Maths Zone 2

Updated Edition

Series Editor
KG Jeyalakshmi

Collins

Maths Zone 2

Updated Edition

Series Editor
KG Jeyalakshmi

Published by Collins Learning
A division of HarperCollins*Publishers* India Private Limited
HarperCollins *Publishers*
A-75, Sector 57, Noida, Uttar Pradesh 201301, India
1 London Bridge Street, London, SE1 9GF, United Kingdom
2 Bloor Street East, Toronto, Ontario M4W 1A8, Canada
Lvl 13, 201 Elizabeth Street (PO Box A565, NSW, 1235), Sydney NSW 2000, Australia
195 Broadway, New York, NY 10007, USA

Browse the complete Collins catalogue at **www.collins.in**

First edition 2015
Latest updated edition 2019
© **HarperCollins*Publishers* India Private Limited 2019**
Reprint: 10 9 8 7 6 5 4 3 2 1
ISBN: 978-93-5277-801-0

Collins ® is a registered trademark of HarperCollins*Publishers* Limited

All rights reserved. No part of this book may be reproduced, stored in retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission in writing of the Publisher. This book is sold subject to the conditions that it shall not, by way of trade or otherwise, be lent, re-sold, hired out or otherwise circulated without the publisher's prior consent in any form of binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

Content developed by **EXCELSOFT TECHNOLOGIES PVT. LTD.**

Artwork and layout by **AptaraCorp Ltd., Chandraprabhu Enterprise Private Limited**

Printed and bound by

MRP:

Acknowledgements

Cover: Creative-Touch

Title Page: Creative-Touch

This book is produced from independently certified FSC® paper to ensure responsible forest management.

The screens and illustrations including the literary and artistic works as well as the trademarks displayed are the sole and exclusive intellectual property of their respective owners and Collins India do not claim any right whatsoever over them. The screens, illustrations and trademarks have been displayed only for educational and instructional purposes.

The IMO paper has been printed with the permission of Science Olympiad Foundation. No part of this may be reproduced, transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the permission of the copyright holder. For more details on IMO, you can visit their website www.sofworld.org. Their corporate office is at Plot No. 99, Sector – 44, Gurgaon, Haryana – 122003, India.

Preface

Maths Zone* (Updated Edition)** is a series of eight books for Classes 1 to 8. The series conforms to the objectives outlined in *National Curriculum Framework*. The updated edition of ***Maths Zone, trying to make a difference with its new features, incorporates the latest requirements across various boards. With its activity-oriented approach, the series aims to inculcate lateral thinking, analytical, research and deduction skills in students, thus urging them to explore beyond the boundaries of textual knowledge.

Based on the NCERT syllabus, the series follows a coherent and structured approach. It provides a seamless continuity in the Maths curriculum for classes 1 to 8, laying emphasis on developing problem-solving skills.

The series has been updated in view of the extensive feedback received from the user schools and experienced teachers. Wherever necessary, content has been simplified to cater to the needs of all kinds of learners in a classroom.

Key Features

Mental Maths to help practise calculation skills and deductive reasoning

Cross-curricular Links (Classes 1 to 5) integrate knowledge across subjects

Exercises after each topic and **Revision Exercises** at the end of each chapter for a comprehensive review of the concepts

Summary (Classes 6 to 8) gives a snapshot of the chapter for quick recapitulation

Maths Lab Activity to test skills of investigation, observation and deduction

Worksheets to reinforce practice with fun exercises

Consolidated **Practice Worksheets** and **Reasoning Worksheet** at the end of the book for further practice

Latest **International Mathematics Olympiad** paper to help students prepare for competitive exams

Maths Tales (Classes 1 to 5) at the end of the book give colourful cartoon spreads

Vedic Maths (Classes 3 to 8) to master shortcut techniques which aid in faster calculations

Poster, at the end as a pull-out, for a quick revision of important points and formulae

Remember, **Common Errors**, **Challenge** and **Projects** are a few other features included in the books.

Four **assessment papers** and two **comprehensive assessment papers** have been given at the end of each book, in addition to the exercises within and at the end of each chapter.

In line with the CBSE guidelines, evaluation features along with the tools of assessment have been provided extensively to the teachers and learners in a well-integrated manner.

Feedback, valuable comments and suggestions from the users are welcome.

Authors

Key Features

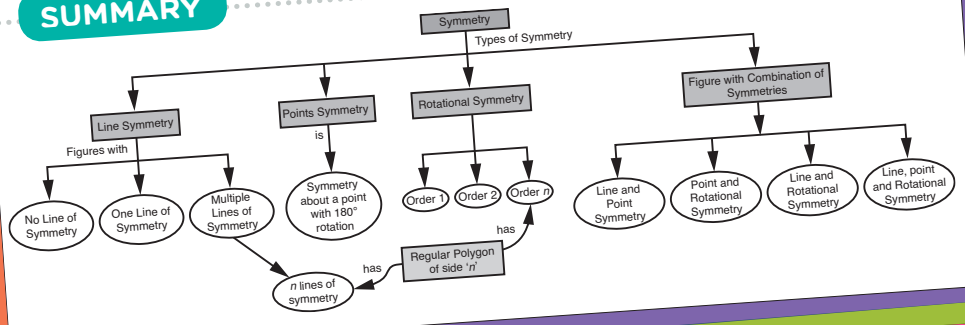
Cross-curricular Link:
What is the difference in the meaning of the words 'remainder' and 'reminder'?

Mental Maths

Look at the pattern and fill in the blanks

7 – 1 = 6 70 – 60 = 10	4 – 3 = 1 ____ – ____ = ____
5 – 2 = 3 50 – 20 = 30	9 – 3 = 6 ____ – ____ = ____

SUMMARY



Exercise 16.1

1 Find the perimeter of the following objects using the correct formulae.

(a) 125 cm, 125 cm

(b) 15 cm, 15 cm

(c) 52 in, 30 in

Revision Exercise

1 Find the perimeter and area of each of the following figures.

(a) 8 cm, 8 cm

(b) 20 cm, 20 cm

(c) 13 cm, 7 cm

Maths Lab Activity

Aim: To classify objects into rolling, sliding and rolling as well as sliding objects

Materials required: Different objects as shown:

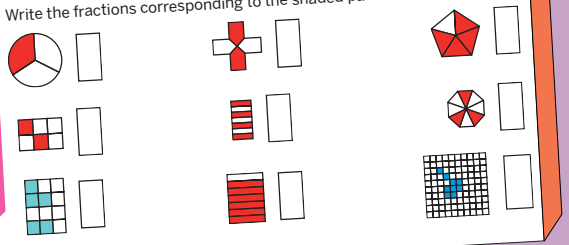
Procedure:

1. Make an inclined surface using a book on the table.
2. Place the objects one by one on the book.
3. Observe whether the object rolls, slides or rolls as well as slides.
4. Complete the table given below for any five objects by drawing them.

Object	Rolling (R)/Sliding (S)/Sliding & Rolling (R & S)

WORKSHEET

Write the fractions corresponding to the shaded parts in the figures below.



Give and Take

One day Cheeku's dad came home feeling very happy.

Cheeku met Meeku on the way and the two set out happily to buy candies.

Vedic Maths

When the numbers to be multiplied are not near the base, then we can use the following method in general to multiply any two 2-digit numbers.

Example 1: Multiply 31 and 22.

Step 1: Multiply the numbers vertically in the last column.

$1 \times 2 = 2$

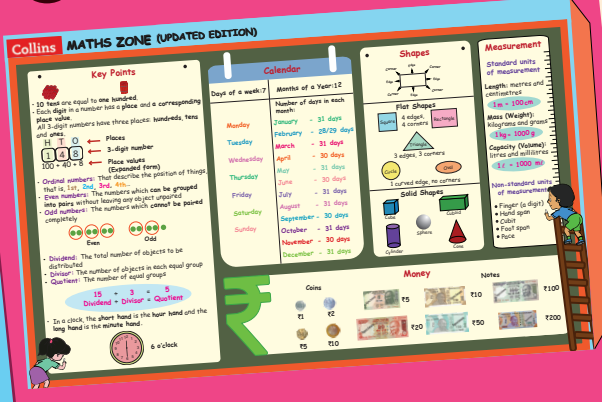
	3	1
×	2	2
		2

Step 2: Multiply the numbers crosswise in both the columns and add the results.

$1 \times 2 = 2$ and $3 \times 2 = 6$

	3	1
×	2	2
	2	6

Collins MATHS ZONE (UPDATED EDITION)



Contents

1.	**Numbers up to 200**	**7**
	Maths Lab Activity	22
2.	**Addition of 2-digit Numbers**	**23**
	Maths Lab Activity/Worksheet	33/34
3.	**Subtraction of 2-digit Numbers**	**35**
	Maths Lab Activity	46
4.	**Numbers up to 1000**	**47**
5.	**Addition and Subtraction up to 999**	**68**
	Maths Lab Activity	84
6.	**Multiplication Tables**	**85**
	Worksheet	97
7.	**Multiplication of Numbers**	**98**
	Worksheet	112
8.	**Division**	**113**
	Worksheet	130
9.	**Measurements**	**131**
	Maths Lab Activity	139
10.	**Shapes and Patterns**	**140**
	Maths Lab Activity	150
11.	**Money**	**151**
	Maths Lab Activity	158
12.	**Time**	**159**
	Maths Lab Activity/Worksheet	167/168
13.	**Data Handling**	**169**
	Maths Lab Activity/Worksheet	173/174
14.	**Assessments 1–4**	**175**
15.	**Comprehensive Assessments 1 and 2**	**182**
16.	**International Mathematics Olympiad Paper**	**188**
17.	**Answers**	**196**
18.	**Practice Worksheets with Answers**	**204**
19.	**Reasoning Worksheet**	**219**
20.	**Maths Tales: Give and Take**	**220**

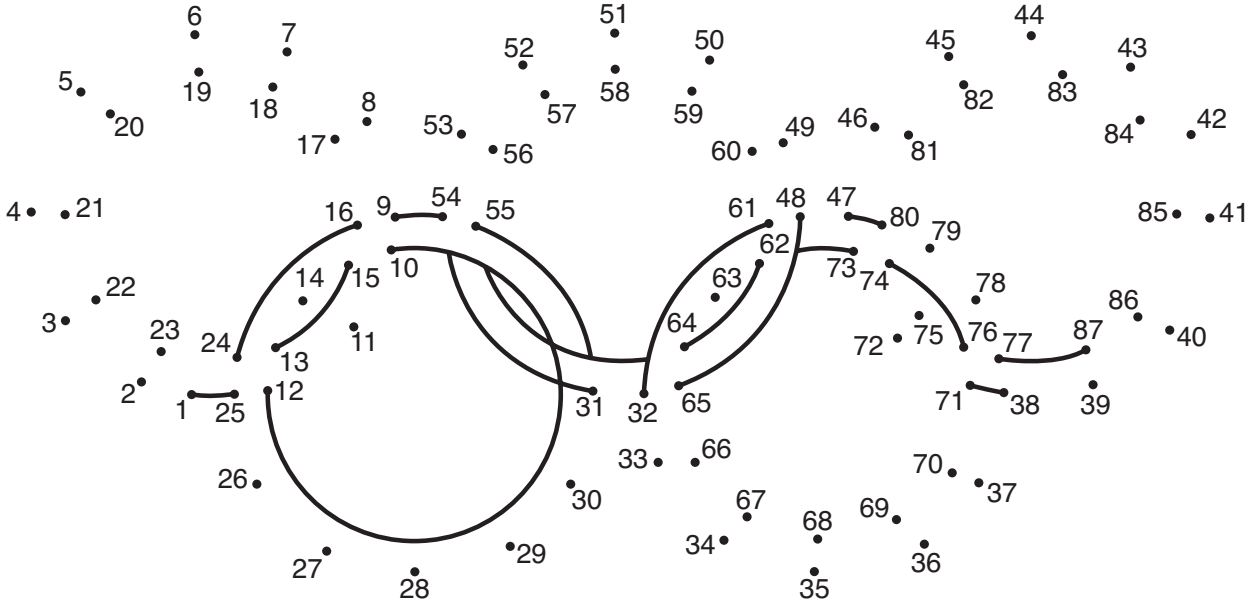
1 Numbers up to 200

Learning Objectives

- To understand the place value, to read, write and to compare numbers up to 200
- To write numbers in expanded form
- To identify odd and even numbers

Let's Get Started

1. Connect the numbered dots and guess the picture.



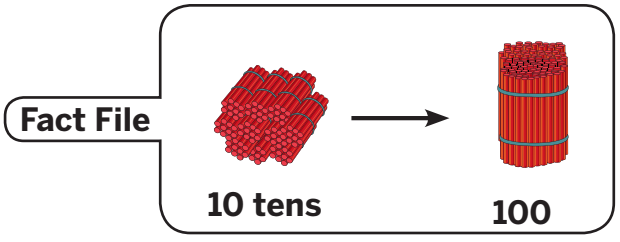
2. Write the missing numbers.

12 = __ ten and __ ones	☐ = **4** tens and **6** ones	**95** = __ tens and __ ones
☐ = **5** tens and **0** ones	☐ = **3** tens and **9** ones	☐ = **8** tens and **2** ones

NUMBERS FROM 101 TO 200

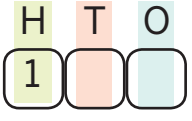
Rajat owns a shop that sells incense sticks. He sells loose sticks, a bundle of 10 sticks and a bundle of 100 sticks as shown below.

One stick 10 sticks 100 sticks

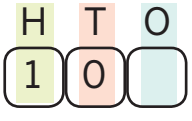


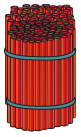
Aarna bought a bundle of 100 sticks and 1 loose stick. How many sticks did she buy?

Aarna bought 1 bundle of 100 sticks.



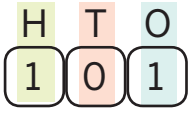
She has not bought any bundles of 10.





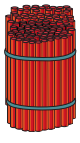
She bought 1 single stick.

1 bundle of 100 sticks 1 loose stick



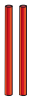
We write it as **101** and we read it as **one hundred one**.

Similarly, we write the following as **112** and we read it as **one hundred twelve**.

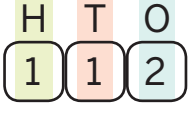


1 bundle of 100 sticks

1 bundle of 10 sticks



2 loose sticks



METHOD OF READING NUMBERS

We follow the given steps to read a 3-digit number.

Step 1: Read the number in the hundreds place.

Step 2: Then, read the number in the tens and ones places together.

Let us see how to read the following 3-digit numbers.

H	T	O
1	1	1

One hundred eleven

H	T	O
1	3	4

One hundred thirty-four

H	T	O
1	6	7

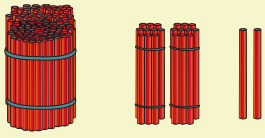
One hundred sixty-seven

H	T	O
1	9	0

One hundred ninety

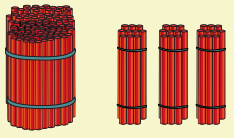
Exercise 1.1

Write the numbers and the number names. Read the number names aloud. The first one has been done for you.



H	T	O
1	2	2

One hundred twenty-two

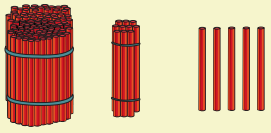


H T O

_____

H T O

_____

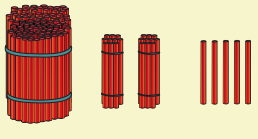


H T O

_____

H T O

_____



H T O

_____

NUMBER CHART FROM 101 TO 200

Let us write the numbers from 101 to 200 by counting forward.

Write the missing numbers. Also, read the numbers aloud.

101	102					107				110
			114		116				119	
121										130
				135						
		143					148			
										160
161					166					
			174							
	182								189	
				195						200

Exercise 1.2

1 **Write the numbers that come before, after and in between the given numbers. The first one has been done for you.**

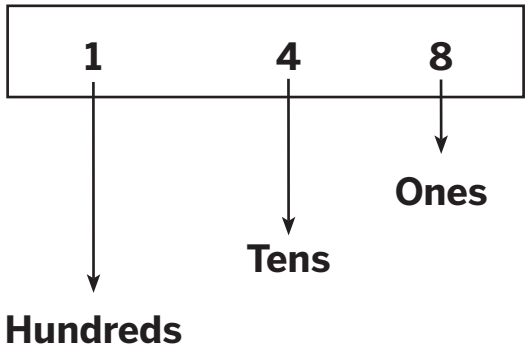
174 175 176	128	200
134 136	108	189

2 **Write the numbers corresponding to the given number names. The first one has been done for you.**

145 One hundred forty-five	One hundred two	One hundred eighty
One hundred sixty-nine	One hundred seventy-three	One hundred ninety-nine

PLACE VALUE

All 3-digit numbers have three places—**hundreds**, **tens** and **ones**.
Consider the given example.



The digit 8 is in **ones** place. Its place value is 8.

The digit 4 is in **tens** place. Its place value is 40.

The digit 1 is in **hundreds** place. Its place value is 100.

That is, 148 = 100 + 40 + 8

Expanded Form

H	T	O
1	4	8

Example: Consider 175.

Place value of 5 is 5.

Place value of 7 is 70.

Place value of 1 is 100.

175 = 100 + 70 + 5

Expanded Form

H	T	O
1	7	5

Exercise 1.3

Write the place value of the underlined digits.

1. **6** in 10<u>**6**</u> _____
2. **4** in 1<u>**4**</u>9 _____
3. **3** in 19<u>**3**</u> _____
4. **1** in <u>**1**</u>89 _____
5. **2** in 1<u>**2**</u>5 _____
6. **1** in 19<u>**1**</u> _____
7. **8** in 16<u>**8**</u> _____
8. **4** in 1<u>**4**</u>4 _____
9. **0** in 15<u>**0**</u> _____
10. **1** in <u>**1**</u>11 _____
11. **1** in 1<u>**1**</u>1 _____
12. **1** in 11<u>**1**</u> _____

Number Corresponding to a Given Expanded Form

Let us study the method of writing the number corresponding to a given expanded form. For example,

100 + 70 + 9 ⟶

H	T	O
1	7	9

100 + 30 ⟶

H	T	O
1	3	0

The digit at ones place is 0. Its value is 0.

100 + 5 ⟶

H	T	O
1	0	5

The digit at tens place is 0. Its value is 0.

Exercise 1.4

1 Write expanded forms of the given numbers.

(a) 112 = _____ (b) 195 = _____

(c) 105 = _____ (d) 151 = _____

(e) 137 = _____ (f) 111 = _____

(g) 146 = _____ (h) 100 = _____

(i) 173 = _____ (j) 190 = _____

2 Write the numbers corresponding to the given expanded forms.

(a) 100 + 4 = ____ (b) 100 + 80 + 1 = _____

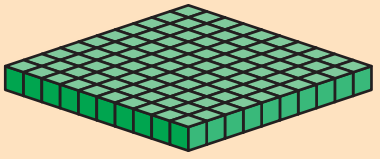
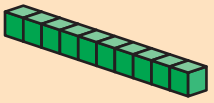
(c) 100 + 60 + 3 = _____ (d) 100 + 20 + 1 = _____

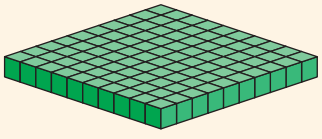
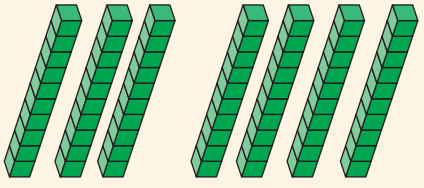
(e) 100 + 3 = _____ (f) 100 + 70 + 8 = _____

(g) 100 + 10 + 8 = _____ (h) 1 hundred + 3 tens + 5 ones = _____

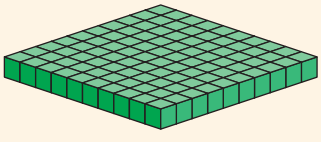
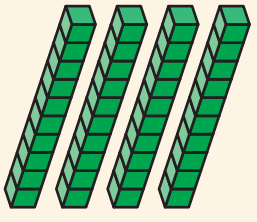
(i) 1 hundred + 6 tens = _____ (j) 1 hundred + 8 ones = _____

3 **Write the number corresponding to each representation. Also, write the expanded form. One has been done for you.**

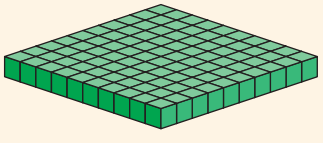
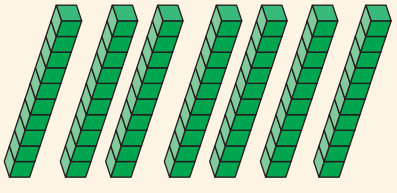
 = 100  = 10 = 1

(a)  

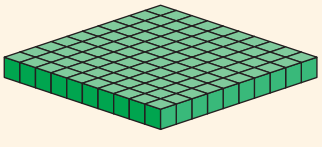
175 = 100 + 70 + 5

(b)  

_____

(c)  

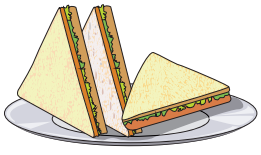
_____

(d) 

_____

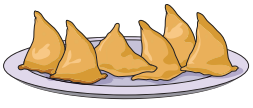
COMPARISON OF 3-DIGIT NUMBERS

All the students of primary classes were taken for a picnic.



135 children ate sandwiches.

200 ate pizza.



75 ate samosas.

Can you tell which food item was eaten by the maximum number of students? For this, you need to compare the numbers. Let us see how. To compare 3-digit numbers, first compare the digits at the hundreds place, then at the tens place and then at the ones place.

For comparing 135 and 200, check the digits at the hundreds place of both the numbers. The number with the greater digit at the hundreds place will be the greater number.

H	T	O
1	3	5

H	T	O
2	0	0

Here, comparing 135 and 200, we know 2 > 1. So, 200 > 135.

Consider 135 and 75. A 3-digit number will always be greater than a 2-digit number. Therefore, 135 > 75. 200 is greater than 135. Also, 135 is greater than 75. Therefore, 200 is the greatest number. Hence, pizza was eaten by the maximum number of students.

Let us see a few more examples.

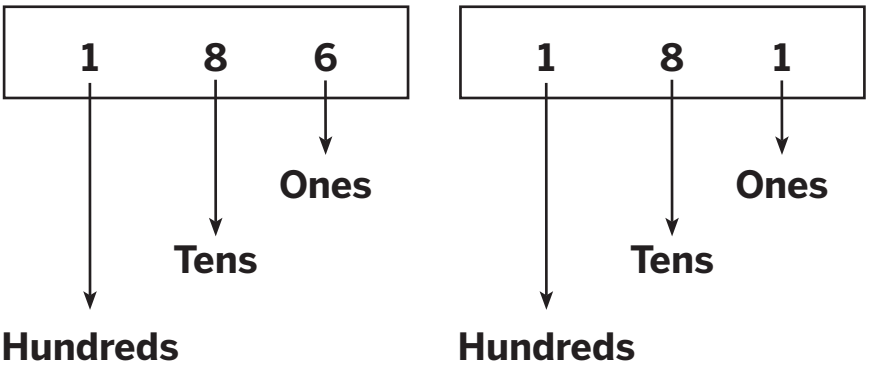
Compare 125 and 173.

Step 1: Compare the digits in the **hundreds** place.
Both the numbers have 1 in the hundreds place.
Step 2: Compare the digits in the **tens** place.
2 < 7

Therefore, 125 < 173.

H	T	O
1	2	5
1	7	3

Now, let us compare 186 and 181.



Step 1: Compare the digits in the **hundreds** place.
Both the numbers have 1 in the hundreds place.
Step 2: Compare the digits in the **tens** place.
Both the numbers have 8 in the tens place.
Step 3: Compare the digits in the **ones** place.

6 > 1

Therefore, 186 > 181.

Exercise 1.5

1 **Tick (✓) the smaller number among the given numbers.**

58 ✓ 199	128 154	173 130
165 163	105 101	134 119

2 **Tick (✓) the greater number among the given numbers.**

135 145 ✓	186 190	142 176
164 162	200 100	109 199

3 **Compare the numbers and write the appropriate symbols (< or >).**

158 > 119	191 ☐ 194	134 ☐ 111	109 ☐ 149
128 ☐ 148	162 ☐ 169	101 ☐ 121	186 ☐ 168

4 **Tick (✓) the greatest number in each group of three numbers.**

140 125 162	112 138 120	105 150 192
199 189 190	151 157 156	100 105 101

5 **Tick (✓) the smallest number in each group of three numbers.**

173 118 145	168 182 120	157 146 185
150 180 175	126 120 129	134 143 138

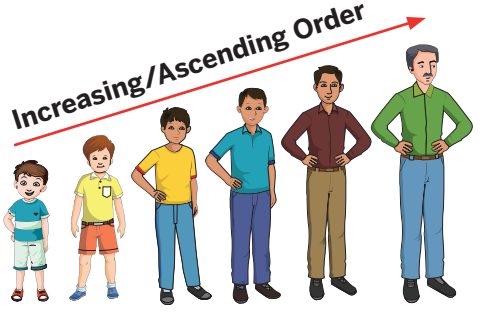
ORDER OF NUMBERS

Ascending Order

The heights of six persons are given as 156 cm, 160 cm, 148 cm, 170 cm, 144 cm and 176 cm.

The numbers in ascending order, from the smallest to the greatest, will be as follows:

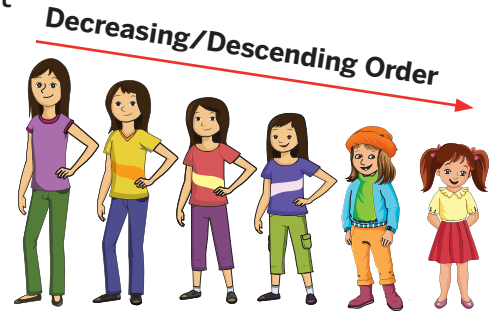
144 cm, 148 cm, 156 cm, 160 cm, 170 cm, 176 cm



Descending Order

The numbers in descending order, from the greatest to the smallest, will be as follows:

176 cm, 170 cm, 160 cm, 156 cm, 148 cm, 144 cm



Exercise 1.6

1 **Write the following numbers in ascending order.**

(a) 50, 10, 100, 200, 150: _____

(b) 112, 156, 173, 126, 168: _____

(c) 182, 189, 193, 186, 180: _____

2 **Write the following numbers in descending order.**

(a) 86, 199, 170, 125, 140: _____

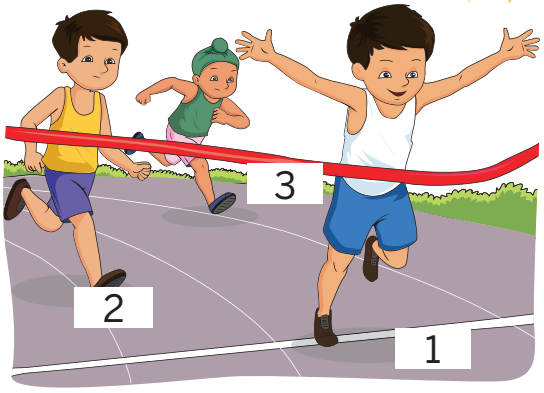
(b) 116, 172, 186, 193, 135: _____

(c) 10, 100, 200, 160, 130: _____

ORDINAL NUMBERS

Numbers 1, 2, 3 and so on are sometimes used to show the position of things.

Consider the example of a racing competition.



The student labelled as 1 is the winner. Similarly, students labelled as 2 and 3 are the runners-up.

We use the terms **first** for 1, **second** for 2, **third** for 3 and so on to refer to the position of numbers from 1 to 10. These terms are called **ordinal numbers** which are given below.

1st (First)	2nd (Second)	3rd (Third)	4th (Fourth)	5th (Fifth)
6th (Sixth)	7th (Seventh)	8th (Eighth)	9th (Ninth)	10th (Tenth)

Exercise 1.7

1 **Consider the seating arrangement in a movie theatre. Person A is sitting at the 1st position. Person B is seating at the 2nd position. Similarly, write the positions of other persons.**

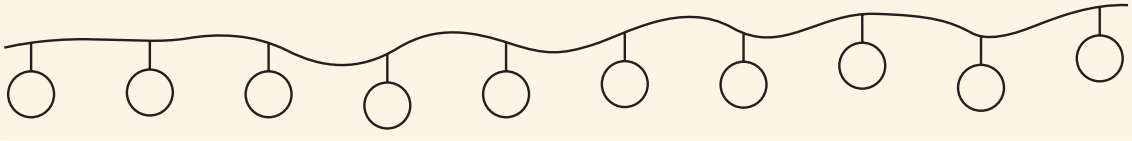
1st 2nd ___ ___ ___ ___ ___ ___ ___ ___

2 **Colour the beads using the given clues.**

First, Fourth, Eighth, Tenth—Red

Second, Fifth, Seventh, Ninth—Yellow

Third, Sixth—Green



Pairs of Objects

The word 'pair' means **two objects**. It is used when two similar objects are placed together and they are considered as one unit.

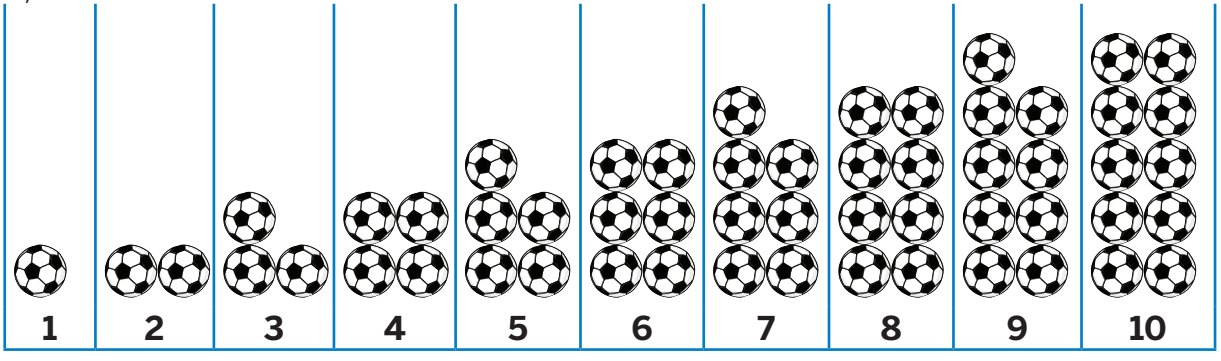
A **pair** of shoes

A **pair** of socks

A **pair** of gloves

Even and Odd Numbers

Take beads, pencils or balls of same colour and make groups of 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 as shown.

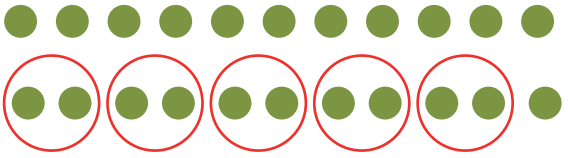


The numbers in which the balls are arranged in pairs are 2, 4, 6, 8 and 10.

The numbers in which the balls are not in pairs are 1, 3, 5, 7 and 9.

Even numbers are the numbers which can be grouped into pairs without leaving any object unpaired. **Odd numbers** cannot be paired completely.

Is 11 an odd number or an even number?



Draw 11 dots in a row.

Pair the dots and circle them.

Here, one dot is unpaired.

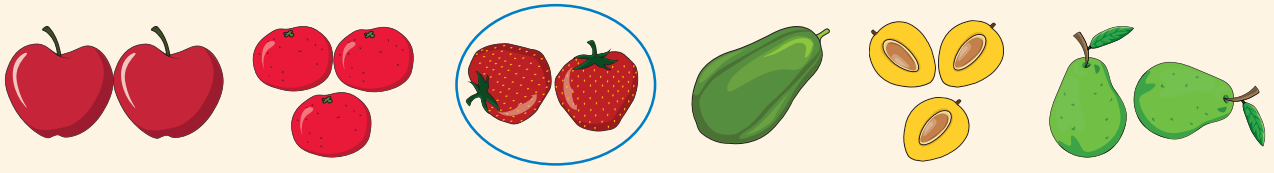
Therefore, 11 is an odd number.

The numbers ending with 2, 4, 6, 8 and 0 are known as **even numbers**.

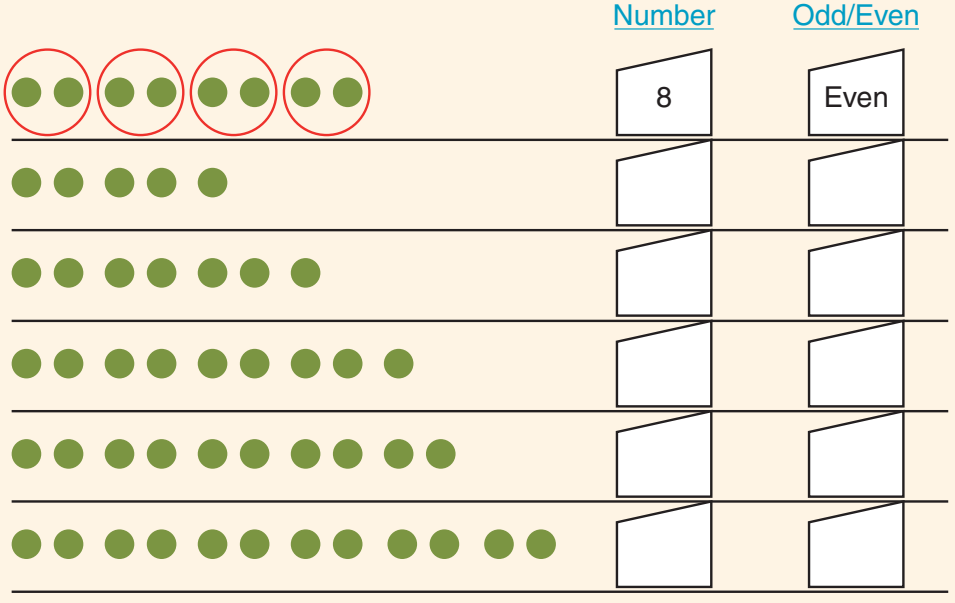
The numbers ending with 1, 3, 5, 7 and 9 are known as **odd numbers**.

Exercise 1.8

1 **Circle the objects in pairs. One has been done for you.**



2 **Count the number of dots and write the number. Also, circle the dots in pairs to find whether it is an odd or even number. The first one has been done for you.**

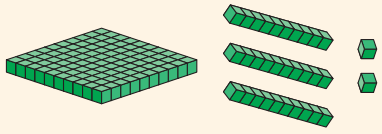


Brain-teaser

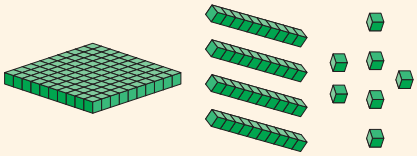
Is 15 an even number? Find by pairing the dots.

Revision Exercise

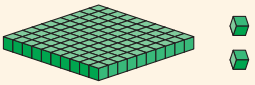
1 **Write the number corresponding to the given representation. Also, write the number in expanded form.**



_____



_____



_____

2 **Write the place value of the underlined digits.**

(a) **6** in 18<u>6</u> _____ (b) **7** in 1<u>7</u>9 _____ (c) **3** in 10<u>3</u> _____

(d) **5** in 1<u>5</u>9 _____ (e) **1** in <u>1</u>09 _____ (f) **9** in 1<u>9</u>9 _____

(g) **1** in 10<u>1</u> _____ (h) **0** in 1<u>0</u>0 _____

3 **Write the numbers corresponding to the given expanded forms.**

(a) 100 + 40 + 9 = _____ (b) 100 + 90 + 5 = _____

(c) 100 + 60 = _____ (d) 100 + 10 + 6 = _____

(e) 100 + 80 + 5 = _____ (f) 100 + 70 + 3 = _____

4 **Write true (T) or false (F) for the following statements. Also, write the correct answer, if required. The first one has been done for you.**

(a) Place value of 6 in 162 is 6. F 60 (b) Place value of 9 in 109 is 9. ☐ ☐

(c) Place value of 3 in 135 is 30. ☐ ☐ (d) Place value of 1 in 124 is 10. ☐ ☐

(e) Place value of 5 in 150 is 5. ☐ ☐ (f) Place value of 0 in 102 is 100. ☐ ☐

5 **In each group of numbers, tick (✓) the smallest number.**

119	135	100
150	176	199
109	167	200

6 **In each group of numbers, cross (x) the greatest number.**

137	191	170
154	156	148
123	120	101

7 **Write the given numbers in ascending and descending orders.**

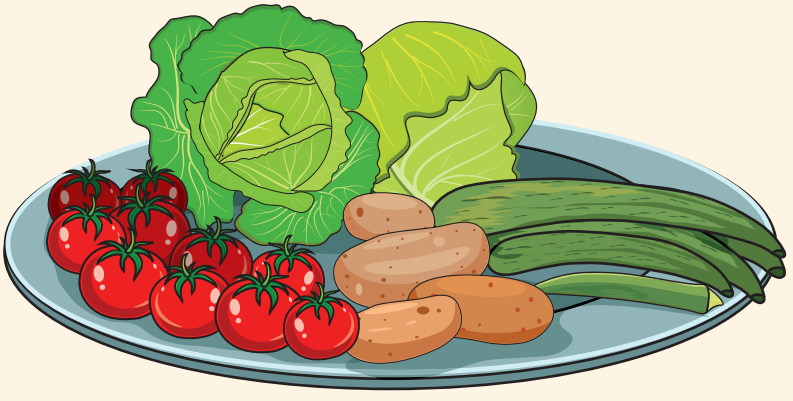
(a) 185, 82, 124, 176, A: _____

D: _____

(b) 105, 198, 189, 167, A: _____

D: _____

8 **Count and write the number of vegetables of each type. Write whether the number is odd or even.**



Vegetable	Number of Vegetables	Odd/Even
Lady's finger	_____	_____
Tomatoes	_____	_____
Sponge gourds	_____	_____
Potatoes	_____	_____
Cabbages	_____	_____

9 **Tick (✓) the even numbers.**

3	8	12	2	7	20	14	9