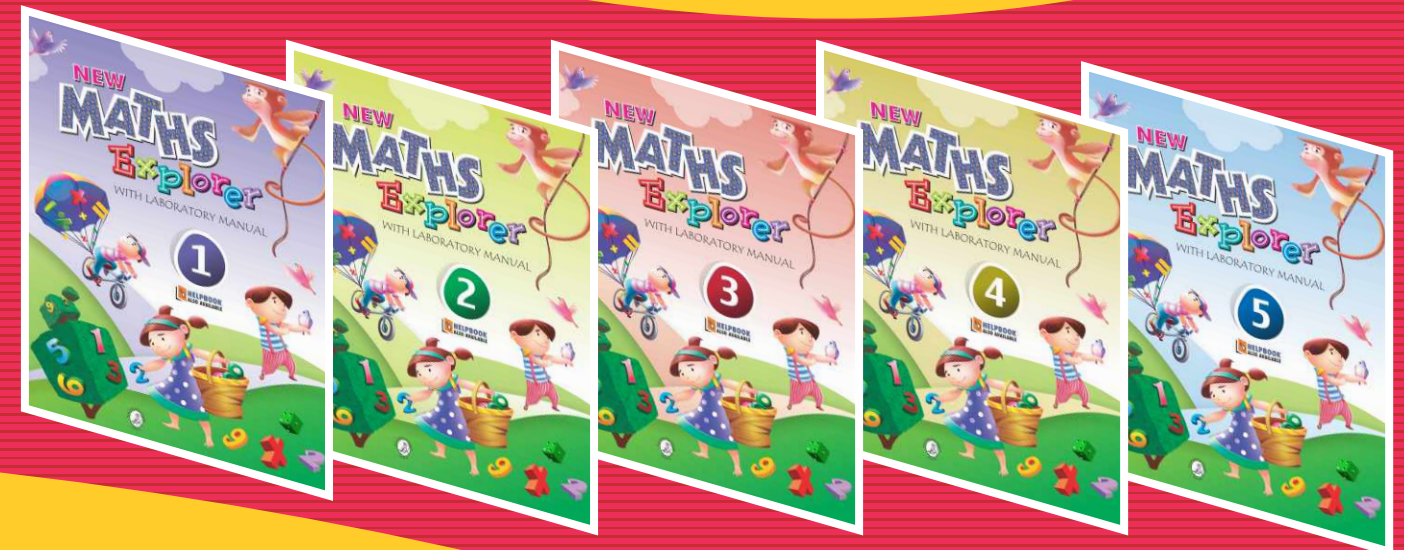


NEW MATHS Explorer

WITH LABORATORY MANUAL
BOOK 1-5



Increases fascination for maths in the young learners by introducing mathematical skills in a very interesting and effective way.

Pictograph is a special attraction of the series. It has been explained very well. Enjoyable for young learners.



KRITI PRAKASHAN LIMITED

Vedang Tower, Amrapali Bazar, Sector-22, Indira Nagar, Lucknow-226 016 (INDIA)
Phones : (0522) 2350903, 2350904, Fax : (0522) 2350907
e-mail : contact@kritiprakashan.com, visit us at : www.kritiprakashan.com

BRANCHES

- Delhi, Phone : (011)27871972, Fax : (011) 27871973 ● Patna, Phone : (0612) 2355549, Fax : (0612) 2355541 ● Kolkata, Phone : (033) 22896884, Fax : (033) 22892556,
- Lucknow, Phone : (0522) 2202675 ● Jalandhar, Phone : (0181) 2200122, Fax : (0181) 4634954
- Indore, Phone : (0731) 2556149, Fax : (0731) 4226757 ● Ranchi, Phone : (0651) 2340008
- Ernakulam, Phone : (0484) 2342488 ● Guwahati, Telefax : (0361) 2450352
- Jaipur, Telefax : (0141) 2200507 ● Nagpur, Telefax : (0712) 2254758
- Hyderabad, Telefax : (040) 27424044
- Mohali, Telefax : (0172) 2222120

Toll Free No. 1800-180-5511

“ New Maths Explorer (1 to 5) is a series of Maths for primary school children.

New Maths Explorer is well-structured and student-friendly. The series makes the students understand that there are different approaches to solve a problem. The series is developed in such a way that students find it easy to learn various concepts in Mathematics. Smart class ready CD for each book of the series is available.

e-Support
www.kritieducation.co.in

E-support available for schools. Log on to get updates, information, test papers and much more.



HELPBOOK ALSO AVAILABLE

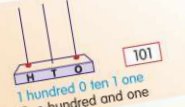


UNIT 2


NUMBERS UP TO ONE THOUSAND

ABOUT THE LESSON
 IN THIS LESSON YOU WILL LEARN ABOUT
 • Numbers beyond one hundred
 • Place value and face value
 • Expanded and short form
 • Comparison of numbers
 • Ascending and descending order
 • Increasing and decreasing order


NUMBERS BEYOND ONE HUNDRED




101
1 hundred 0 ten 1 one
One hundred and one




109
1 hundred 0 ten 9 ones
One hundred and nine



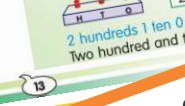
145
1 hundred 4 tens 5 ones
One hundred and forty-five



199
1 hundred 9 tens 9 ones
One hundred and ninety-nine



200
2 hundreds 0 ten 0 one
Two hundred



210
2 hundreds 1 ten 0 one
Two hundred and ten

Clear presentation of key mathematical concepts.

Example 3. Divide a. $7943 \div 1000$ and b. $9869 \div 1000$

Solution. a. $1000 \overline{)7943} \begin{matrix} 7 \\ -7000 \\ \hline 943 \end{matrix}$ b. $1000 \overline{)9869} \begin{matrix} 9 \\ -9000 \\ \hline 869 \end{matrix}$

So, $7943 \div 1000 = 7$ with remainder 943. So, $9869 \div 1000 = 9$ with remainder 869.

When we divide a number by 1000 then the first three digits from the extreme right of the dividend form the remainder and the remaining digits form the quotient.

Observe the following table carefully.

Dividend	Divisor	Quotient	Remainder
3536	÷ 10	353	6
3536	÷ 100	35	36
3536	÷ 1000	3	536
13536	÷ 1000	13	536
213536	÷ 1000	213	536

WORD PROBLEMS


Example 1. 42 boys collected Rs 4662 to donate in a fund. If each boy contributed equally, how much did each boy contribute?

Solution. 42 boys contributed together = Rs 4662.
Each boy contributed = Rs $4662 \div 42$.

$$\begin{array}{r} 42 \overline{)4662} \\ \underline{-42} \\ 046 \\ \underline{-42} \\ 042 \\ \underline{-42} \\ 00 \end{array}$$

So, each boy contributed Rs 111.

Ensures development in all areas of a learner's growth.



$$\begin{array}{r} 42 \\ + 18 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 35 \\ + 29 \\ \hline 64 \end{array}$$

$$\begin{array}{r} 44 \\ + 14 \\ \hline 58 \end{array}$$

$$\begin{array}{r} 14 \\ + 25 \\ \hline 39 \end{array}$$

$$\begin{array}{r} 68 \\ + 19 \\ \hline 87 \end{array}$$

$$\begin{array}{r} 25 \\ + 38 \\ \hline 63 \end{array}$$

$$\begin{array}{r} 62 \\ + 19 \\ \hline 81 \end{array}$$

$$\begin{array}{r} 59 \\ + 23 \\ \hline 82 \end{array}$$

$$\begin{array}{r} 42 \\ + 11 \\ \hline 53 \end{array}$$

$$\begin{array}{r} 49 \\ + 16 \\ \hline 65 \end{array}$$

$$\begin{array}{r} 64 \\ + 13 \\ \hline 77 \end{array}$$

$$\begin{array}{r} 24 \\ + 47 \\ \hline 71 \end{array}$$

$$\begin{array}{r} 56 \\ + 22 \\ \hline 78 \end{array}$$

$$\begin{array}{r} 38 \\ + 19 \\ \hline 57 \end{array}$$

$$\begin{array}{r} 18 \\ + 32 \\ \hline 50 \end{array}$$

$$\begin{array}{r} 26 \\ + 18 \\ \hline 44 \end{array}$$

$$\begin{array}{r} 44 \\ + 19 \\ \hline 63 \end{array}$$

$$\begin{array}{r} 18 \\ + 35 \\ \hline 53 \end{array}$$

$$\begin{array}{r} 8 \\ + 26 \\ \hline 34 \end{array}$$

$$\begin{array}{r} 59 \\ + 18 \\ \hline 77 \end{array}$$

$$\begin{array}{r} 44 \\ + 19 \\ \hline 63 \end{array}$$

$$\begin{array}{r} 18 \\ + 35 \\ \hline 53 \end{array}$$

$$\begin{array}{r} 26 \\ + 18 \\ \hline 44 \end{array}$$

$$\begin{array}{r} 44 \\ + 19 \\ \hline 63 \end{array}$$

Plenty of exercises.

D. Find the H.C.F. of following numbers by long division method.

- 80 and 176
- 272, 544 and 816
- 360, 675 and 720
- 684 and 945
- 220, 830 and 1660
- 690, 960 and 1150
- 140, 240 and 300
- 1350, 1530 and 1650
- 120, 210, and 300
- 80, 120 and 440
- 135, 275 and 300
- 125, 95 and 195
- 200, 320 and 490
- 75, 150 and 325
- 124, 372 and 496

LEAST COMMON MULTIPLE (L.C.M.)
 You are already familiar with the least common multiple which is the smallest common multiple of the numbers. The least (lowest) common multiple of two or more numbers is exactly divisible by each of the given numbers.

Let us consider two numbers 12 and 15.

Multiples of 12 = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120 etc.
 Multiples of 15 = 15, 30, 45, 60, 75, 90, 105, 120 etc.
 Common multiples of 12 and 15 are 60, 120 etc.
 Clearly, the least common multiple is 60.
 So, the L.C.M. of 12 and 15 is 60.

We can find the L.C.M. of the given numbers as follows.

a. By prime factorisation method b. By division method

CASE 1. Finding the L.C.M. by prime factorisation method

Example. Find the L.C.M. of 12, 15 and 24.

Solution. Prime factors of 12 = $2 \times 2 \times 3$
 Prime factors of 15 = 3×5
 Prime factors of 24 = $2 \times 2 \times 2 \times 3$
 Here, 2 occurs a maximum number of 3 times and 3 and 5 occur once only.
 So, the L.C.M. of 12, 15 and 24 is $2 \times 2 \times 2 \times 3 \times 5 = 120$

CASE 2. Finding the L.C.M. By division method

Example. Find the L.C.M. of 20, 30, 36.

Solution.

20	30	36
2	10	18
3	5	9
5	5	3
1	1	3

So, the L.C.M. of 20, 30, and 36 is $2 \times 2 \times 3 \times 5 \times 3 = 180$.

Promises to create a 'mathematical learning environment' rather than mere a 'teaching' one for the learners.

Solution. Arrange the digits of the addenda in columns and add as usual.

a. $\begin{array}{r} 43428 \\ + 46325 \\ \hline 89753 \end{array}$ → Addendum → Addendum → Sum
The sum is 89753.

b. $\begin{array}{r} 58209 \\ + 23490 \\ \hline 81699 \end{array}$ → Addendum → Addendum → Sum
The sum is 81699.

c. $\begin{array}{r} 569438 \\ + 234526 \\ \hline 803964 \end{array}$ → Addendum → Addendum → Sum
The sum is 803964.

d. $\begin{array}{r} 669702 \\ + 154789 \\ \hline 824491 \end{array}$ → Addendum → Addendum → Sum
The sum is 824491.

PROPERTIES OF ADDITION
 You have already learnt properties of addition in your previous classes. Let us recall them.

Order Property of Addition
 We can add two numbers in any order. The sum remains the same. This property is also called *commutative property*.

Example. Find the sum of 460721 and 237544.

Solution.

$$\begin{array}{r} 460721 \\ + 237544 \\ \hline 698265 \end{array} \quad \text{or} \quad \begin{array}{r} 237544 \\ + 460721 \\ \hline 698265 \end{array}$$

In both cases, the sum remains the same.

Additive Property of Zero
 If zero is added to a number, the sum is the number itself. Zero is called *additive identity*.

Example. Add 423456 and 0.

Solution.

$$\begin{array}{r} 423456 \\ + 0 \\ \hline 423456 \end{array}$$

The sum is the number itself.

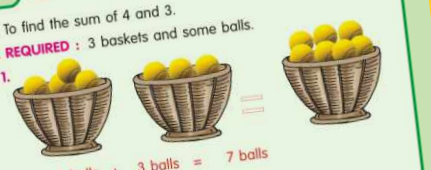
Solved examples of all mathematical concepts.

MATHEMATICAL LABORATORY

OBJECT : To find the sum of 4 and 3.

MATERIAL REQUIRED : 3 baskets and some balls.

ACTIVITY 1.




$4 \text{ balls} + 3 \text{ balls} = 7 \text{ balls}$

Steps -

- Keep 4 balls in one basket.
- Keep 3 balls in another basket.
- Now pour all the balls of the two baskets in the 3rd basket.
- Count the balls. Are they seven? Mathematically, we write, $4 + 3 = 7$.

ACTIVITY 2.



Steps -

- Keep 4 balls in basket A.
- Keep 3 balls in another basket B.
- Now pour all the balls of basket B in basket A.
- Count all the balls in basket A. Are they 7 balls now? Check up.

Maths Lab activities help to build mathematical concepts through various activities.

TEST YOUR SKILL - 2

- Write the numbers.
 - Sixty-one
 - Seventy-seven
 - Ninety
 - Thirty-seven
 - Forty-one
 - Eighty-three
 - Fifty-four
 - Twenty-seven
- Write the number names.
 - 72
 - 95
 - 21
 - 59
 - 34
 - 46
 - 62
 - 83
 - 51
 - 39
 - 79
 - 81
- Write the numbers that come just before and after.

a. <input type="text"/> 83	b. <input type="text"/> 75
c. <input type="text"/> 56	d. <input type="text"/> 98
e. <input type="text"/> 42	f. <input type="text"/> 61
g. <input type="text"/> 27	h. <input type="text"/> 34
- Write the number that comes in between.

a. 14	b. 24	c. 26
c. 32	d. 44	e. 46
e. 50	f. 63	g. 65
g. 72	h. 88	i. 90
i. 70	j. 84	k. 86
- Fill in the blanks with $<$, $>$ or $=$.

a. 36 <input type="text"/> 63	b. 33 <input type="text"/> 73
c. 87 <input type="text"/> 29	d. 41 <input type="text"/> 41
e. 55 <input type="text"/> 91	f. 97 <input type="text"/> 38
g. 24 <input type="text"/> 48	h. 59 <input type="text"/> 95
i. 38 <input type="text"/> 46	j. 51 <input type="text"/> 30
- Write the numbers in expanded form.

a. 37	b. 59	c. 94	d. 80
e. 72	f. 45	g. 61	h. 23

Provides a platform for testing the learner's skill extensively.

For example, $\frac{1}{4} = \frac{1}{4} \times 100\% = \frac{100}{4}\% = 25\%$

Similarly, $\frac{3}{4} = \frac{3}{4} \times 100\% = 3 \times 25\% = 75\%$

You may think that expressions such as 225%, 275%, 125% etc have no meaning because no one can get more than 100 marks out of 100. It is true but one can earn Rs 225, Rs 275 or Rs 125 per Rs 100. If you purchase a watch for Rs 100 and sell it for Rs 225, you earn 125% profit.

EXPRESSING A PER CENT AS FRACTION
 Let us consider some examples.

Example 1. Express as a fraction.

a. 25% b. 42%

Solution. a. $25\% = \frac{25}{100} = \frac{1}{4}$ b. $42\% = \frac{42}{100} = \frac{21}{50}$

Example 2. Express $66\frac{2}{3}\%$ as a fraction.

Solution. $66\frac{2}{3}\% = \frac{66 \times 3 + 2}{3} \times \frac{1}{100} = \frac{198 + 2}{3} \times \frac{1}{100} = \frac{200}{3} \times \frac{1}{100} = \frac{2}{3}$

EXPRESSING A DECIMAL AS PER CENT
 To express a decimal as a per cent, first we convert the decimal into a fraction and then proceed as usual.

Let us consider some examples.

Example 1. Express 1.25 as per cent.

Solution. $1.25 = \frac{125}{100} = 125 \times \frac{1}{100} = 125\%$

Example 2. Express 2.34 as a per cent.

Solution. $2.34 = \frac{234}{100} = 234 \times \frac{1}{100} = 234\%$

Creates a sense of discovery and excitement as learners move from one level of knowledge to the higher one.