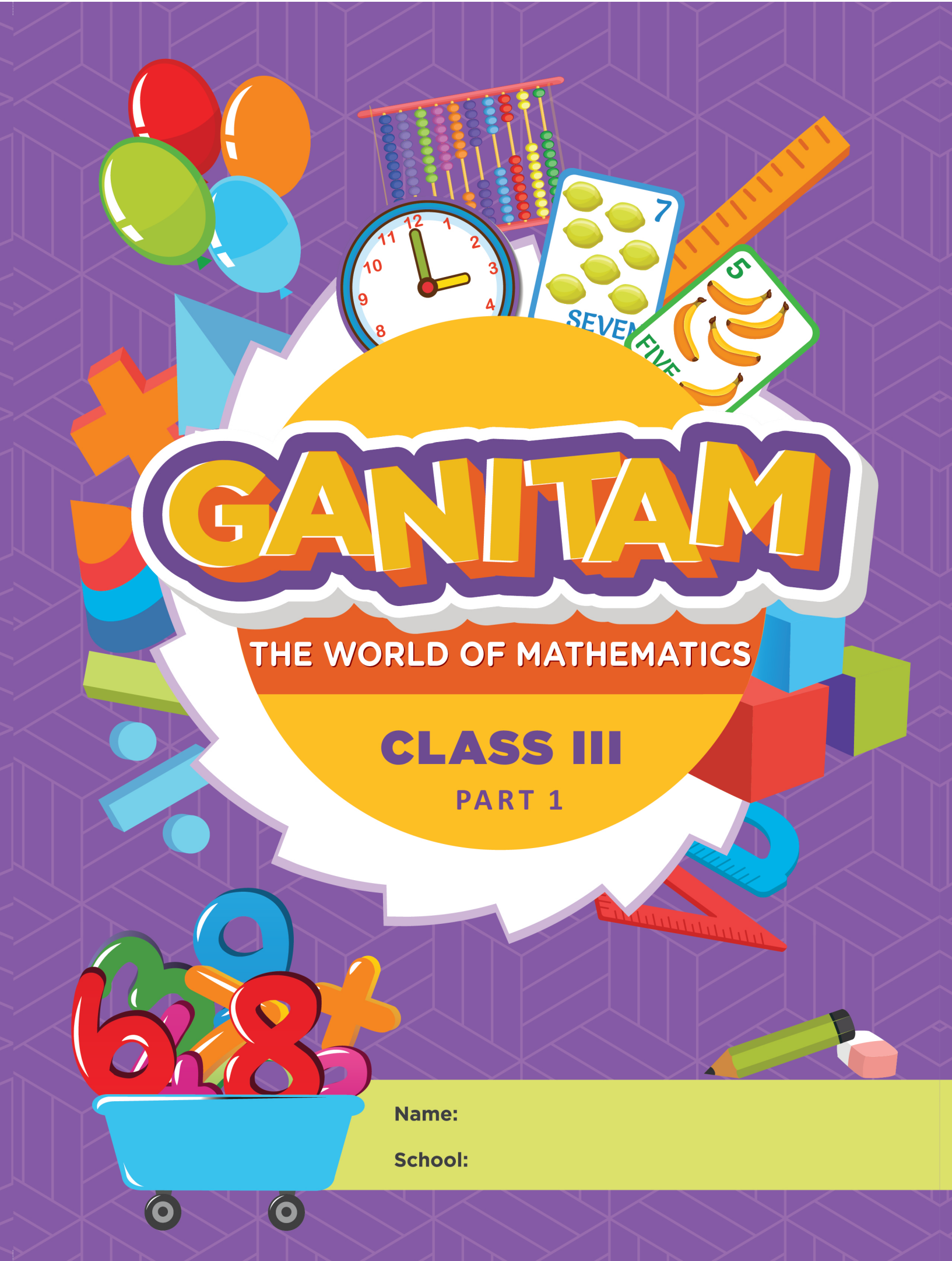
GANITAM
THE WORLD OF MATHEMATICS
CLASS III
PART 1
Name:
School:

‘Ganitam’

The World of Mathematics

PART I

‘Ganitam’

The World of Mathematics

First Edition published in 2022

Second Edition published in 2023

Third Edition published in 2024

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Preface

‘Ganitam’ – The World of Mathematics

Mathematics builds hope. It helps us believe that every problem has a solution.

Education imparted in classrooms should be linked to life outside school. Hence the knowledge and skills acquired in school should help children understand the world around them better, and thereby contribute towards its betterment. This series of books on Mathematics titled “Ganitam-The World of Mathematics”, has been prepared with that thought on our minds. The book has been designed in such a way that it enhances inquisitiveness in children by encouraging them to ask questions and seek answers rather than just learn what is listed in the books.

The content has been carefully curated, so that it reflects the rich cultural diversity of our motherland Bharat, enabling the child to intuitively understand the unifying values that bond the citizens of this great country together. Thus, the book will help a child gain various skills required for the 21st century and be a universal citizen with a passion for following Indian values.

The core content of the book originates from the Vedas which provide the key concepts of Mathematics. For example, the sutra एकाधिकेन पूर्वेण (Ekaadhikena Purvena) indicates an interesting mathematical application. Great ancient Indian scholars like Acharya Aryabhatta, Brahmagupta, Bhaskaracharya, Pingala, Mahavira, and more contemporary ones like Srinivasa Ramanujan along with their counterparts from other parts of the world, have further developed this body of knowledge. Numerous teachers from the DAV Group of Schools, with their decades of rich experience, have compiled the existing knowledge in a child-friendly form.

Therefore, there is no copyright on the content of this book. One can seek permission and print all or only certain chapters of the book. However, no unauthorized modification is permitted in any chapter. Considering the social orientation of the organization, we have consciously ensured that cost of the textbook is affordable

without compromising on the quality of paper/print. Also, the e-copy of the entire book will always be downloadable for free from our website – davchennai.org/publications.

This is the first version of the book and could contain not only omissions, but also areas of improvement. We request the reader to excuse us for the omissions, but please do bring to our notice any feedback for correction and improvement in subsequent versions. We will remain grateful to you for your support and feedback.

Lastly, before signing off, we would like to express our profound gratitude to God Almighty for the guidance and encouragement in this endeavour. As the great mathematician, Srinivasa Ramanujan, rightly said - **"An equation for me has no meaning unless it expresses a thought of God."**

Chennai | May 2024

Secretary
TN Arya Samaj Edu. Society

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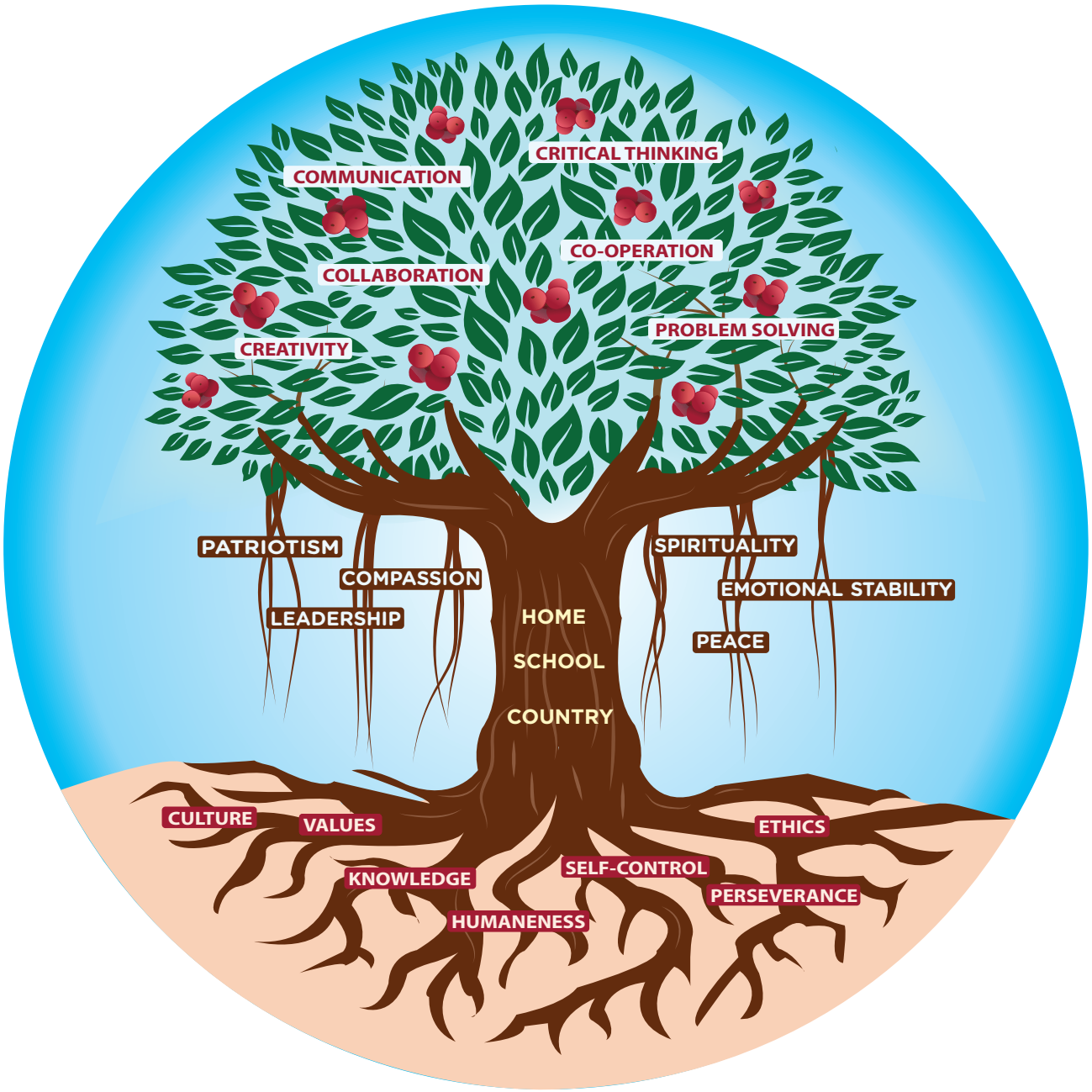
The Learning Tree



Contents

NUMBERS

LEARNING OUTCOMES

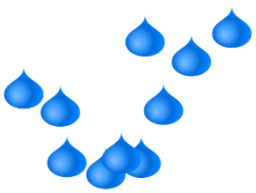
At the end of this lesson, children will be able to:

- Read and write 4-digit numbers
- Use place values to learn expanded form and standard form of 4-digit numbers.
- Compare numbers and arrange them in ascending and descending order.
- Form the smallest and the greatest numbers with the given digits.
- Differentiate between odd and even numbers

Warm-up:

It was a Sunday morning. Tharun and Maya were watering the plants in their garden along with their *Nana* [grandfather in Hindi].

Tharun sings
'Little drops of water
make
a mighty ocean!'



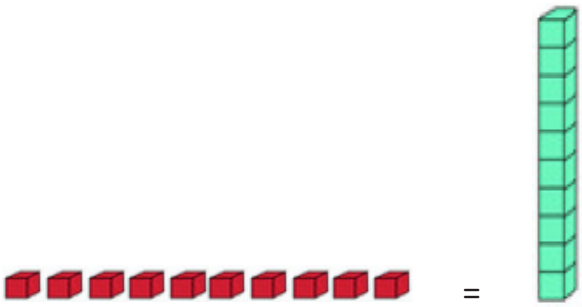
Tharun, can we relate this to numbers too.

You are right Maya! When we put 10 ones together we get 1 ten. When we put 10 tens together we get 1 hundred!

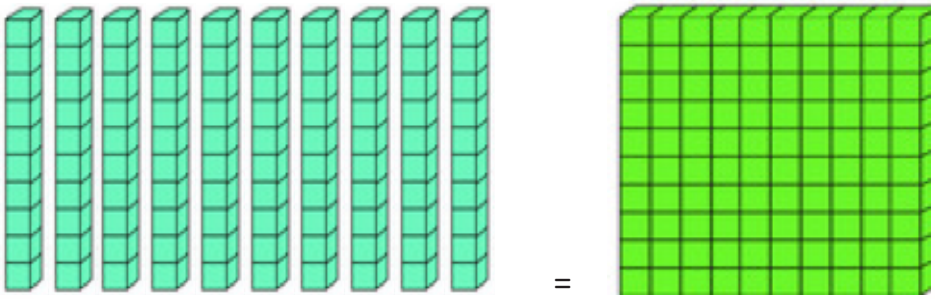
Nana… Can you please explain this a little more.

Nana : Let me use these blocks to make it more clear.

Nana explains the concept of building numbers to his grandchildren, Tharun and Maya with the help of blocks and rods.



- 10 tens make 1 hundred.



1. Write the numbers and number names.

a] 7 hundreds + 2 tens + 5 ones = ☐ _____

b] 2 hundreds + 4 ones = ☐ _____

c] 3 hundreds + 6 tens = ☐ _____

2. Write the face value and place value of the coloured digits.

a] 45**6**

Face value = ____ Place value = ____

b] 6**7**0

Face value = ____ Place value = ____

c] **8**12

Face value = ____ Place value = ____

3. Write the expanded form.

a] 283 = ____ + ____ + ____

b] 309 = _____+ _____+ _____

c] 450 = _____ + ____+ _____

4. Write in standard form.

a] 2 tens + 8 ones = ____

b] 4 hundreds + 9 tens + 3 ones = ____

c] 5 tens + 7 hundreds + 6 ones = ____

Asha, a Class 3 student and her *Amma* [mother in Tamil] always spend their evenings together reading books.

Amma: Asha… I have finished reading **999** pages of this book.

Asha: That is great Amma! So, you are moving to page number **1000** now! Let me see……

[Asha peeps into the book]

Amma [smiling]: What is special about the number **999** Asha?

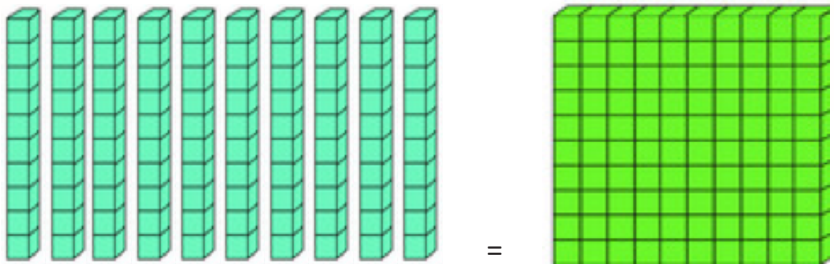
Asha: **999** is the greatest 3-digit number, is it not Amma?

Amma : Yes you are right ! What about **1000** then?

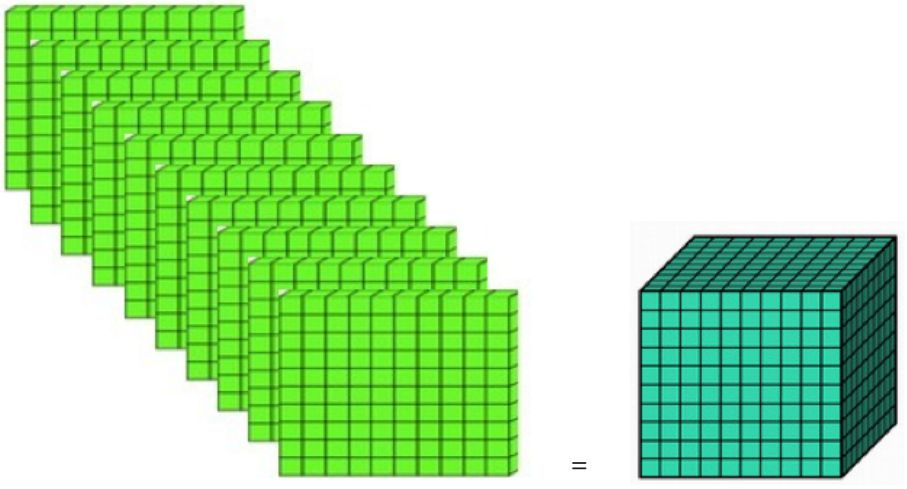
Asha: **1000** is the smallest 4-digit number!

Amma: Good!

10 tens = 1 hundred

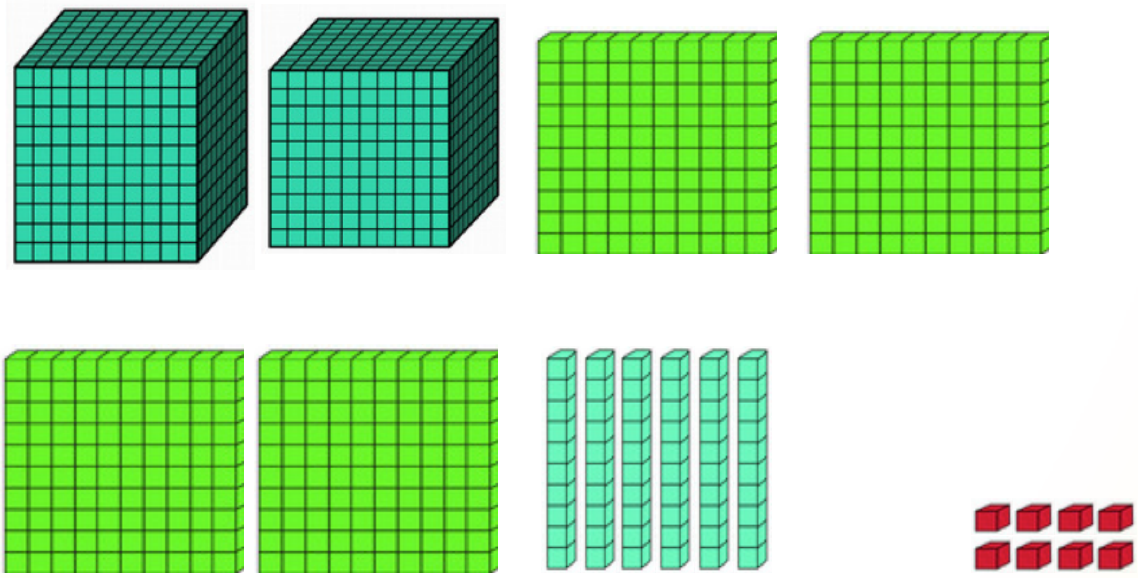


10 hundreds = 1 thousand



Forming 4-digit numbers

Example:



2 thousands + 4 hundreds + 6 tens + 8 ones = **2,468**

"A comma", separates the thousands place from the other digits in a 4-digit number.

Reading 4-digit numbers

[a] 3,415

3	4	15
↓	↓	↓
Three Thousand	four hundred	fifteen

[b] 7,268

7	2	68
↓	↓	↓
Seven Thousand	two hundred	sixty eight

PLACE VALUE CHART

Thousands	Hundreds	Tens	Ones
Thousands [Th]	**Hundreds [H]**	**Tens [T]**	**Ones [O]**

EXERCISE 1.1

1. Write the number names

a] 1,365 – One thousand three hundred sixty five.

b] 2,098 – _____

c] 4,720 – _____

d] 3,003 – _____

e] 6,904 – _____

2. Write the numerals

a] Five thousand five – 5,005

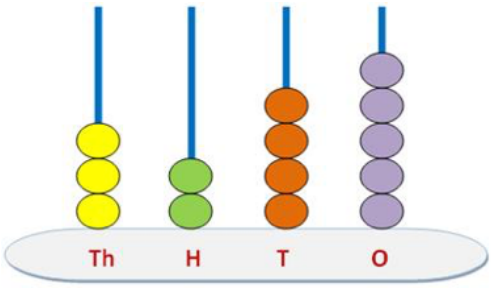
b] Seven thousand eight hundred –

c] Eight thousand fifteen –

d] Three thousand four hundred sixty –

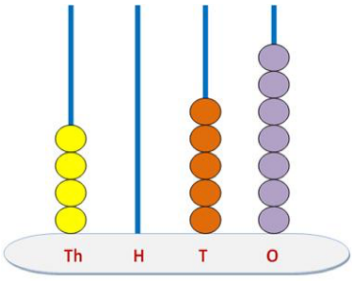
e] Nine thousand two hundred two –

Representing 4-digit numbers on the abacus



Number: 3,245

Number name: **Three thousand two hundred forty five**



Number: 4,057

Number name: Four thousand fifty seven.

1. There are around 6,500 languages spoken in the world.
2. The height of Mount Everest is 8,848 metres.
3. The number of couplets in the world famous Tamil book "Thirukural" is 1330.

EXERCISE 1.2

1. Write the number names.

a] 4,837 – _____

b] 2,098 – _____

c] 1,240 – _____

d] 5,805 – _____

e] 6,600 – _____

2. Write the numerals.

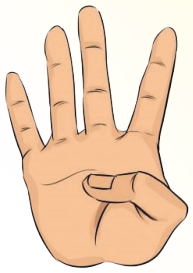
a] Seven thousand two hundred thirty five –

b] Three thousand thirty six –

c] One thousand one hundred eleven –

d] Eight thousand three hundred eighty –

e] Nine thousand nine –



The greatest 4-digit number 9 9 9 9

The smallest 4-digit number 1 0 0 0

3. Write down the numbers

a] Greatest 2-digit number = _____

b] Greatest 3-digit number = _____

c] Smallest 2-digit number = _____

d] Smallest 3-digit number = _____

4. Colour the boxes which have 4-digit numbers

One thousand one	Nine hundred twenty four
Four thousand ten	700 + 8

5. Show the given numbers on the abacus. Write the number name

a] 5,063

TH	H	T	O

_____

_____

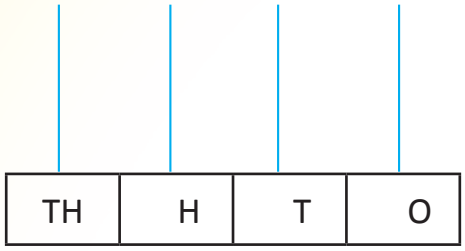
b] 4,708

TH	H	T	O

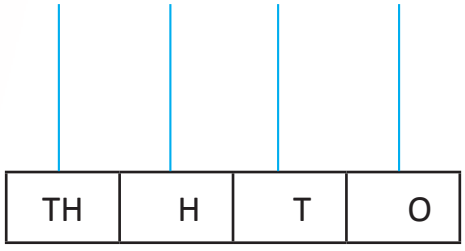
_____

_____

c] 7006



d] 9513



6. Higher Order Thinking Skills

a] Find the sum of the greatest 3-digit number and the smallest 4-digit number.

b] Find the difference between the greatest 4-digit number and the smallest 2-digit number

Place, face value and place value of all the digits in a four digit number

- The actual value of a digit in a number is called its face value.
- The face value of a digit remains the same as the number.
- The position of a digit in a number is called its place.
- The place value of a digit in a number is related to the value of its position.

Example

Consider the four digit number 6294

6 is in thousands place

Face value of 6 is 6

Place value of 6 is 6 thousands = 6,000

2 is in hundreds place

Face value of 2 is 2

Place value of 2 is 2 hundreds = 200

9 is in tens place

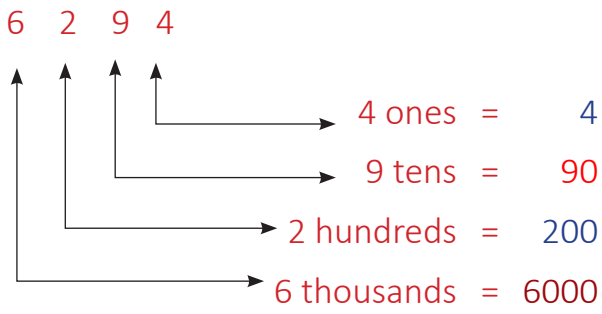
Face value of 9 is 9

Place value of 9 is 9 tens = 90

4 is in ones place

Face value of 4 is 4

Place value of 4 is 4 ones= 4



EXPANDED FORM

The expanded form of the 4-digit number 2378 is:

2378	=	2 thousands	+ 3 hundreds	+ 7 tens	+ 8 ones
	=	2,000	+ 300	+ 70	+ 8

Think

Which number has the same place value in all the places?

Ans: _____

EXERCISE 1.3

1. Write down the face value (FV) and the place value (PV) of the coloured digits

a] 8210 FV = _____ PV = _____

b] 3989 FV = _____ PV = _____

c] 6734 FV = _____ PV = _____

d] 4652 FV = _____ PV = _____

2. Write the expanded form

a] 3104 = _____+ _____+ _____ + _____

b] 4397 = _____+ _____+ _____ + _____

c] 9690 = _____+ _____+ _____ + _____

d] 2058 = _____+ _____+ _____ + _____

3. Write the standard form

a] 3000 + 200 + 10 + 4 = _____

b] 5 thousands + 2 hundreds + 5 tens + 6 ones = _____

c] 2000 + 40 + 8 = _____

d] 6000 + 300 = _____

Do you know?

50 ones = 50; 50 tens = 500; 50 hundreds = 5000

500 ones = 500; 500 tens = 5000

Higher Order Thinking Skills:

1. Choose the correct numbers from the box given below and fill in the blanks

50	800	3900	30
6	6007	2000	

a] 300 tens + 9 hundreds = _____

b] 60 hundreds + 7 ones = _____

c] 800 + 4 hundreds + 80 tens = _____

d] 2 hundreds + _____ tens = 700

e] 1 thousand + _____ tens = 9000

f] _____ hundreds + _____ ones = Three thousand six

Successor and predecessor

★ The successor of a given number is the number that is one more than it.

For example,

a] the successor of 4596 is **4597**

b] the successor of 6000 is **6001**

c] the successor of 1999 is **2000**

★ The predecessor of a given number is the number that is one less than it.

For example,

a] the predecessor of 3219 is **3218**

b] the predecessor of 8500 is **8499**

c] the predecessor of 4000 is **3999**

Do you know?

The predecessor of the successor of any number is the **same** number !

★ NUMBER SERIES

Learn to write the numbers in order

a] 2463, 2464, 2465, **2466, 2467, 2468**

b] 1677, **1678,** 1679, **1680, 1681,** 1682

c] **4996,** 4997, **4998,** 4999, **5000,** 5001

d] 8765, _____, 8767, _____, _____, _____

e] 9099, _____, _____, _____, 9103, _____

f] 4011, _____, _____, 4014, _____, _____

EXERCISE 1.4

1] Write the successor of

a] 4569, _____ b] 9090, _____

c] 2021, _____ d] 8500, _____

2] Write the predecessor of

a] _____, 2323 b] _____, 4004

c] _____, 5000 d] _____, 6970

3] Complete the series

a] 3456, _____, 3458, _____, _____, _____

b] 5008, _____, _____, _____, 5012, _____

c] 7777, _____, _____, _____, _____, 7782.

d] _____, _____, 9011, _____, 9013, _____

Higher Order Thinking Skills:

1] The successor of the greatest 3-digit number has _____ digits.

2] The predecessor of the smallest 4-digit number has _____ digits.

3] Find the sum of the predecessor of the greatest 2-digit number and the successor of the smallest 2-digit number.

4] Find the difference between the smallest 3-digit number and the greatest 4-digit number.

5] Which number comes between 56 hundreds + 57 ones and the predecessor of 5660?

Comparing numbers

Ooty is **2240 m** above the sea level

Shimla is **2276 m** above the sea level

2240 < 2276

• When two numbers are compared the value depends on the number of digits in each number.

A three digit number is always less than a four digit number. For example 990 < 1235

- Now let us see how 2 four digit numbers are compared.
- Firstly, the digits in the highest place i.e thousands places are to be checked.
- If both have the same value then the digits in hundreds places are to be checked.
- If those values too are the same then the digits in tens places are to be checked.
- If the digits in thousands, hundreds and tens places are same then the digits in ones places are to be checked.

Examples:

6589 > 4178

6589 > 6178

6528 > 6518

6528 > 6527

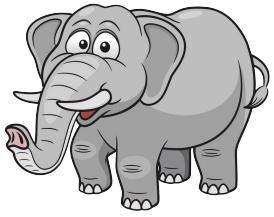
EXERCISE 1.5

1. Circle the smallest number

a] 2098 ; 2980 ; 2089 ; 2890

b] 4567 ; 5291 ; 125 ; 8129

c] 324 ; 2345 ; 3425 ; 2543



2. Circle the largest number

a] 743 ; 3437 ; 7434 ; 3734

b] 9400 ; 3800 ; 2600 ; 5708

c] 3021 ; 3452 ; 3210 ; 3425

3. Compare the given numbers using the signs < , > and =

a] 512	☐	4512	b] 4898	☐	4897
c] 8080	☐	8808	d] 5656	☐	6565
e] 7170	☐	2102	f] 6982	☐	982

g] 4366 ☐ 6343 h] 1110 ☐ 1010

i] 60 hundreds ☐ 6000 j] 8 hundreds ☐ 7,647

k] 560 ones ☐ 5 hundreds + 6 tens + 6 ones

l] 20 tens + 40 hundreds ☐ 4002

Ascending order and descending order

When numbers are written from the smallest to the greatest, they are said to be in ASCENDING ORDER

When numbers are written from the greatest to the smallest, they are said to be in DESCENDING ORDER

Example:

The lengths of the rivers flowing in India [in km] are given below.

GANGES-2510 KM | INDUS – 3180 KM | KRISHNA – 1400 KM | KAVERI-805 KM

Ascending Order

805 km < 1400 km < 2510 km < 3180 km

Descending Order

3180 km > 2510 km > 1400 km > 805 km

EXERCISE 1.6

1. Rewrite the numbers in ascending order

a] 1345 ; 3242 ; 2343 ; 1343 _____

b] 9090 ; 9990 ; 990 ; 9999 _____

c] 2678 ; 2763 ; 2999 ; 2343 _____

d] 1010 ; 1110 ; 1011 ; 1111 _____

2. Rewrite the numbers in descending order

a] 4566 ; 4567 ; 6745 ; 7456 _____

b] 9011 ; 1109 ; 9019 ; 1009 _____

c] 8383 ; 3838 ; 8833 ; 3888 _____

d] 6123 ; 8212 ; 4092 ; 7127 _____

Forming four digit numbers

Example:

3	7	5	8

The greatest number that can be formed using these digits is **8,753.**

The smallest number that can be formed using these digits is **3,578.**

★ To form the greatest four digit number, the given digits are written in descending order.

★ To form the smallest four digit number, the given digits are written in ascending order

However, if one of the digits is 0, the **smallest digit** comes first followed by 0 and then the rest of the digits in ascending order.

If '0' is written first, then the resulting number would be a 3-digit number.

Example:

9	0	4	1

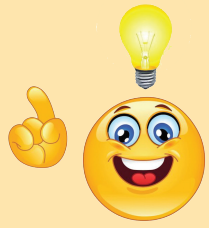
From the given digits

The smallest four digit number formed is **1,049**

The greatest four digit number formed is **9,410**

Think

While forming smallest 4 digit number with one zero,
0 should be in the _____ place.
[ones / tens/ hundreds/ thousands]



EXERCISE 1.7

1. Form the greatest and the smallest 4-digit numbers using the given digits.

	GREATEST NUMBER	SMALLEST NUMBER
a] 2, 1, 0, 6	_____	_____
b] 7, 0, 3, 9	_____	_____
c] 4, 5 , 6, 8	_____	_____
d] 6, 7, 5, 0	_____	_____
e] 5, 8, 7, 1	_____	_____
f] 3, 9, 4, 5	_____	_____

2. If the smallest possible 4-digit number formed is 3056, then the greatest possible 4-digit number formed with the same digits is _____.

3. Form the greatest and the smallest 4-digit numbers using the digits 9, 0, 3 and 8. Also find their (i) sum and (ii) difference.

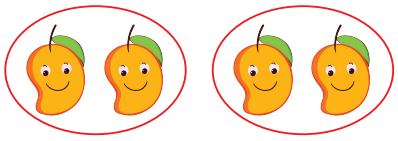
Even numbers and odd numbers

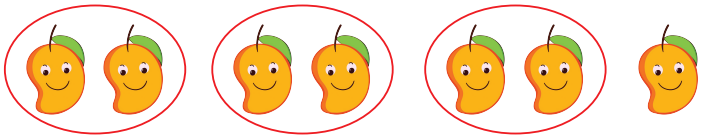
★ Numbers that can be put in pairs are called **even numbers.**

If the ones place is 0, 2, 4, 6 or 8 then the number is an **Even number**.

★ Numbers that cannot be put in pairs are called **odd numbers.**

If the ones place is 1, 3, 5, 7 or 9 then the number is an **Odd number**.


4 – even number


7 – odd number

- The year I was born is _____.
  It is an _____ number.

- My age is ____.
  It is an _____ number.
- We study in Class ___.
  It is an _____ number.
- My roll number is _____.
  It is an ____ number.
- Nethaji Subhas Chandra Bose was born in the year _____.
  It is an ____ number.

Easy way to remember !

EV EN OD D

Read the given passage and pick the odd/ even numbers. Write them in the suitable columns given below.

Our country India is well known for its rich and varied culture. Ruled by the British for almost 200 years we got our freedom in the year 1947. We have a population of nearly 137 crores. India is home to 7 major mountain ranges and more than 450 rivers. India's coastline is around 7516 km. We have 29 states. There are 23 official spoken languages in India and 2 official classical languages, namely Sanskrit and Tamil. I am proud to be an Indian!

ODD NUMBERS	EVEN NUMBERS

★ The sum of an odd number and an even number is always an odd number.

Ex: 7 + 10 = _____ [_____ number]

★ The difference between an odd number and an even number is always an odd number.

Ex : 13 - 2 = _____ [_____ number]

★ The product of an odd number and an even number is always an even number.

Ex: 5 x 8 = _____ [_____ number]

★ The greatest 4-digit even number is 9998.

★ The smallest 4-digit odd number is 1001.

EXERCISE 1.8

1. Find the sum of the greatest 2-digit even number and the smallest 3-digit odd number.
2. List all odd numbers between 2010 and 2040.
3. List all even numbers between 4479 and 4511.
4. The difference between two consecutive odd numbers is _____.

Arts Integration Activity

Colour the petals with suitable shades.

1] Use **red** colour for the number which has the digit 5 in Tens place.

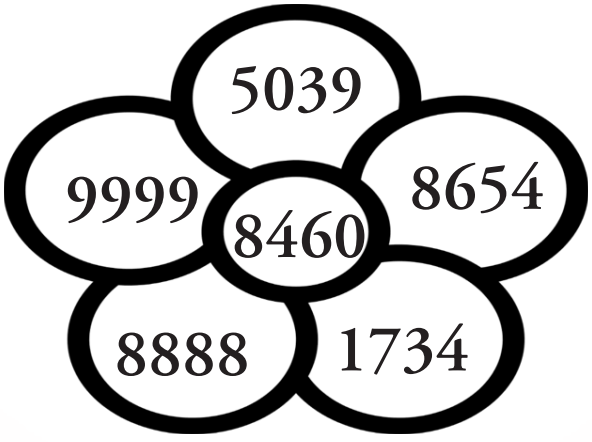
2] Use **yellow** colour for the number which lies between 8459 and 8461.

3] Use **blue** colour for the successor of the greatest 4-digit even number.

4] Use **orange** colour for the number which is 100 more than 4939.

5] Use **green** colour for 888 tens plus 8 ones.

6] Use **purple** colour for the number which has the place value of 7 as in 700.



WORKSHEET

1. Write the number names

a] 5490 – _____

b] 2038 – _____

c] 1203 – _____

d] 9005 –_____

2. Write the numerals.

a] Two thousand six hundred forty six - _____

b] Five thousand two hundred nine - _____

c] Six thousand fifty seven - _____

d] Three thousand twelve - _____

3. Write the face value and place value of the coloured digits

	Face value	Place value
a] 4**9**03	_____	_____
b] **2**490	_____	_____
c] 171**5**	_____	_____
d] 2**0**78	_____	_____
e] 45**3**7	_____	_____

4. Fill in the blanks

a] 2309 = _____ + 300 + ___ + 9

b] 7842 = 7000 + 800 + ___ + ___

c] 3007 = ____ + ____ + ____ + 7

d] 4096 = 4000 + ___ + ____ + 6

5. Write the standard form

a] 1000 + 2000 + 300 + 6 = _____

b] 5 hundreds + 4 thousands + 2 hundreds + 7 ones = _____

c] 8 thousands + _____ + 5 tens + 8 ones = 8758

d] 9 tens + 1 thousands + 2 ones+ 4 hundreds = _____

e] 3000 + 400 + 200 + 3 = _____

f] 2000 + 7000 + 100 + 200 + 50 = _____

6. Compare the given numbers using the signs < , > and =

a] 6543 ☐ 876 b] 9092 ☐ 2929 c] 490 + 25 ☐ 4925

d] 5656 ☐ 5656 e] 1010 ☐ 1110 f] 2460 – 60 ☐ 2400

7. Fill in the blanks

	Predecessor	Number	Successor
a]	_____	4564	_____
b]	9378	_____	9380
c]	_____	2021	_____
d]	_____	_____	1920
e]	_____	6499	_____

8. Arrange the given numbers in ascending order (A.O.) and descending order (D.O.)

a] 8906, 8069, 9086, 6908

A.O. _____

D.O. _____

b] 4020, 420, 2020, 2044

A.O. _____

D.O. _____

c] 1717, 7171, 7717, 1771

A.O. _____

D.O. _____

9. Use the given digits to make the smallest and the greatest 4-digit numbers.

	Greatest number	Smallest number
a] 3,2,1,6	☐☐☐☐	☐☐☐☐
b] 9,0,3,8	☐☐☐☐	☐☐☐☐
c] 4, 5, 0,7	☐☐☐☐	☐☐☐☐
d] 1,0,4,0	☐☐☐☐	☐☐☐☐

10. Use the digits 0,1,2,3,4,5,6,7,8 and 9 to form

a] the smallest 4-digit number in which all the digits are different

☐☐☐☐

b] the greatest 4-digit number in which all the digits are different

11. Colour the boxes with even numbers in red and the boxes with odd numbers in blue

83	**976**	**1234**	**4378**	**890**
5690	**44**	**465**	**8732**	**821**
7777	**8456**	**907**	**6161**	**50**
1239	**3120**	**4562**	**7873**	**7379**

12. Choose the correct answer.

1. Which number has the place value of 3 as in 300?

   a) 137 b) 3715 c) 4387 d) 4231

2. Which of the following is equal to 542?

   a) 5 + 4 + 2 b) 500 + 40 + 2 c) 500 plus 4 ones
   d) 5 hundreds + 2 tens + 4 ones

3. The successor the greatest 3-digit number is _____

   a) 999 b] 909 c) 100

   d) the smallest 4-digit number

4. 1 less than 8389 is

   a) 8388 b) 8390 c) 8839 d) 8398

5. 100 more than 6340 is

   a) 6341 b) 7340 c) 5340 d) 6440

6. The place value of 0 in 4905 is _____

   a) 0 b) 10 c) 100 d) 1000

Lab activity:

The children in the class are divided into groups. Each group has the same number of children. A pack of number cards consisting of 4 different digits (0-9) is given to each group. Children are asked to make

a] the greatest possible 4-digit number

b] the smallest possible 4-digit number

c] check whether [a] and [b] are odd / even

d] write down the successor and predecessor of [a] and [b]

e] find the sum and difference of [a] and [b]

Fun with numbers

SUDOKU [5 x 5 grid]

Fill the empty boxes with the digits 1,2,3,4 and 5 in such a way that each row and each column of the grid has all the digits.

1)

1		3		5
	5		2	
2		4		1
	1		3	4
3	4		1	

2)

			4	
5		1		3
	1		5	
2		5		4
	5		3	

3)

	4		1	
	5	2	3	
5		1		2
	1	5		
3			5	

2 ADDITION

LEARNING OUTCOMES

At the end of this lesson, children will be able to:

- Add numbers up to 4-digits with and without regrouping.
- Understand the properties of addition.
- Apply the skill of addition to solve real-life problems.

Warm-up

Akshay and Arthi love to read books. They have various collection of books with them.

Akshay

I have 89 story books and 15 puzzle books.

Akshay has _____ books in all

I have 75 story books and 33 puzzle books.

Arthi

Arthi has _____ books

My grandchildren are fond of reading books.

Akshay and Arthi have _____ books altogether.

RECAPITULATE

1. Add the following. Regroup if needed

a)

5	4
2	1

b)

3	6
4	8

c)

9	0	8
	7	1

d)

2	1	3
6	5	7

e) 4 2 5 + 3 9 1 = _____

f) 7 6 8 + 1 8 9 = _____

g) 6 2 7 + 1 5 0 = _____

h) 5 3 4 + 2 9 8 = _____

2. a) There are 456 yellow marigolds and 380 white marigolds in a garden. How many marigolds are there in the garden?

Ans: _____

b) Chandrima collected 259 marbles, while Ragu collected 107 marbles. How many marbles do they have altogether?

Ans: _____

REMEMBER

- Finding the total or sum by combining two or more numbers is called addition.
- The numbers that are added are called addends.

Adding 4-digit numbers

EXAMPLE 1: 2325 + 3112

Th	H	T	O
2	3	2	5

Th	H	T	O
3	1	1	2

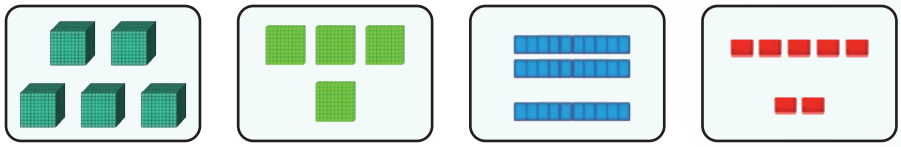
Step 1 : Add the digits in ones place

Step 2 : Add the tens

Step 3 : Add the hundreds

Step 4 : Add the thousands

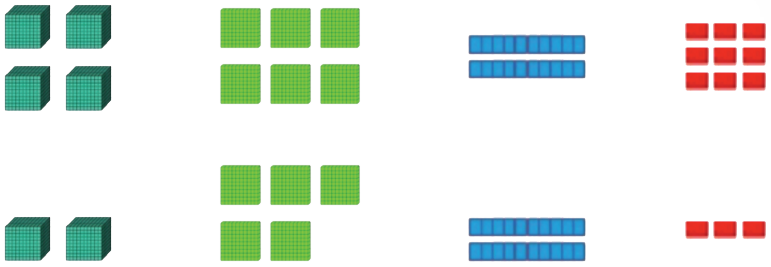
	Th	H	T	O
	2	3	2	5
+	3	1	1	2
	5	4	3	7



Example 2: Find the sum of 4629 and 2523

Th	H	T	O
4	6	2	9

Th	H	T	O
2	5	2	3

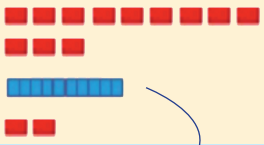


	Th	H	T	O
	1		1	
+	4	6	2	9
	2	5	2	3
	7	1	5	2

Step 1 : Add the ones

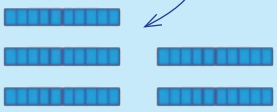
9 + 3 = 12 ones

12 ones = 1 tens + 2 ones



Step 2 : Add the tens

(1) + 2 + 2 = 5 tens



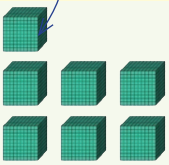
Step 3 : Add the hundreds

6 + 5 = 11

11 hundreds = 1 thousand + 1 hundred

Step 4 : Add the thousands

(1) + 4 + 2 = 7



EXERCISE 2.1

1. Add

a) 4 2 6 7
+ 5 1 0

b) 8 3 4 9
+ 7 8 6

c) 5 0 2 4
+ 3 6 1 5

d) 1 9 8 0
+ 4 3 9 2

e) 2 4 4 6
+ 7 0 9 7

f) 3 5 1 8
+ 1 8 2 5

g) 4 6 7 3
+ 2 3 5 7

h) 6 2 6 1
+ 1 9 7 4

i) 5 2 0 2
4 8 3
+ 7 9

j) 6 1 3 4
9 2 1
+ 2 5 0 5

k) 7 8 5
3 0 4 6
+ 5 4 1 0

l) 2 3 1 7
1 3 2 4
+ 5 4 5 2

2. Arrange and add

a) 630 + 578

b) 5043 + 698

c) 4892 + 1107

d) 2536 + 3984

e) 3672 + 891 + 2045

f) 4182 + 99 + 673

Properties of addition

Somu the postmaster usually segregates the postcards that he has to deliver on each day.

On a particular day he had 29 postcards to be delivered in place A.

There were no postcards to be delivered in place B.

How many postcards did he have to deliver in place A and B together?

29 + 0 = 29

Additive property of zero

The sum of any number and 0 is the number itself.

Next day Somu had 29 postcards to be delivered in place B,one postcard in place C and 10 postcards in place D.

How many postcards had he to deliver in the places B and C?

29 + 1 = 30

When 1 is added to a number the sum is its successor.

Finally he got 10 postcards which must be delivered in place D.

How many postcards does he have to deliver in all on that day?

30 + 10 = 40

otherwise **10 + 30 = 40**

Order property

When we change the order of numbers that are added, the sum does not change.

EXERCISE 2.2

Fill in the blanks using the properties of addition.

a) 258 + 0 = _____

b) 1 + 379 = _____

c) 5789 + 3164 = _____ + 5789

d) 463 + _____ = 463

e) 999 + _____ = 1000

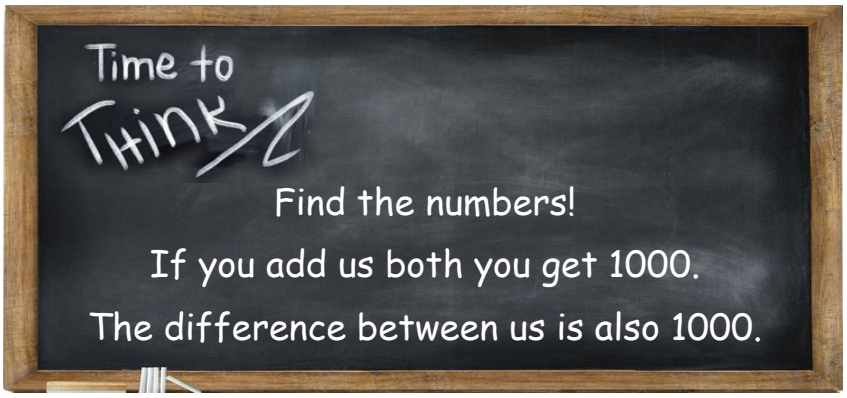
f) 0 + 801 = _____

g) _____ + 2674 = 6035 + _____

h) 1176 + _____ + 7887 = 351 + 1176 + _____

i) 9599 + _____ = 9600

j) _____ + 0 = 4095



Applications in real-life

The village head plans to find the number of people living in that village. On the first day of his survey he found that 3118 men and 2967 women lived in the village.

Find the number of people surveyed at the end of first day.

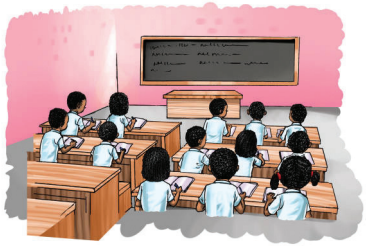
		(1)	(1)		
Number of men	=	3	1	1	8
Number of women	= +	2	9	6	7
Number of people	=	6	0	8	5

On the second day, he found that there were 1453 children in the village. Help him to find the total number of people in the village.

Number of men and women	=	6 0 8 5
Number of children	=	+ 1 4 5 3

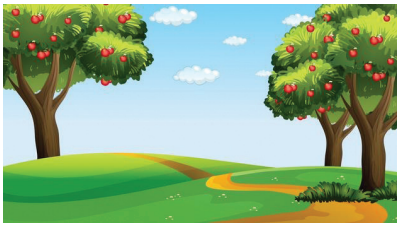
EXERCISE 2.3

Applications in real-life (story sums).



1) Out of the total number of students enrolled for the exam, 5236 students appeared and 1892 did not appear. Find how many students enrolled for the examination.

2) There are 2047 bees in the hive. There are also 693 bees exploring outside. How many bees are there in all?



3) A man plucked 375 apples from one tree, 504 apples from the second tree and 229 apples from the third tree. Find the total number of apples plucked from the trees.

4) In a pond, there are 1035 white lotuses. The number of pink lotus is 769 more than the white lotus. How many pink lotuses are there in the pond?

Mental Skills

Stamp collecting is an interesting hobby. Ishaan, Daksha, Lohit and Bhavya are interested in collecting stamps.

People who collect / study about stamps
are called Philatelists.

One fine day, they all planned to count the stamps which they had collected. Ishaan said that he has one more than the greatest 3-digit number.

How many stamps does Ishaan have?
999 + 1 = 1000

Daksha said that she has 10 more than the smallest 4-digit number.

How many stamps has Daksha collected?
1000 + 10 = 1010

Lohit found that he has collected 100 more than 845.

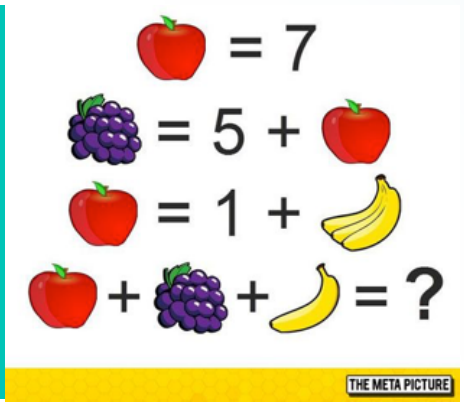
How many stamps are there with Lohit?
845 + 100 = 945

Bhavya has 1000 more stamps than the greatest 2-digit number.

How many stamps are collected by Bhavya?
99 + 1000 = 1099

PUZZLE TIME

Use your addition skills to find the value of each fruit.



EXERCISE 2.4

What is :

1) 1 more than

a) 2675 _____

b) 9499 _____

c) 3000 _____

d) 4999 _____

e) 6722 _____

2) 10 more than

a) 1657 _____

b) 8011 _____

c) 6004 _____

d) 2398 _____

e) 4991 _____

3) 100 more than

a) 5891 _____

b) 7122 _____

c) 4069 _____

d) 2918 _____

e) 6999 _____

4) 1000 more than

a) 3764 _____

b) 1027 _____

c) 7909 _____

d) 531 _____

e) 999 _____

I am a four digit number. You can find me by finding the sum of the greatest 3-digit odd number and smallest 1-digit odd number.

WORKSHEET A

a) Find the sum of 786 and 3915

b) If A = 417, B = 92 and C = 3086 then find A + B + C.

c) Double 2456 by adding.

d) What is 850 more than 4675?

e) What is 2500 more than six thousand ninety?

f) Find the sum of the place values of 5 in 5951.

g) Arrange and add 4432, 299 and 1781

h) Add 3058 to 2613

i) What is 6 tens more than 7385?

Time to think!

Do not add. Use your understanding of numbers to answer.

348 169 452 740

a) Which two numbers will give a 4-digit sum? _____ and _____

b) Which two numbers have a sum of 800? _____ and _____

c) Which two numbers when added will have '7' in the ones place?

_____ and _____

2. Choose the correct answer

a) 7654 + _____ = 7654

i) 1 ii) 0 iii) 10 iv) 100

b) If 3029 + 2637 is 5666, then 2637 + 3029 is _____

i) > 5666 ii) < 5666 iii) = 5666 iv) 6666

c) The sum of 8143 and 3 hundreds is _____

i) 8443 ii) 8146 iii) 8173 iv) 8476

d) 2145 added to _____ will give 2575

i) 400 ii) 475 iii) 430 iv) 405

e) Which of the following numbers could be the sum of 6 hundreds and a 2-digit number?

i) 609 ii) 7 hundreds iii) 719 iv) 619

3. Fill in the blanks

a) 1000 more than 4515 is _____

b) 6 tens more than 2379 is _____

c) 100 more than the greatest 3-digit number is ____

d) If 3463 + 537 = 4000, then 537 + 3463 = _____

e) _____ added to a number gives its successor.

f) The sum of the smallest 4-digit number and greatest 3-digit number is _____.

g) _____ is 10 more than 6281.

h) If (274 + 356) + 1370 = 2000, then 356 + (274 + 1370) = ____

4. Add

a) 8 7 5 6
+ 9 8

b) 5 0 6 4
+ 4 5 9

c) 3 2 2 8
+ 6 1 7 0

d) 1 6 1 5
+ 4 3 2 7

e) 2 6 3 4
+ 4 2 0 1

f) 3 2 4 5
+ 2 6 7 8

g) 4 7 7 1
+ 3 8 6 9

h) 2 5 1 1
+ 5 5 8 5

i) 7 7 9
+ 1 6 5
3 0 8

j) 9 9 0
+ 2 4 6 4
7 3

k) 3 4 8 2
+ 5 4 1
1 0 6 5

l) 4 0 8 1
+ 2 4 6 7
1 5 3 8

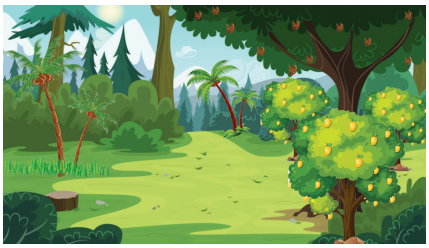
5. Arrange and add

a) 564 + 293
b) 715 + 285
c) 3124 + 604
d) 648 + 1078
e) 4200 + 5906
f) 1557 + 7476
g) 2088 + 94 + 865
h) 6701 + 532 + 814
i) 6436 + 378 + 65
j) 57 + 3826 + 2030
k) 898 + 5213 + 121
l) 1134 + 2001 + 4343

6 . Applications in real life

a) Mr.Vinay covered a distance of 3017 km by train and 1922 km by bus during his journey. How much distance has he travelled altogether?

b) The cost of a bike is ₹ 6500 more than that of a bicycle. If the cost of the bicycle is ₹ 3765, What is the cost of the bike?



c) In an orchard, there are 2207 coconut trees, 1411 mango trees and 689 tamarind trees.
How many trees are there in the orchard?

d) 3246 people visited the museum on Saturday. 2078 more people visited the museum on Sunday. How many people visited the museum on Sunday?

The Indian museum in West Bengal is one of the largest and the oldest museum in India.

Value based learning :

Guhan usually celebrates his birthday with children in an orphanage. He and his achachan went to a sweet shop to buy sweets for his friends in the orphanage.They bought 1kg of kaju cake for ₹ 1670 and 1kg of rasagulla for ₹ 1515.

How much did they spend in all?

WORKSHEET B

Higher Order Thinking Skills

A. Solve the following

1) If 468 + 1179 + 2000 = 3647, what is 2001 + 468 + 1179 ?

2) A number exceeds 4192 by 3507. What is that number?

3) Find the sum of greatest 4-digit even number and smallest 4-digit odd number.

4) Find the sum of 30 hundreds, 54 tens and 83 ones.

B. Find the missing digits using addition

a) 3 2 ◯ 5 + ◯ 4 8 2 = 4 ◯ 9 7

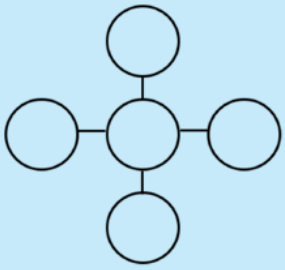
b) 5 ◯ 3 1 + 1 4 ◯ ◯ = ◯ 5 5 8

c) 2 0 ◯ 7 + ◯ 7 3 5 = 3 ◯ 3 ◯

d) 6 ◯ 4 0 + 2 3 7 ◯ = ◯ 6 ◯ 7

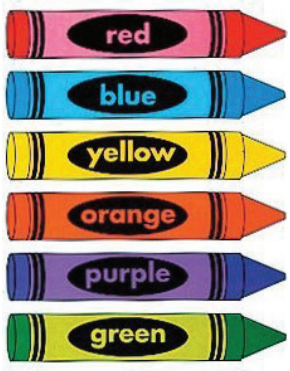
Challenge yourself !

Write the numbers 1 to 5 in the circles so that each line has the same total. The digits cannot be repeated.



Arts Integrated Activity:

Colour the given picture by finding the sum and using the code given below.



If the sum is more than 1000 but less than or equal to 3000.

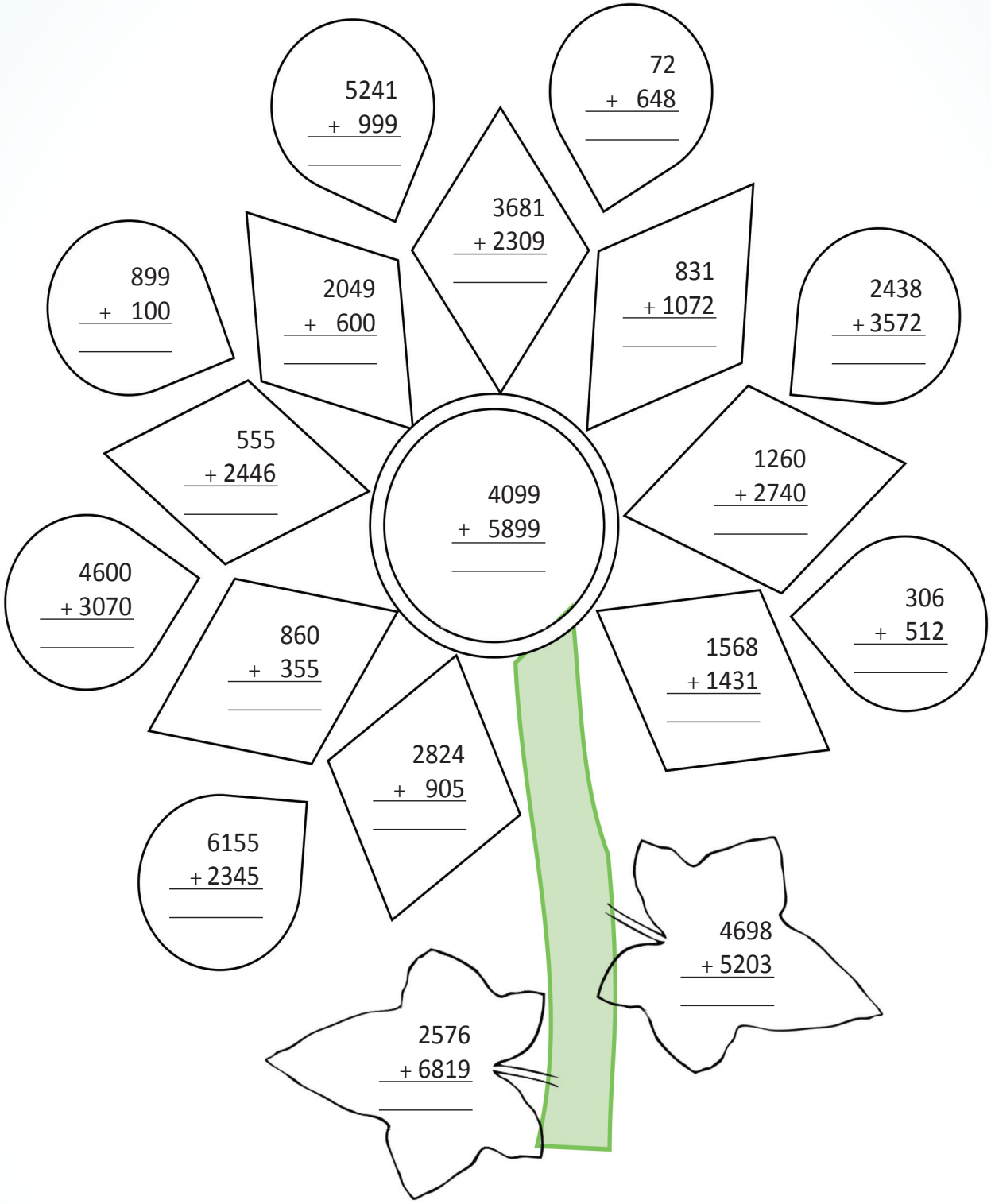
If the sum is between 3000 and 6000.

If the sum is the predecessor of greatest 4-digit number.

If the sum is greater than 6000 but less than 9000

If the sum is more than 9000.

If the sum is a 3-digit number.


5241 + 999 =
72 + 648 =
3681 + 2309 =
899 + 100 =
2049 + 600 =
831 + 1072 =
2438 + 3572 =
555 + 2446 =
4099 + 5899 =
1260 + 2740 =
4600 + 3070 =
860 + 355 =
306 + 512 =
1568 + 1431 =
2824 + 905 =
6155 + 2345 =
4698 + 5203 =
2576 + 6819 =

Add the numbers that are in row or a column or diagonally.

What do you observe? _____

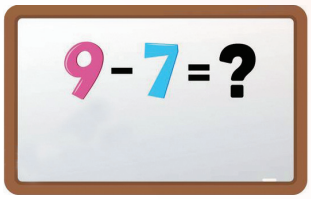
2	7	6
9	5	1
4	3	8

Magic Square:

Fill in the grids so that each column, row and diagonal add up to 30.

	10	6
12		

3 SUBTRACTION



LEARNING OUTCOMES

At the end of this lesson, children will be able to:

- Subtract up to 4-digit numbers
- Understand the properties of subtraction
- Apply the skill of subtraction to solve real-life problems.
- Solve combined addition and subtraction problems.

It was a dry summer afternoon. Two crows, a mother and a baby crow, perched upon a tree. As the baby crow was feeling restless, the mother crow asked him to drop 100 pebbles into a nearby pot. The obedient young crow then started picking up pebbles. It dropped them into the pot one by one.

"Ma, I have dropped 24 pebbles into the pot. How many more do I have to drop to get 100 pebbles?"

"You need to subtract 24 from 100, dear."

"Thank you ma, I will drop 76 more pebbles."

Applications in real life:

Warm up

1) In a village 350 people are eligible to vote, but only 240 casted their votes.

   How many people did not vote?

   350 – 240=

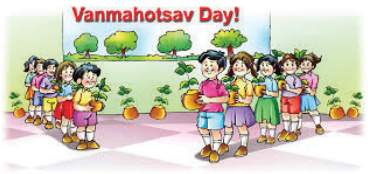
   [All Indian citizens above the age of 18 are eligible to vote]

2) Ajay brought 92 laddus to distribute on his birthday. There are 72 students in his class.How many extra laddus did Ajay bring?

   We do **92 – 72=**

3) There are 200 students in a school. If 98 are boys, how many girls are there in the school?

   We do **200 – 98 =**



4) On 'Vanmahotsav' day Arav planted 108 saplings and Monica planted 129 saplings. Who planted more saplings and how much more?

   We do **129 – 108 =**

5) Roshan wants to buy a cricket ball. The price of the ball is ₹ 170.But he has only ₹ 150 in his piggy bank. How much more money does he need to buy the ball?

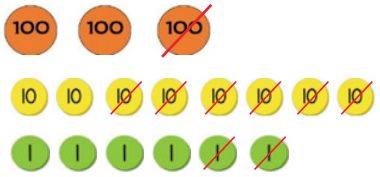
   We do **₹170 – ₹150 =**

Subtraction means “taking away”. The subtraction sign is ‘ — ‘.

Subtraction of 3-digit numbers

Example-1. 386 – 162

	H	T	O
	3	8	6
–	1	6	2
	2	2	4



Always write the greater number first in subtraction

Example :2. 783 – 297

	H	T	O
	7	8	3
–	2	9	7
	4	8	6

Step-1 : We can’t subtract 7 from 3. So, borrow 1 ten. **(1 tens =10 ones)**
Now we have 13 ones.

13 – 7 = 6 ones.

Remember, The 8 tens has become 7 tens as we borrowed 1 tens.

Step-2 : We can’t subtract 9 tens from 7 tens. So borrow 1 H from hundreds place. **(1H=10tens)** We have 17 tens.

17 T – 9 T = 8 tens

Step-3 : At last, subtract 2 hundreds from 6 hundreds. 6 H – 2 H = 4 H

EXERCISE 3.1

I) Subtract:

a) 9 8 5 − 5 3 2 = ____

b) 4 9 0 − 1 7 4 = ____

c) 7 6 7 − 3 9 2 = ____

d) 5 3 2 − 4 1 2 = ____

e) 8 1 4 − 6 2 8 = ____

II) Applications in real life:

1) There were 836 apples in a shop. If 135 apples were sold,
How many apples were not sold?

Number of apples in a shop = 8 3 6

Number of apples sold = 1 3 5

Number of apples not sold =

Ans. _____ apples

2) Akshay has 427 stamps while Anu has 519 stamps.
Who has more stamps and by how much?

Number of stamps Anu has =

Number of stamps Akshay has =

Difference =

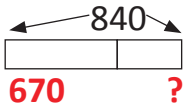
Ans. _____ stamps

3) There are 840 roses in a garden, that are either red or yellow
If 670 are red roses, how many are yellow roses?

Red roses + yellow roses =

Red roses =

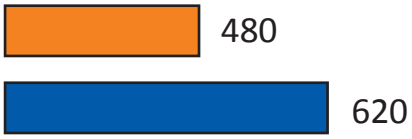
Yellow roses =



Ans. _____ yellow roses

Creative thinking

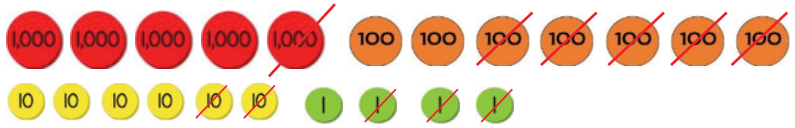
Observe the bars and make your own story sum



Subtraction of 4-digit numbers

Example 1: Subtract 1523 from 5764

	TH	H	T	O
	5	7	6	4
–	1	5	2	3
	4	2	4	1



Example 2: Subtract 4356 from 7232

	TH	H	T	O
	7	2	3	2
–	4	3	5	6
	2	8	7	6

Step-1 : We can't subtract 6 ones from 2 ones. So borrow 1 ten from tens place. [3T-1T=2T]

Now we have 12 ones. 12 – 6 = 6 ones.

Step-2 : We can't subtract 5T from 2 T. So, borrow 1H. [2H-1H=1H] We have 12 tens.

12 T – 5 T = 7 tens

Step-3 : We can't subtract 3H from 1H. Now borrow from thousands place.

[7 Th – 1 Th = 6 Th] We have 11 H.

11 H – 3 H = 8 hundreds

Step-4 : 6 Th – 4 Th = 2 thousands

	6	11	12	12
	~~7~~	~~2~~	~~3~~	~~2~~
-	4	3	5	6
	2	8	7	6

1 Ten = 10 ones
1 Hundred = 10 tens
1 Thousand = 10 hundreds

The number from which another number is to be subtracted is called **minuend** and the number that is subtracted is called **subtrahend.** The subtraction answer is called difference.

Example : 8 – 5 = 3

Minuend **Subtrahend** **Difference**

Minuend
Subtrahend
Difference

Thinking Skills

a) 20 tens = _____ hundreds.

b) 30 hundreds = _____ thousands.

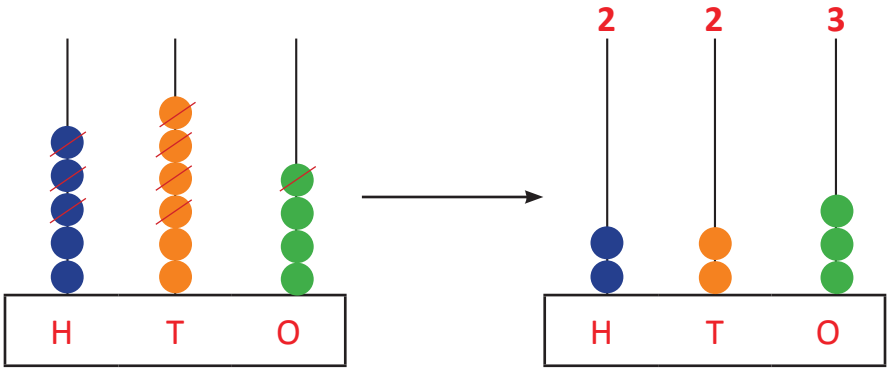
c) 40 ones = _____ tens.

d) 12 hundreds = _____ tens.

Lab activity

Subtraction on abacus [Without borrowing]

Example 1 Subtract 341 from 564



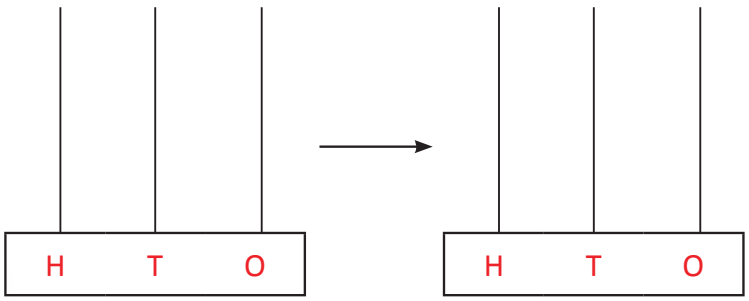
Remove 1 bead from ones place, 4 beads from tens place and 3 beads from hundreds place . Count and write the remaining beads.

2 H + 2 T + 3 O = 200 +20 + 3 = 223

Ans. 564 – 341 = 223

Try yourself

a) 648 – 205 =



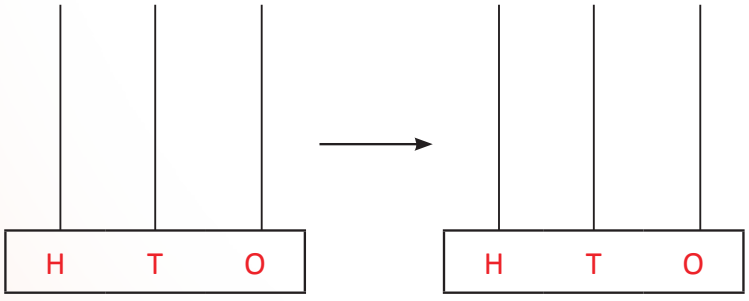
Ans.

= _____H +_____ T +_____O

= _____ + _____+ _____

= _____

b) 587-246



Ans.

= _____H +_____ T +_____O

= _____ + _____+ _____

= _____

EXERCISE 3.2

I) Subtract:

a) 4 8 7 6
– 1 3 2 9

b) 8 3 9 0
– 4 2 5 7

c) 7 1 6 2
– 1 3 2 8

d) 6 9 4 8
– 5 4 8 6

e) 5 7 6 4
– 4 3 5 3

f) 6 3 5 0
– 2 1 8 9

g) 9 2 8 1
– 5 7 5 6

h) 4 3 3 4
– 3 9 9 3

II) Arrange and subtract:

a) Subtract 904 from 8524

	TH	H	T	O
	8	5	2	4
–		9	0	4

The minuend will be the greater number while subtrahend will be smaller one. Check if the place values of both are aligned.

b) Subtract 86 from 6276

c) Find the difference between 639 and 8254.

d) What number has to be added to 972 to make it 9999?

Think

Sanam is 18 years old. Her father is 30 years elder than her. What is the age of her father?

Subtraction with zeroes

Example : Subtract 2358 from 4000

It is not possible to do 0 –8. But we have 0 in tens and hundreds place. So, borrow 1 TH from 4 TH. (1TH=10 H) From 10 H give 1 H.

(1H = 10 tens) We have 10 tens, now give 1 ten to ones. (1 ten = 10 ones).

Now 10 ones – 8 ones = 2 ones

TH	H	T	O
4	0	0	0
2	3	5	8
1	6	4	2

9 T—5 T = 4 tens

9 H –3 H = 6 hundreds

3 Th – 2 Th =1 thousand

	3	9	9	10
	~~4~~	~~0~~	~~0~~	~~0~~
-	2	3	5	8

EXERCISE 3.3

I) Subtract:

a) 8 0 0 0
− 5 3 4 9

b) 7 4 0 0
− 5 2 6 4

c) 9 0 0 5
− 2 7 8 3

d) 6 0 4 9
− 5 4 8 9

e) 4305 – 1297

f) 3000 – 2546

g) 8062 – 999

h) 5001 – 348

II) Solve the following

a) The sum of two numbers is 6000. If one number is 4259, find the other number.

b) There are 3020 farmers, out of whom 2748 cultivate paddy and the rest cultivate wheat. How many farmers cultivate wheat?

c) A factory manufactures 7508 cars in a year. Out of which 6320 cars were sold in that particular year. How many cars were left unsold that year?

d) Rashma received a story book as a gift from her father on her birthday. The book has 1450 pages. She read 976 pages. How many more pages has she to read to complete the book?

e) A zoo had 3050 visitors and 4000 visitors on Saturday and Sunday respectively. On which day did the zoo have less number of visitors and by how much?

f) The length of river Ganga is about 2525 km and the length of river Godavari is about 1465 km. Which river is longer and by how much?

Kid's CORNER

The river Ganga originates at the Himalayas and ends at Bay of Bengal.

The river Godavari starts near Triambak in Nashik district of Maharashtra and flows into the Bay of Bengal. The river Godavari is also called 'Dakshin Ganga'.

Properties of subtraction

When we subtract zero from any number, the difference is the number itself.
Example: 8 – 0 = 8 42 – 0 = 42
321 – 0 = 321 4506 – 0 = 4506

When a number is subtracted from itself, the difference is zero.
Example: 9 – 9 = 0 36 – 36 = 0
802 – 802 = 0 1952 – 1952 = 0

When we subtract 1 from a number, we get the predecessor of that number.
Example: 183 – 1 = 182 3876 – 1 = 3875

Guess

Sana has a collection of stamps. Her brother gave her 1 more stamp. Now she has 400 stamps. How many stamps did she have before she got 1 from her brother?

EXERCISE 3.4

I) Fill in the box

a) 9385 – 9385 = ☐
b) 4792 – 0 = ☐
c) 2765 – ☐ = 0
d) 3040 – ☐ = 3040
e) ☐ – 1463 = 0
f) 2700 – ☐ = 2699
g) 6000 – 1 = ☐
h) ☐ – 1 = 2100

Combined addition and subtraction

Example: Solve 5278 + 722 - 536

```
  1  1  1                5  9  9  10
  5  2  7  8             6  0  0  0
+    7  2  2          --    5  3  6
  6  0  0  0             5  4  6  4
```

First add 5278 with 722.
Then subtract 536 from the sum.

Example

Akshay bought a bat for ₹ 275and a ball for ₹ 135. He gave ₹ 500 to the shopkeeper. How much money should the shopkeeper return to him?

```
                    1 1
Cost of the bat     ₹ 2 7 5
Cost of the ball  = + ₹ 1 3 5
Total cost          ₹ 4 1 0
```

```
Amount given to the shopkeeper  =  ₹  5 0 0
Total cost of bat and ball      = –₹  4 1 0
Balance amount                  =  ₹    9 0
```


EXERCISE 3.5

I) Solve

a) 395 + 427 – 273

b) 935 + 265 – 532

c) 900 – 213 + 587

d) 3416 – 1564 + 1046

II) Answer the following

1) A library has 194 books on mystery. Out of these 83 were damaged. How many mystery books in the library are in usable condition?

2) Mr. Gupta earns ₹ 9800 per month. He spends ₹ 7540 on rent and ₹ 1925 on provisions. What will be the amount left with him for other expenses?

3) A balloon seller has 4050 balloons. Of these 1625 are blue and 1875 are red and the rest are white balloons. Find the number of white balloons with him?

Value based question

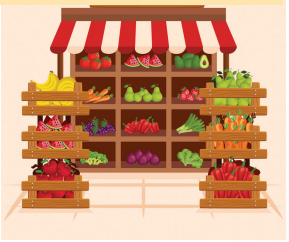
4) Keerthana has ₹ 6420 in her savings account. She withdrew ₹ 1900 in June and ₹ 1675 in July to donate for 'Dhan Utsav" organized in her school. Find the balance amount in her account?

[Do you donate for the needy people?]

Higher Order Thinking Skills

750 = 917 – ☐ = 102 + ☐

325 = ☐ + 125 = 600 – ☐

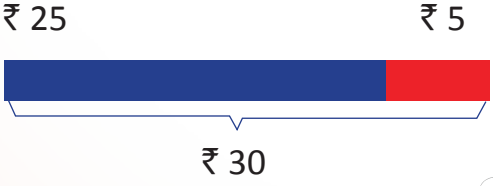


Relation between addition and subtraction

Radha bought bananas that cost ₹ 25. She gave ₹ 30 to the shopkeeper. She got back ₹ 5 from the shopkeeper. She verified the balance amount by adding ₹ 5 with ₹ 25, and was happy that the shopkeeper has given her the correct change.

₹ 30 – ₹ 25 = ₹ 5

₹ 5 + ₹ 25 = ₹ 30



Addition and Subtraction are opposite of each other. Subtraction can be checked by
*Adding the difference with the subtrahend.
*If the sum is equal to the minuend then your subtraction is correct.

Example : Subtract 350 from 984 and check your answer by addition

$$\begin{array}{rrrl} & 9 & 8 & 4 \\ - & 3 & 5 & 0 \\ \hline & 6 & 3 & 4 \end{array} \qquad \begin{array}{rrrl} & 6 & 3 & 4 \\ + & 3 & 5 & 0 \\ \hline & 9 & 8 & 4 \end{array} \qquad \begin{array}{l} \text{(difference)} \\ \text{(subtrahend)} \\ \text{(minuend)} \end{array}$$

EXERCISE 3.6

I) Subtract and check your answer by addition

a) 400 – 283

b) 547 – 95

c) 8094 – 796

d) 7652 – 2498

II) Fill in the blanks

a) 2000 – 1 = ____

b) 1999 + 1 = _____

c) ____ + 5 = 1000

d) 1000 – 995 = _____

e) 1 less than 3900 is _____.

f) 100 less than 4240 is ___.

g) 1000 less than 5218 is _____.

h) 2753 is 1 less than _____.

i) _____ is 490 more than 1000.

j) 1250 is ____ more than 950.

k) 37 + ____ = 100

l) _____ + 290 = 720

m) _____ -- 1235 = 8000

n) 8470 + ____ = 9009

Think

Fill in the boxes

1) $\begin{array}{rrrr} & 8 & 4 & 9 \\ - & \square & \square & \square \\ \hline & 3 & 2 & 0 \end{array}$

2) $\begin{array}{rrrr} & 4 & 3 & 7 & \square \\ - & 1 & \square & \square & 9 \\ \hline & \square & 0 & \square & 4 \end{array}$

WORKSHEET

I) Subtract:

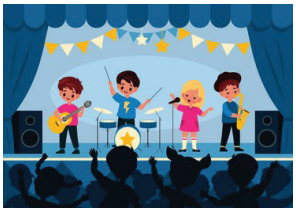
a) 219 from 4000
b) 4186 from 6478
c) 78 from 8001
d) 2965 from 3291
e) 3020 from 7128
f) 6740 from 9104

II) Subtract:

a) 3003 – 1975
b) 6142 – 2918
c) 9740 – 6730
d) 5000 – 874
e) 2105 – 97
f) 7332 – 8

III) Answer the following

1) A marathon runner aimed to cover 8400 m in one hour. She could cover only 6392 m due to rain. Find the distance that she is yet to cover.



2) 7020 people auditioned for a music show. If 4680 people did not qualify for the second round, how many people qualified for the second round?

3) The capacity of the football stadium is 8220 seats. Due to COVID restrictions, 4196 people were allowed to watch the match from the stadium. How many seats were not occupied?

4) A teacher plans to make 140 charts and 85 models for a school science project. She prepared 115 charts and 37 models. How many more charts and models should she prepare?

5) Seema prepared 1000 food packets to distribute amongst flood victims. She could distribute only 870 packets. How many food packets were left with her?

The 1931 China Flood was the deadliest flood known to mankind with an estimated loss of 4 million lives.

6) A Government initiative intends to build 4000 apartments for Tsunami victims. They built 2870 apartments in 2021. How many more apartments have to be constructed?

7) 2140 Siberian birds migrated to India. The number of birds migrated this year was 270 less than the last year. How many birds migrated this year?

India is the winter home for Siberian Cranes. Every year, the second Saturday of May & October is observed as World Migratory Bird Day.

IV) Subtract and check your answer by addition

a) 3250 – 1925 b) 9000 – 648

c) 2002 – 178 d) 1342 – 875

V) Solve

a) 472 + 195 – 56 b) 800 – 372 + 1684

c) 2319 + 984 – 1087

Decide Add / Subtract

Read carefully. Decide which operation is needed to solve the problems.

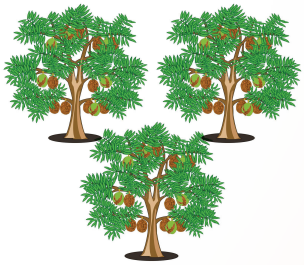
a) 2450 people visited an exhibition on Saturday and 3970 more people visited on Sunday. How many people visited on Sunday?

Add / Subtract **Ans. _____**

b) 4650 Lenovo laptops and 6525 HP laptops were sold in the month of June. How many more HP laptops were sold?

Add / Subtract **Ans._____**

c) There are 495 neem trees and 297 peepal trees in a farm. How many trees are there in the farm in all?



Add / Subtract **Ans. _____**

d) There are 680 men and 790 women travelling in a train. How many passengers are travelling in the train?

Add / Subtract **Ans._____**

e) Find the difference between the greatest 4-digit number and the smallest 4-digit number.

Add/ Subtract **Ans._____**

Experiential Learning

The following table shows the monthly sales of mobile phones in an electronic shop.

Sales	Apple	One plus	Samsung
Online	183	587	928
Offline	251	342	356
TOTAL			

1) How many One plus phones were sold offline?

Ans. _____

2) How many Apple phones were sold online?

Ans. _____

3) How many more Samsung phones were sold online than offline?

Ans. _____

4) How many fewer Apple phones were sold than One plus phones in offline?

Ans. _____

5) How many phones were sold online in all?

Ans._____

6) How many more Samsung phones were sold online compared with Apple and One plus phones together in offline?

Ans._____

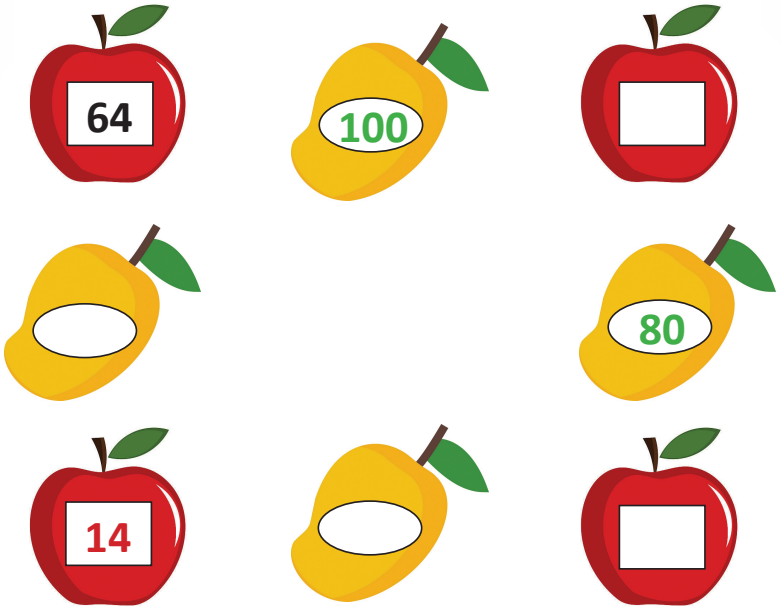
Challenge Yourself

1) Number Grid

Add or subtract any two numbers to get 90.

36	54	134
71	44	19
68	33	12
102	57	85

2) Numbers in mangoes are sum of the two numbers in apples on either side.



Crossword puzzle

A		B	C	
	■			■
D			■	E
	■	F		
G			■	

Across

A. 900 – 452

B. 1000 – 130

D. 10 Hundred – 99

F. 808 – 8

G. 600 + 20 + 5

Down

A. 40 tens + 9 ones

B. 624 + 247

C. 79 + 0

D. 500 + 476

E. 292 + 8

F. 7 tens + 1 ten + 5 ones

Subtraction in Vedic Maths

There is a simple method to do subtraction In Vedic Maths without borrowing.

Example-1: Subtract 18 from 32

Ans. 32 – 18 = 14

Example -2: Subtract 37 from 83

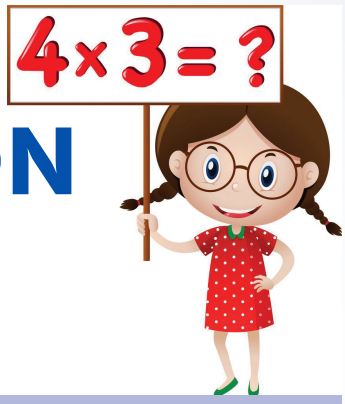
Ans. 83 – 37 = 46

Try yourself

1) 64 – 19

2) 73 – 48

4 MULTIPLICATION



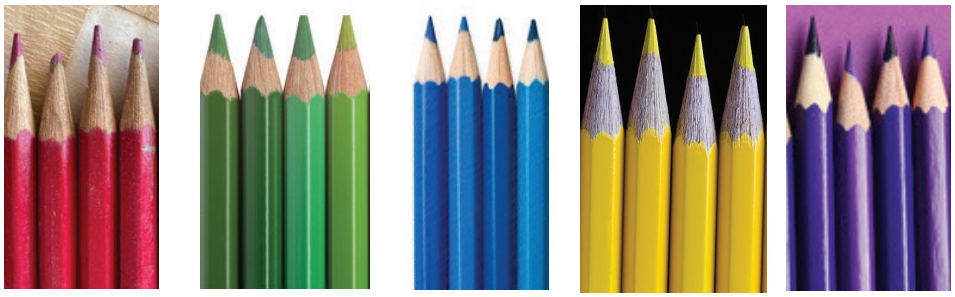
LEARNING OUTCOMES

At the end of this lesson, children will be able to:

- Understand the concept of multiplication as repeated addition.
- Understand the properties of multiplication.
- Apply the skill of multiplication to solve real-life problems.
- Perform multiplication of 2d x 1d, 3d x 1d, 2d x 2d numbers.
- Understand the concept of square numbers

Akshaya and her brother Anup decided to collect all the colour pencils lying here and there in their house and arrange them properly in various boxes. They started organising them according to the various colours. To their surprise they found equal number of colour pencils in 5 different shades!

PINK **GREEN** **BLUE** **YELLOW** **PURPLE**



4 + 4 + 4 + 4 + 4 =

There are 5 groups of 4 pencils in each!

MULTIPLICATION IS REPEATED ADDITION

When each group has the same number, we can use multiplication to find the total. Hence, 5 x 4 = **20**

Using multiplication in such cases is found to be much easier than repeatedly adding the same number!

RED ORANGE BROWN

There is only one colour pencil in each of these 3 shades which do not belong to the above groups.

Yes, you are right Akshaya! They are taken as 3 different groups of 1 pencil each!

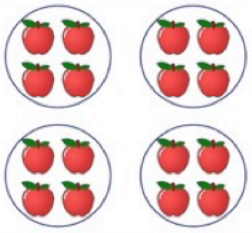
1 + 1 + 1

1 + 1 + 1 = 3

This can also be written as 3 x 1 = 3

Warm up

1] Write the multiplication facts.

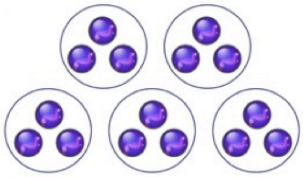


_____groups of _____ apples each.

=___+___+___+___

=___x___

=___

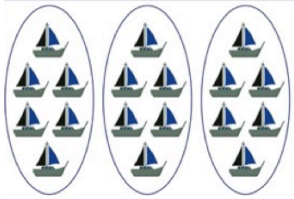


_____groups of _____ marbles each.

=___+___+___+___+___

=___x___

=___



_____groups of _____ boats each.

=___+___+___

=___x___

=___

2] 7 + 7 + 7 + 7 + 7 = ___ x ____ = _____

3] 10 + 10 + 10 + 10 + 10 + 10 + 10 = ___ x ___ = ____

4] 6 + 6 + 6 + 6 + 6 + 6 = ___ x ____ = ____

2. Complete the multiplication tables of 1 to 10

X	1	2	3	4	5	6	7	8	9	10
1		2								
2					10					
3			9				21			
4						24				40
5				20						
6	6									
7		14				42				
8								64		
9										
10										

3. A week has 7 days. Find the number of days in 5 weeks?

4. A havan kund has 4 sides. How many sides do 10 havan kunds have?

5. The cost of a pencil is ₹ 6. What is the cost of 8 pencils?

Recall multiplication tables and fill in the boxes

a] 5 x 5 = ☐ b] 6 x 2 = ☐ c] 10 x 3 = ☐

d] 2 x 7 = ☐ e] 4 x 4 = ☐ f] 6 x 7 = ☐

g] 8 x 3 = ☐ h] 6 x 9 = ☐ i] 8 x 8 = ☐

j] 3 x 9 = ☐ k] 4 x 6 = ☐ l] 10 x 10 = ☐

Properties of multiplication

- Any number multiplied by 1 gives the number itself.
  For example, six clowns have one ball each.
  Hence 6 x 1 = 6

Examples: 23 x 1 = 23 ; 496 x 1 = 496 ; 7024 x 1 = 7024

- Any number multiplied by 0 gives 0.
  For example, there are 4 flower pots with **no** flowers.
  Hence 4 x 0 = 0

Examples: 55 x 0 = 0 ; 302 x 0 = 0 ; 7436 x 0 = 0

➢ When multiplying 2 or more numbers, the order of numbers in which they are multiplied does not affect the answer. That means their **Product** remains the same.

For example, [a] 4 x 7 = **28** ; 7 x 4 = **28**

[b] 2 x 4 x 5 = **40** ; 4 x 5 x 2 = **40**

[c] 80 x 3 x 10 = **2400** ; 10 x 80 x 3 = **2400**

EXERCISE 4.1

Fill in the blanks

1] 10 x 5 = _____

2] 6 x ____ = 36

3] 5 x 11 = 11 x ____

4] _____ x 3 = 24

5] 12 x _____ = 12

6] 8 x 7 = _____

7] 9 x 0 = _____

8] 2 x 3 x 5 = 5 x 2 x ____

9] 11 x 0 = _____

10] _____ x 13 = 0

11] 6 x 1 x 3 = 1 x ____ x 6

12] 3 x 2 x 4 = 2 x ____ x ____

Multiplying a 2 digit number by a single digit number

a] (1)

H	T	O
	2	3
	X	5
1	1	5

b] (7)

H	T	O
	1	8
	X	9
1	6	2

c] (6)

H	T	O
	2	9
	X	7
2	0	3

d] (1)

H	T	O
	3	2
	X	8
2	5	6

Product of a 2 digit number and a single digit number is either a 2 digit number or a 3 digit number.

EXERCISE 4.2

1. Multiply

a] 98 x 7 b] 34 x 6 c] 29 x 5

2. Compare using < or > or = sign

a] 8 x 9 ☐ 89 b] 6 x 6 ☐ 6 + 6

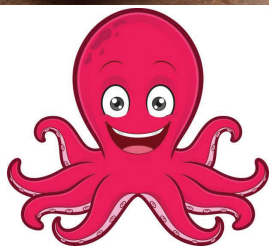
c] 15 – 15 ☐ 15 x 0 d] 1 x 20 ☐ 20 x 1

e] 10 x 10 ☐ 1010 f] 0 x 19 ☐ 19

g] 6 + 5 ☐ 1 x 6 h] 18 x 1 ☐ 18 x 0

Applications in real life

3. There are 16 rasagullas in a can. How many rasagullas are there in 6 such cans?



4. An octopus has 8 legs. Find the number of legs of a dozen octopuses.

[Hint : A dozen = 12]

Multiplication Tables of 9

1 x 9 = 09
2 x 9 = 18
3 x 9 = 27
4 x 9 = 36
5 x 9 = 45
6 x 9 = 54
7 x 9 = 63
8 x 9 = 72
9 x 9 = 81
10 x 9 = 90

There are many new interesting facts and patterns one can learn from 9 tables. Did you notice that the digits in the **ones** places are in decreasing order while the digits in the **tens** places are in increasing order from 0 to 9?

The sum of the digits in each product is 9!

[0 + 9 = 9 ; 1 + 8 = 9 ; 2 + 7 = 9 and so on]

The **first** multiple of 9 and the **tenth** multiple of 9 have their digits reversed i.e 09 and 90!

The **second** multiple and the **ninth** multiple have their digits reversed that is,18 and 81!

You can check the other multiples too!!

Multiplying a three digit number with a single digit number

Example : a] 312 x 3

H	T	O
3	1	2
	X	3
9	3	6

Step 1 : Multiply 2 ones by 3
We get 6 ones

Step 2 : Multiply 1 tens by 3
We get 3 tens

Step 3 : Multiply 3 hundreds by 3
We get 9 hundreds

EXERCISE 4.3

Multiply

a] 2 0 3 b] 4 1 3 c] 1 0 1 d] 4 4 4

x 3 x 2 x 5 x 2

Example : Multiply 342 by 5

TH	H	T	O
	3	4	2
	X		5
1	7	1	0

Step 1 : Multiply 2 ones by 5.
We get 10 ones.
10 ones = 1 ten + 0 ones.
We write 0 in ones column
And carry over 1 ten to
Tens column.

Step 2 : Multiply 4 tens by 5.
We get 20 tens.
20 tens + carried over 1 ten
21 tens = 2 hundred + 1 ten.
We write 1 in the tens column and carry over 2 to the hundreds column.

Step 3 : Multiply 3 hundreds by 5.
We get 15 hundreds.
15 hundreds + carried over 2 hundreds gives us 17 hundreds.
17 hundreds = 1 thousand + 7 hundred
7 is written in the hundreds column.
1 is written in the thousands column.

The answer/product obtained is 1,710

b] 809 x 6

5

TH	H	T	O
	8	0	9
	X		6
4	8	5	4

ANS : 4,854

Product of a 3-digit number and a single digit number gives either a 3-digit number or a 4-digit number.

EXERCISE 4.4

1] Multiply

a] 587 X 2 b] 901 x 3 c] 835 x 4

d] 213 x 7 e] 410 x 8 f] 672 x 9

g] 321 x 8 h] 514 x 4 i] 715 x 6

j] 409 x 5 k] 457 x 6 l] 598 x 7

2] A cargo train travels 654 km a day. Find the distance travelled by it in 7 days.

3] If a factory manufactures 490 ceramic mugs in a day, find the total number of mugs manufactured in 9 days.

4] The cost of a bicycle is ₹ 999. Find the cost of 8 such bicycles.

5) Value based question

'Dhaan Utsav' is celebrated in the month of October every year. Each child in the school donates 4 toys to the lesser privileged children in their locality. If there are 565 children in the school find the number of toys donated.

[Do you help the needy children in your locality?]

6] Value based question

Volunteers from Swachh Bharath movement help in cleaning the beaches every Sunday in 235 different places. If 10 volunteers help in each place, find the total number of volunteers.

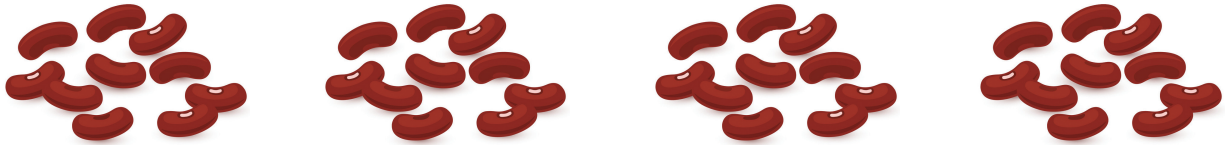
[Do you volunteer to clean your classroom?]

7] A cube has 6 faces. Find the total number of faces in 175 cubes.

8] There are 5 petals in a flower. Find the total number of petals in 500 such flowers.

Multiplying By 10 and 100

Multiplying numbers by 10.



Vimal collects some Rajma seeds from the kitchen and arranges them in groups of 10.

4 groups of 10 seeds make 40 seeds altogether.

4 x 10 = 40

When we multiply a number by a multiple of 10, we put '0' in the ones place and then mulitply by the number in the tens place.

Examples :

a] 35 x 10 = 350 b] 677 x 10 = 6770 c] 802 x 10 = 8020

Multiplying by multiples of 10 that is, 20, 30, 40 and so on follow the same pattern.

Examples :

a] 52 x 20 = 1040 b] 43 x 70 = 3010 c] 80 x 78 = 6240

Multiplying by 100

Similarly, when we multiply by multiples of 100, zeroes are placed at the ones and tens place then the number is multiplied by the number in the hundreds place.

Examples:

a] 12 x 100 = 1200 b] 63 x 300 = 18900 c] 500 x 15 = 7500

EXERCISE 4.5

1] Fill in the blanks

a] 50 x 10 = _____

b] 146 x 10 = _____

c] _____ x 10 = 3730

d] 10 x ___ = 4040

e] 63 x 70 = _____

f] 11 x 100 = _____

g] 7 x 500 = _____

h] 26 x ____ = 2600

i] ___ x 100 = 4800

j] 9 x 400= _____

2] Find the products

a] 20 x 30 = 600

b] 30 x 500 = _____

c] 110 x 70 = _____

d] 400 x 6 = _____

e] 80 x 80 = _____

f] 90 x 90 = _____

g] 100 x 10 = _____

h] 6 x 300 = _____

i] 200 x 5 = _____

j] 7 x 700 = _____

Multiplication Tables of 11

1 x 11= 11
2 x 11 = 22
3 x 11= 33
4 x 11= 44
5 x 11= 55
6 x 11 = 66
7 x 11 = 77
8 x 11 = 88
9 x 11 = 99

The first 9 multiples of 11 form an interesting pattern with similar digits in ones place and tens place.

Let's Explore

a] 25 x 11 = ?

Step 1 : We first write the digits 2 and 5 in the hundreds place and ones place respectively.

H	T	O
2		5

Step 2 : We then find the sum of 2 and 5.

2 + 5 = 7 7 is placed in the tens place

H	T	O
2	7	5

Hence, 25 x 11 = 275

b] 48 x 11= ?

Step 1:

H	T	O
4		8

Step 2:

When we find the sum of 4 and 8, we find it is **12,** which is a 2 digit number. Hence 1 is carried over to the hundreds place.

1

H	T	O
4	2	8

H	T	O
5	2	8

Hence 48 x 11 = 528.

Complete the multiplication tables of 11 using the pattern taught.

10 x 11= 110

11 x 11 = _____

12 x 11 = _____

13 x 11 = _____

14x 11 = _____

15 x 11= _____

16 x 11 = _____

17 x11= _____

18 x 11 = _____

19 x 11 = _____

20 x 11= _____

EXERCISE 4.6

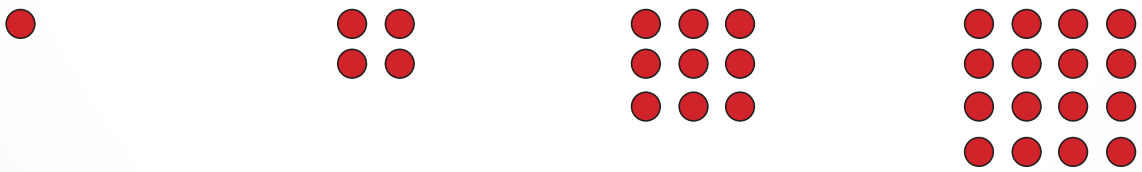
Find the product

a] 54 x 11 b] 82 x 11 c] 75 x 11 d] 39 x11

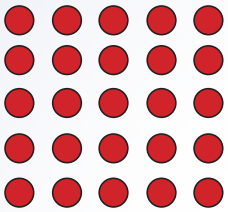
e] 11 x 44 f] 11 x 68 g] 11 x 66 h] 23 x 11

Square Numbers

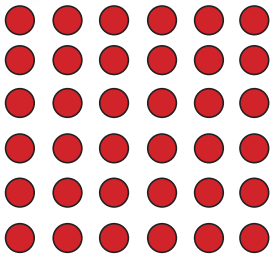
1 X 1 = 1
2 X 2 = 4
3 X 3 = 9
4 X 4 = 16
5 X 5 = 25
6 x 6 = 36
7 x 7 = 49
8 x 8 = 64
9 x 9 = 81
10 x 10 = 100



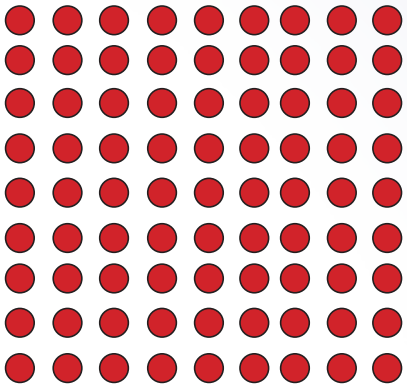
1 X 1 = 1 2 X 2 = 4 3 X 3 = 9 4 X 4 = 16



5 X 5 = 25



6 X 6 = 36



9 X 9 = 81

and so on.

Since the dots representing the numbers can be arranged in the form of a square [with equal number of rows and columns] they are called SQUARE NUMBERS.

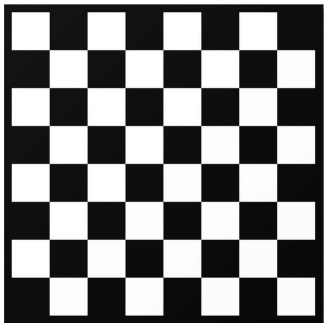
Experiential Learning

How many rows and columns do you find in a chess board?

Ans : _____ rows and _____ columns.

Total number of squares in a chess board = _____ x _____

= _____ squares.



Multiplying 2-digit Number by a 2-digit Number

In a village farmers plant 42 saplings in a row in a rice field. If they plant saplings in 25 such rows find the total number of saplings planted.

No. of saplings planted = 42 x 25

The district of Thanjavur in Tamilnadu is called the 'Rice bowl of India'

TH	H	T	O
		4	2
	X	2	5
	2	1	0
	8	4	0
1	0	5	0

[20 + 5]

42 x 5 [Multiply by ones]

42 x 20 [Multiply by tens]

[Add both the products]

No. of saplings planted = 1,050

Product of a 2-digit number and another 2-digit number gives either a 3-digit number or a 4-digit number.

Example 2: 34 x 67

	(2)	(2)	
TH	H	T	O
		3	4
	X	6	7
	2	3	8
2	0	4	0
2	2	7	8

EXERCISE 4.7

1] Find the product

a] 15 x 19 b] 92 x 46 c] 34 x 12

d] 40 x 53 e] 66 x 68 f] 56 x 77

g] 35 x 72 h] 49 x 51 i] 26 x 84

j] 85 x 23 k] 58 x 30 l] 52 x 69

2] Sunil pasted 12 stamps on each page of his stamp book, if he used 34 pages, how many stamps did he paste?

3] In a library, 58 books can be arranged on a rack. If there are 26 such racks, how many books can be arranged?

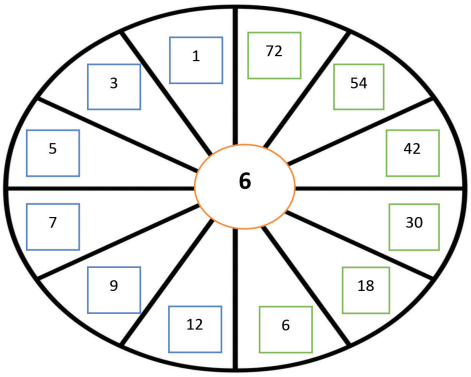
4] In a super deluxe bus 60 people can be seated. Find out how many people can sit in 35 such buses.

5] Find the cost of 15 kg of carrots if one kg of carrots costs ₹ 63.

Arts Integration Activity

- Materials required: Two paper plates of equal size, a pair of scissors, push pin and sketch pens.
- The paper plates are divided into 12 equal parts.
- Take the first plate and cut out the squares as shown in

Note: Check whether you are thorough with tables from 1 to 12



- Take the second plate and write the numbers.

  On the left part [6 parts] the multiplicands are written.

  On the right part [6 parts] the products are written.

- Both the paper plates are placed firmly by inserting a push pin at the centre.
- Now by moving the first plate we can find the corresponding products of the multiplicands.
- For example, 7 x 6 = 42

7 is the multiplicand, 6 is the multiplier and 42 is the product.

This Activity can be tried for any multiplication table.

WORKSHEET

1] Complete the pattern

a] 8, 16, 24, ___, ___, 48, ___, 64, ___, ___, 88, ____.

b] 9, 18, ___, ___, ___, ___, ___, ___, ____, 90, ___, ___.

c] __, 12, ___, 24, 30, ___, ___, ___, 54, 60, ____, ___.

d] 7, ___, 21, 28, ___, ___, ____, 56, ___, ____, 77, 84.

2] Fill in the blanks

a] 15 x __ = 15

b] 56 x __ = 560

c] 30 x 4 = ____

d] 99 x 10 = ____

e] 67 x 100 = ____

f] 60 x 20 = ____

g] 92 x ___ = 0

h] 7 x ___ = 700

i] 8 x ___ = 48

j] __x 537 = 537

k] 234 x ___ = 2340

l] 30 x ___ = 600

m] 5 x 7 x 8 = _____

n] 4 x 5 x 1 = ____

3] Multiply

a] 32 x 3	b] 54 x 5	c] 73 x 7	d] 85 x 6
e] 56 x 2	f] 89 x 4	g] 64 x 8	h] 27 x 9
i] 136 x 3	j] 841 x 5	k] 509 x 2	l] 515 x 4
m] 940 x 6	n] 105 x 7	o] 554 x 8	p] 265 x 9

4] Multiply

a] 32 x 23	b] 16 x 14	c] 43 x 55	d] 17 x 13
e] 86 x 43	f] 47 x 29	g] 40 x 52	h] 48 x 66
i] 51 x 78	j] 62 x 54	k] 15 x 91	l] 14 x 41

5] Multiply by 11

a] 45 x 11	b] 26 x 11	c] 57 x 11	d] 11 x 64
e] 78 x 11	f] 86 x 11	g] 94 x 11	h] 11 x 89

6] Multiply

a] 403 x 3 b] 452 x 4 c] 131 x 5 d] 180 x 2

e] 248 x 2 f] 516 x 6 g] 247 x 7 h] 456 x 8

i] 118 x 9 j] 825 x 9 k] 444 x 5 l] 803 x 6

7] Choose the correct answer

1] 5 + 5 + 5 + 5 =

a] 5555 b] 5 fours c] 4 fives d] 5 x 5

2] Which number is not a multiple of 9?

a] 63 b] 49 c] 81 d] 27

3] Pick the square number

a] 55 b] 35 c] 45 d] 25

4] The product of 56 and 11 is ____

a] 5116 b] 5611 c] 616 d] 516

5] An ordinary year has 365 days. The number of days in 3 such years.

a] 365 x 3 b] 365 - 3 c] 365 + 3 d] 3653

Higher Order Thinking Skills :

1] If 5 x 13 = 65 then 50 x 130 =?

2] Find twice of 23 and add it to the double of 32.

3] Find the product of the face value and place value of the digit 6 in 7,680.

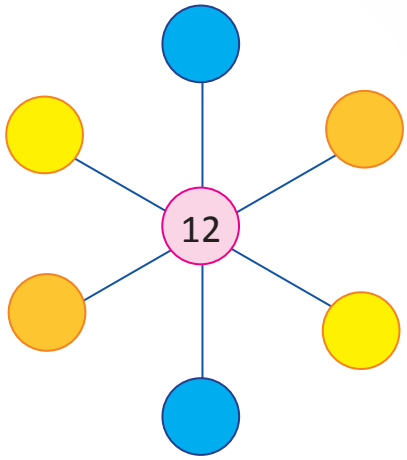
4] In the numbers 5423 and 2345 what is the product of the face values of the digits in hundreds place?

5] Find the product of the number of days in a leap year and the number of days in a week.

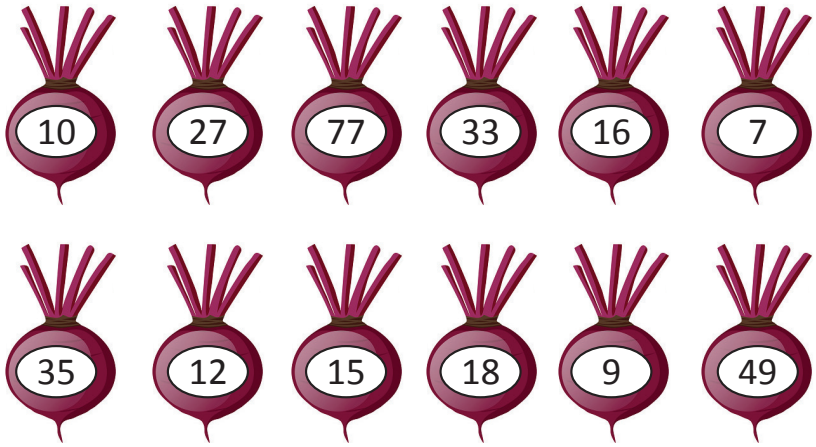
6] What comes next ? 1, 4, 9, 16, 25, ___, ___, ___, ___, ___.

7] Place the given numbers in the paired coloured circles to get the product as 12.

1	3
4	12
6	2



8] Place the beetroots in the appropriate boxes.

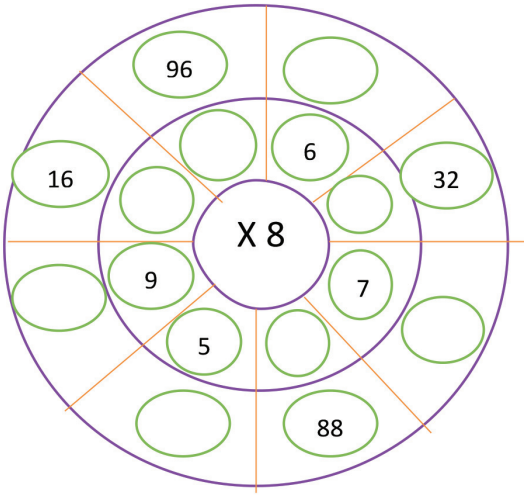


Multiples of 2

Multiples of 3

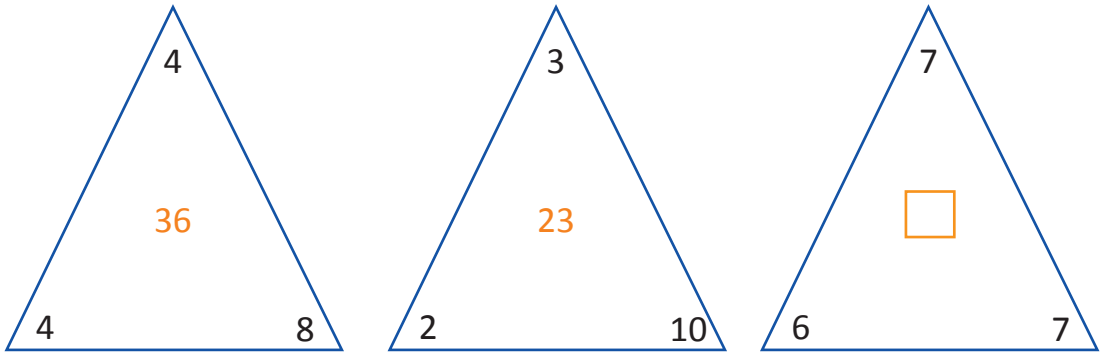
Multiples of 7

9] Fill in the blanks in the multiplication wheel by recalling 8 tables.



10] Puzzles to puzzle you !

a] Find the missing number in the triangle.



b] Observe the given picture and answer the question.

 = 28

 = 21

 = 17

Find 

Ans: _____

SHAPES AND PATTERNS

LEARNING OUTCOMES

At the end of this lesson, children will be able to:

- Identify faces, edges, and corners of solid shapes
- Know the number of faces, edges, and corners of solid shapes.
- Identify shapes that can roll, slide or both
- Identify patterns in shapes and numbers
- Identify tiling of shapes

Akhil's grandma was practising Rangoli designs for Holi.



Akhil: Pranams daadhi, what are you doing?

Daadhi: Blessings dear, I am trying out rangoli designs for Holi decorations.

Akhil: Wow, it looks interesting. I can see many shapes that my class 2 maths teacher taught me.

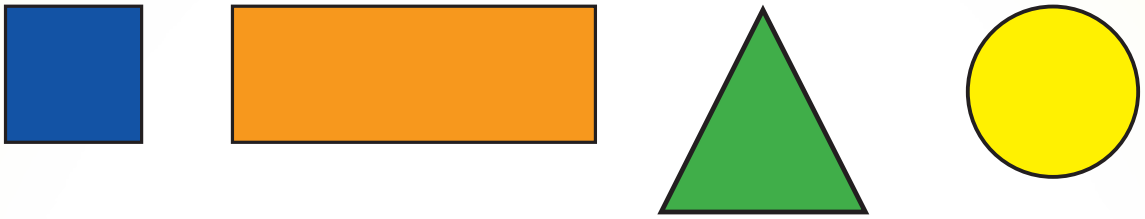
Daadhi : Yes Akhil, You can see shapes and patterns everywhere around us.

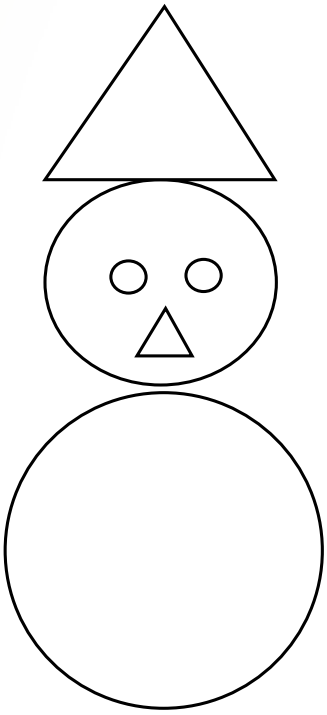
Akhil: Is it? Now I am going to play in the park. I'll look for shapes and patterns there and share with you daadhi ma.

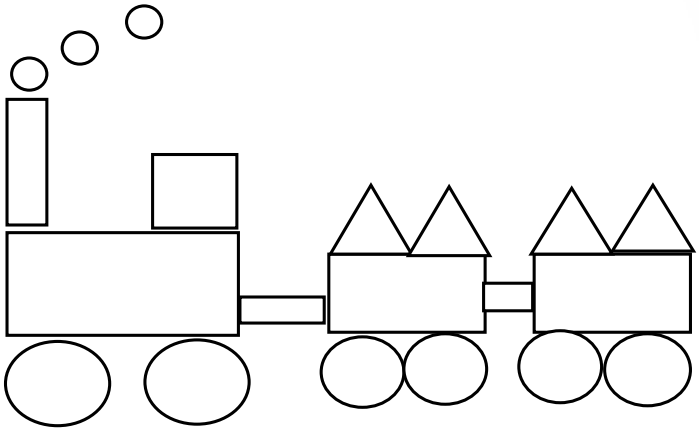

List the shapes that Akhil saw in the park.

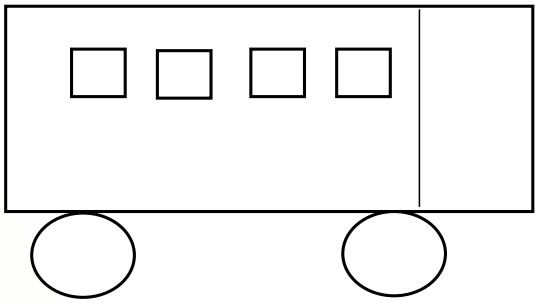
Warm up -2d shapes

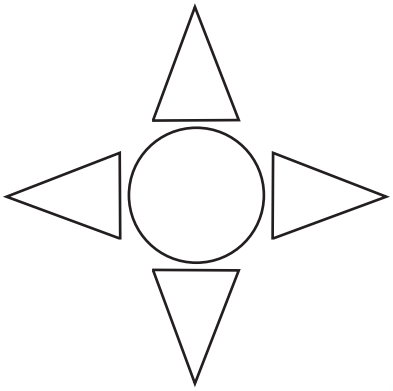
1) Colour the pictures with the given colour code.



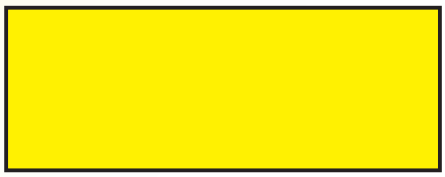








2) Count and write the number of sides and corners

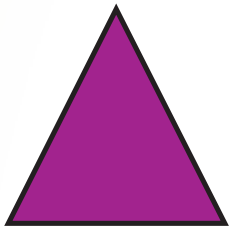


Sides = ☐

Corners = ☐

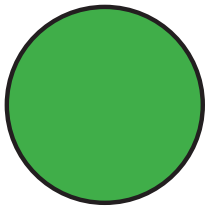
Sides = ☐

Corners = ☐



Sides = ☐

Corners = ☐



Sides = ☐

Corners = ☐

3) Match the shapes and the objects

1) Square :

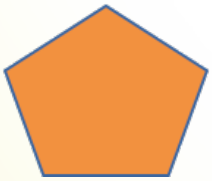
2) Circle :

3) Rectangle :

4) Triangle :

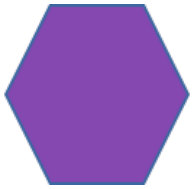
What is the shape of a **Honey comb?**

Find out the number of sides and corners of the given shapes.



Sides = ☐

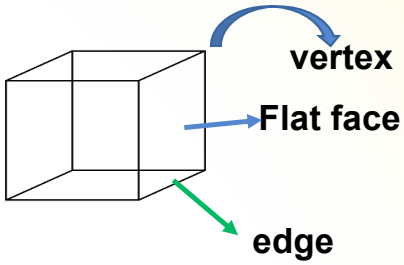
Vertices = ☐



Sides = ☐

Vertices = ☐

Concepts section



Solid shapes

Solid shapes have length, breadth and height.

They are called 3 D shapes. Cube, Cuboid, Cylinder

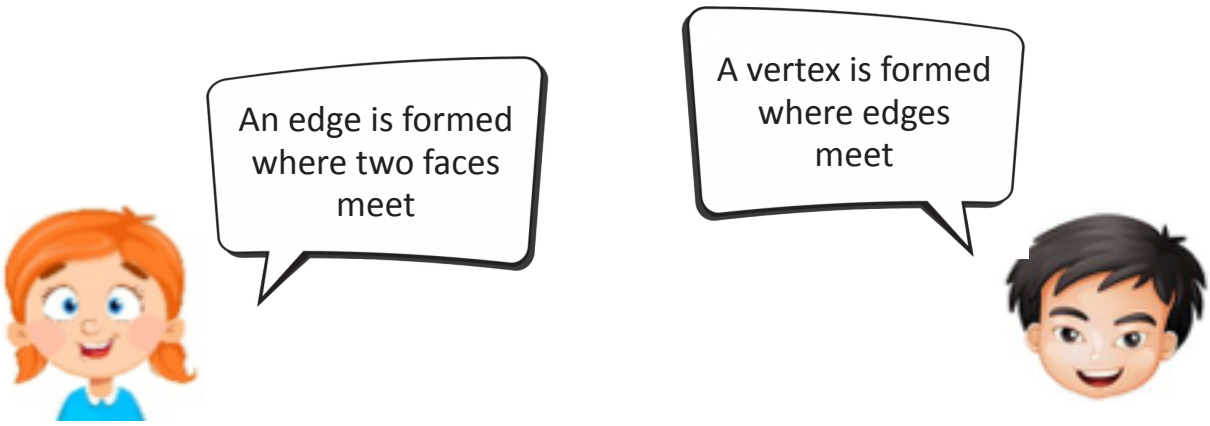
Cone and Sphere are some solid shapes.

Cube

Count the number of faces, edges and vertices of a cube.

A cube has 6 flat faces, 8 vertices and 12 straight edges.

The face of a cube is a square.



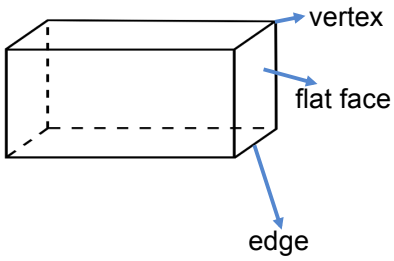
Cuboid

The cuboid has atleast

2 rectangular faces.

It has 8 vertices and 12 edges.

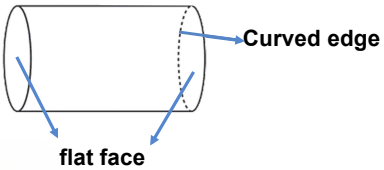
The face of a cuboid is rectangle.



Cylinder

A cylinder has 2 flat faces, 1 curved face and

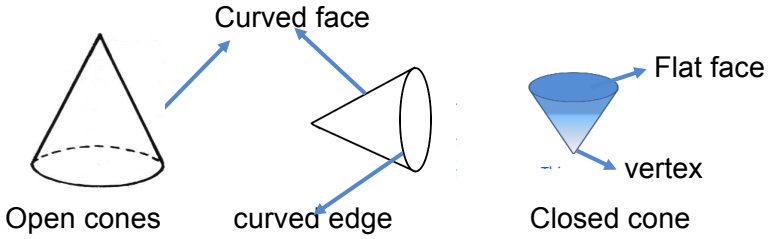
2 curved edges.



There is no vertex in cylinder Why?

Cone

A cone has 1 curved face, 1 flat face, 1 curved edge and 1 vertex.



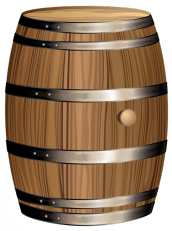
Sphere

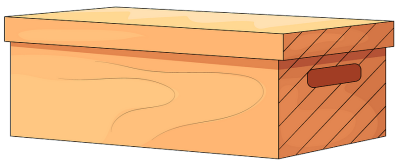
A sphere has a curved face and no vertices.

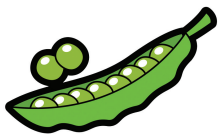
EXERCISE 5.1

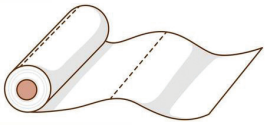
1) Circle the shape with straight edges in green, and curved edges in blue.

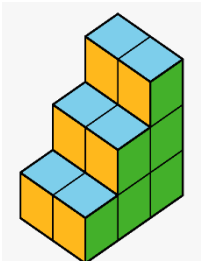
2) Circle the shapes with flat faces in yellow, curved faces in blue and both curved and flat faces in green.

a) 

b) 

c) 

d) 

e) 

f) 

3) Match the shapes with the objects.

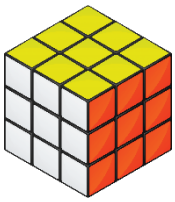
cube

cuboid

cylinder

sphere

cone



Higher Order Thinking Skills

What shape would you get if you place five

1) 5 rupee coins one over the other.

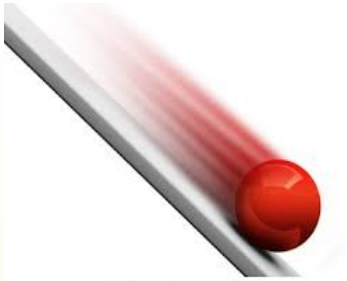
2) 5 dices adjacent to each other.

Roll or Slide

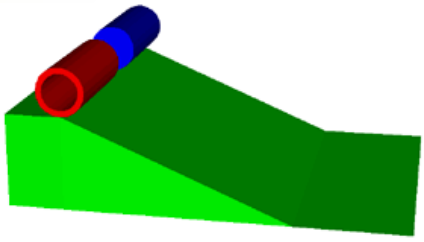
Some objects roll and some objects slide

- Objects having only flat faces and straight edges slide.

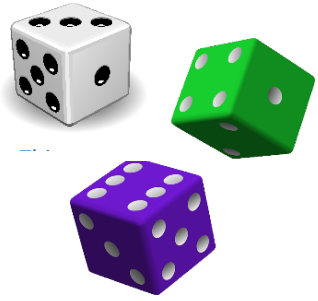
- Objects with only curved face can roll but not slide.



Objects with flat and curved faces can slide and roll.



4) Write S for the objects that can only slide and R for the objects that can only roll and SR for the objects that can slide and roll.





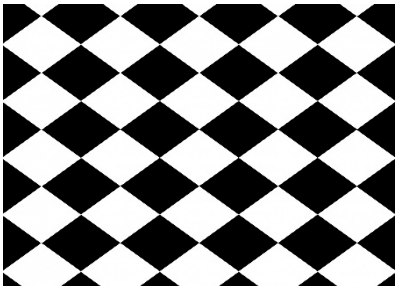
Patterns

Repeated shapes make a pattern. Patterns add beauty to the objects. We find patterns in leaves, flowers, clothes, floors, building etc.

Observe the pattern in the given pictures.

Patterns in buildings

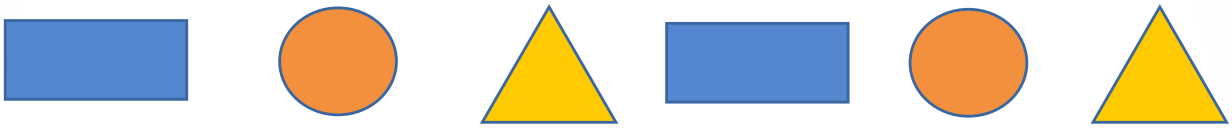
Patterns in tiles



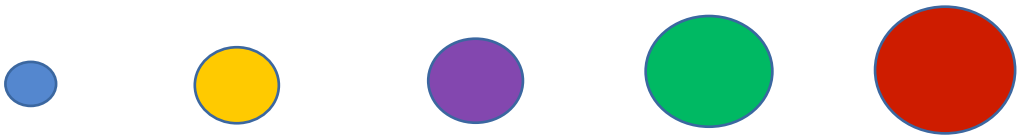
Patterns in animals

Patterns in plants

Patterns in shapes



Here, the shapes are repeated in a particular sequence.
This is **'repeated pattern'.**



Here, the size of the circle keeps increasing.
This is **'growing pattern'.**

Here, the shape is rotated in clockwise direction.

This is **'rotational pattern'.**

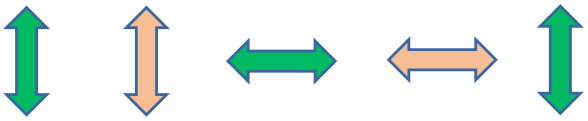
Experiential learning

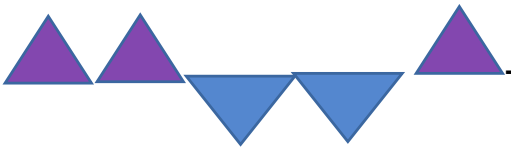
1) Draw a rangoli in your note book using only 2 shapes.
2) Make border strips using repeated pattern and rotational pattern.

EXERCISE 5.2

I) Observe the pattern and continue

1)  ____ ____ ____ ____

2)  ____ ____ ____ ____

3)  _____

4)  ____ ____ ____ ____

5)  ____ ____ ____

Patterns in numbers

We find patterns in numbers too. Number patterns can be formed by arranging the numbers in a particular way.

Observe the number pattern

- 5 10 15 20 25 30 35 . . .
- 10 20 30 10 20 30 10 . . .
- 99 96 93 90 87 84 81 . . .
- 110 220 330 440 550 . . .
- 12 123 1234 12345 . . .

EXERCISE 5.3

I) Identify the number pattern and continue.

a) 8 , 18 , 28 , 38 , _____ , _____ , _____

b) 206 ,204 ,202, 200, _____ ,_____ ,_____

c) 1 , 3 , 6 , 10 , 15 , _____ , _____ ,_____

d) 3000, 3002 ,3004, _____ , _____ , _____

e) 1, 2, 4 , 8 , 16 , 32 , _____ , _____ , _____

f) 800 , 400 , 200 , _____ , _____ , _____

g) 666 , 665 , 664 , _____ , _____ , _____

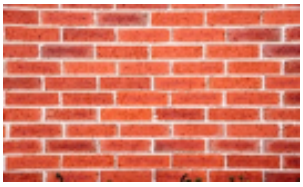
h) 121 , 131 , 141 , _____ ,_____ , _____

II) Write the odd number pattern from 1 to 50 and the even number pattern from 50 to 100.

Identify the pattern

A. 1 + 2 + 3 + 4 + 5 = **15**
11 + 12 + 13 + 14 + 15 = **65**
21 + 22 + 23+ 24 + 25 = **115**
31 + 32 + 33 + 34 + 35 = _____

B. 1 +11 + 21+ 31 + 41 = **105**
2 + 12 +22 + 32 + 42 = **110**
3 + 13 + 23 + 33 + 43 = **115**
4 + 14 + 24 + 34 + 44 = _____

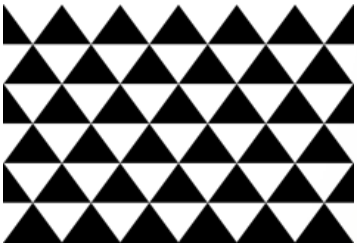


Tiling Patterns

We see the patterns in tiles on the floors and walls.

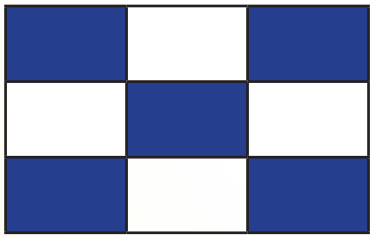
Tiles are placed adjacent to each other without leaving a gap or overlapping.

Look at the tiling pattern.



Shape of the tiles used: _____

_____



_____

Draw 2 tiling patterns using any 2 flat shapes.

Higher Order Thinking Skills

Name 2 shapes that cannot be used to make tiling patterns. Why?

Ans. _____ , _____

Experiential learning

Field Activity

Look for patterns in your classroom, math lab, playground, dresses and at home.

Note down in your note book and discuss with your teacher and friends as per your choice.

I) Identify the objects of the following solid shapes in your classroom, Math lab, home or from your surroundings. List down the names here.

a) Cube - _____ , _____ , _____

b) Cuboid - _____ , _____ , _____

c) **Cylinder** - _____ , _____ , _____

d) **Cone** - _____ , _____ , _____

e) **Sphere** - _____ , _____ , _____

WORKSHEET

1) Name the shape and write the number of faces, edges and vertices.

a) 

Flat faces = ☐ Name _____

Vertices = ☐

Straight edges = ☐ Curved edges = ☐

b) 

Flat faces = ☐ Name _____

Vertices = ☐

Straight edges = ☐ Curved edges = ☐

c) 

Curved face = ☐ Name _____

Flat face = ☐ Straight edges = ☐

Vertices = ☐

d) 

Flat face = ☐ Name _____

Curved face = ☐

Vertices = ☐

Think

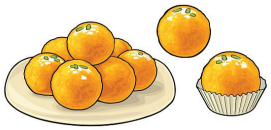
Why do we prefer travelling bags with wheels?

2) Circle the objects that can

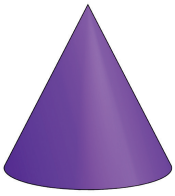
only roll in **Green**

only slide in **Red**

both roll and slide in **Blue.**






3) Continue the pattern

a) 123, 127, 131, _____ , _____ , _____

b) 640, 630, 620, _____ , _____ , _____

c) 1, 3, 9, 27, _____ , _____ , _____

d) 6, 16, 26,___, ___, ____

e) 1234, 4123, 3412, _____ , _____ ,_____

f)  _____ , _____ ,_____

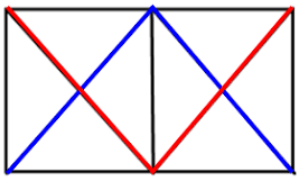
g)  ____ ____ ____

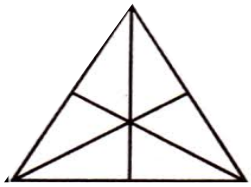
h)  ___ ___

I)  ____ ____

j)  ____ ____

4) Count the number of triangles





Observe and Continue the pattern	
11 x 11 =121	11x 9 = 99
121 x 11 =1331	121 x 9 = 1089
131 x 11 = 1441	131 x 9 = 1179
141 x11 = 1551	141 x 9 = 1269
151 x 11 = _____	151 x 9 = _____
161 x 11 = _____	161 x 9 = _____

Social Skills

Class 3 students are going by bus on an educational trip.

On their way, they came across an elderly woman selling handmade products.

They were made of palm leaves and bamboo.

The teacher stopped the bus and took the students to the stall. She asked them to observe the shapes and patterns in the items and she purchased a few products.

Can you identify the shapes?_____

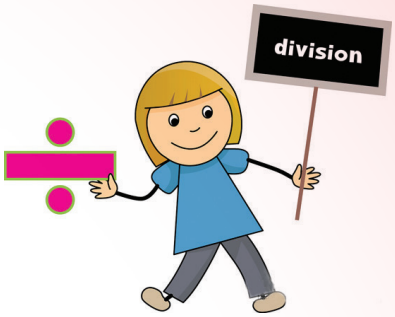
5) Identify the shape/pattern in the given picture

[This is a handwoven mat, made in Pathamadai in Tamil Nadu. It is crafted out of Korai grass.]

[This is a handwoven Kashmiri carpet]

We must support the “Atmanirbhar Bharat” initiative of the Government by encouraging local produce and purchasing goods manufactured in India.

DIVISION - I



LEARNING OUTCOMES

At the end of this lesson, children will be able to:

- Divide by equally sharing and grouping.
- Understand the concept of division as repeated subtraction.
- Understand the properties of division
- Divide using multiplication tables
- Apply the skill of division to solve real-life problems.
- Understand the relation between multiplication and division.

A group of kids were playing in a park

Akshay brought 12 marbles along with him to play. His friend Chetan joined him and Akshay shared his marbles equally with him. Each got 6 marbles.

Akshay

Chetan

Akshay	Chetan
	

Akshay's friend Monal also joined him at the park to play. He then shared the marbles equally amongst the three friends. Each got 4 marbles.

Akshay

Chetan

Monal

Akshay	Chetan	Monal
		

Another friend Pooja also joined them to play.
So, Akshay shared his 12 marbles equally among the four.
Now, each got 3 marbles to play.

Akshay Chetan Monal Pooja

Akshay	Chetan	Monal	Pooja

Equally sharing or equally grouping is division and
the division symbol is ‘÷‘.
Let us summarize the above example.

- 12 marbles were shared among 2 and each got 6 marbles.
  This can be written as **12 ÷ 2 = 6**
- 12 marbles were shared among 3 and each got 4 marbles.
  This can be written as **12 ÷ 3 = 4**
- 12 marbles were shared among 4 and each got 3 marbles.
  This can be written as **12 ÷ 4 = 3**

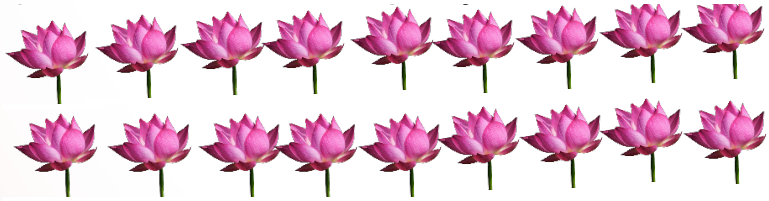
Warm up

1) Share 8 toy cars equally among 4 children.

Each child gets _____ cars.
8 divided by 4 equals ___.

8 ÷ 4 = ☐

2) Place 18 flowers equally in 6 vases.

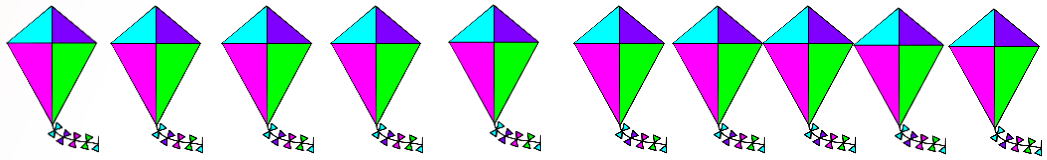


There are _____ flowers in each vase.

18 divided by 6 equals ____.

18 ÷ 6 = ☐

3) Divide 10 kites equally among 2 children.



Each child gets ____ kites.

10 ÷ 2= ☐

There are _____ balls in each bag.

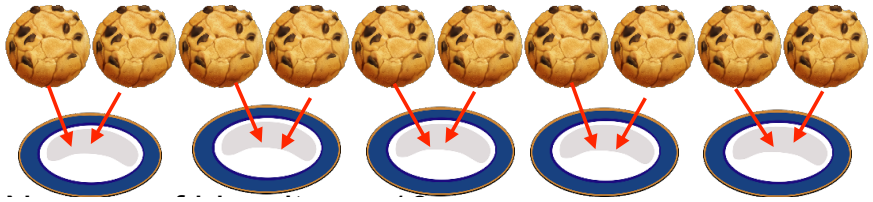
9 ÷ 3 = ☐

Concepts section

Equal grouping

Example

1) Anitha has 10 biscuits. She keeps 2 biscuits in a plate. How many plates are needed to place all the biscuits?



Number of biscuits = 10

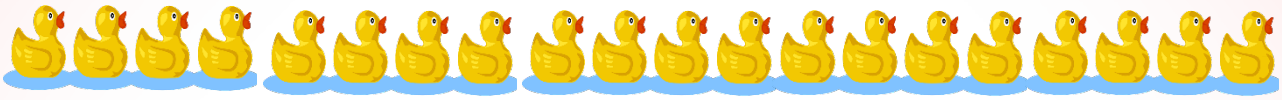
Number of biscuits in each plate = 2.

Number of plates needed = 5.

10 divided by 2 equals 5

The division fact is **10 ÷2 = 5**

2) There are 20 ducks. Divide them into groups of 4 each.



Number of ducks = 20

Ducks in each group = 4

Number of groups = **5**

20 divided by 4 equals 5.

The division fact is **20 ÷ 4 = 5**

Read aloud

Dividend
Divisor
quotient

- The terms used in division are

  Dividend → the number which is to be divided

  Divisor → the number which divides the given number

  Quotient → Division answer

  In 20 ÷ 4 = 5, 20 is dividend, 4 is divisor and 5 is quotient.

  We do division to find the number of objects in each group and also to find the number of groups.

Value based Activity

Purabhi saw her Thakurama (grandma in Bengali) arranging sarees in a cupboard.

She asked her whether she needs any help.

Thakurama asked to arrange her 24 sarees equally in the cupboard which has 4 racks. Purabhi tried and arranged them equally in 4 racks.

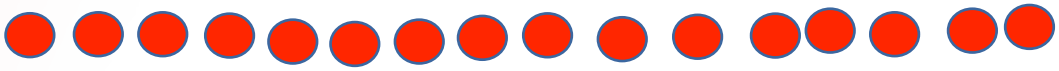
How many sarees were placed in each rack by her? _____

If Thakurama asked her to place the saree in 3 racks, how many sarees will be placed in each rack? Ans. _____.

EXERCISE 6.1

I) Fill in the blanks

a) Divide 16 bindhis into two groups.



Total number of bindhis = _____

Number of groups = _____

Number of bindhis in each group = _____

____ divided by ___ equals _____.

Division fact is _____.

Who is correct? 

 Amith did 16÷2

 Sanam did 2 ÷ 16

b) Divide 15 stars into 3 groups.

Total number of stars= _____.

Number of groups = _____.

Number of stars in each group = _____.

15 divided by 3 equals _____.

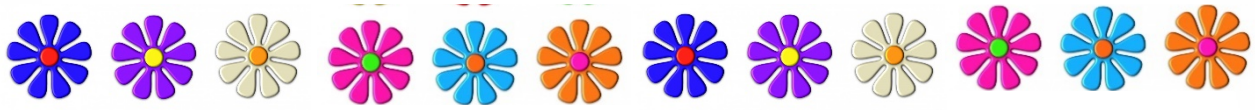
Division fact is _____.

2) Fill in the boxes

a) Divide 6 ice creams into groups of 2 each.

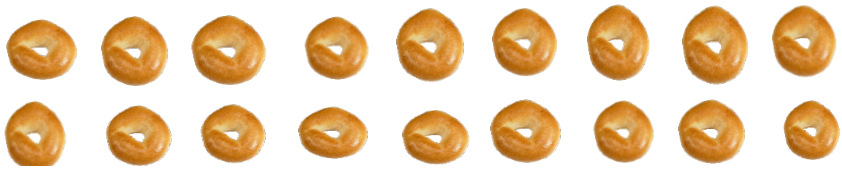
$6 \div 2 = \square$

b) Divide 12 flowers into groups of 3 each



$12 \div 3 = \square$

c) Divide 18 vadas into groups of 6 each



$18 \div 6 = \square$

Higher Order Thinking Skills

How would you arrange 50 ice cream sticks in equal groups in all possible ways.

Think about the division facts. How many division facts did you get?

EXERCISE 6.2

Application of division in real life

a) Sushma's mother prepared 40 chapatis. She served it equally among 8 people.

How many chapatis did each get?

Write the division fact.

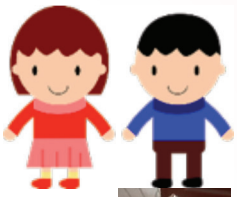
Division fact: _____. Each got ____chapatis.

b) Mohit has 100 saplings. He planted 10 saplings in a row.

Find the number of rows he planted.

Division fact: _____. Number of rows =____

c) Manasa has 14 peanut candies. Her mother asked her to share them equally with her brother. How many peanut candies did each get?



Division fact: _____. Each got _____ candies.

d) A factory produces 56 toys in a day. If 8 toys are packed in a carton, how many cartons are needed for a day?

Division fact: _____. Number of cartons needed =____

e) Keshav invited few friends on his birthday.

His mother prepared 21 dhoklas.

She distributed 3 dhoklas to each of his friends and no dhoklas were left.

How many friends were invited?

Division fact: _____. Number of friends invited_____.

f) There are 7 strings in a veena. How many veenas can be made with 28 such strings?

Division fact: _____.

Number of veenas made = _____

Facts Corner

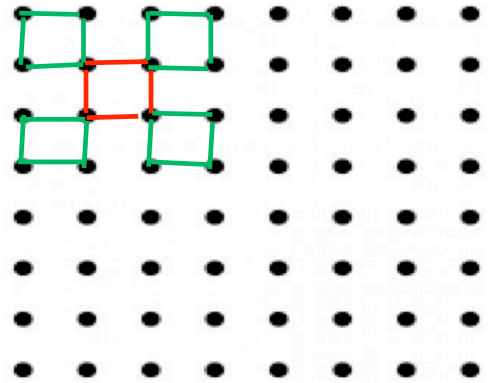
Veena is one of the oldest Indian musical stringed instruments. It is made from the wood of jack fruit tree. Tanjore veenas are famous all over the world.

Arts Integrated Activity

1) Take 40 beads. Make 5 Rakhis by using the beads equally.

2) Take 24 ice cream sticks and make houses as shown below by using them equally.

How many houses were you able to make?



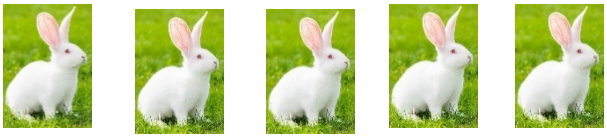
3) Using the dots draw similar rangolis.

How many rangolis were you able to do?

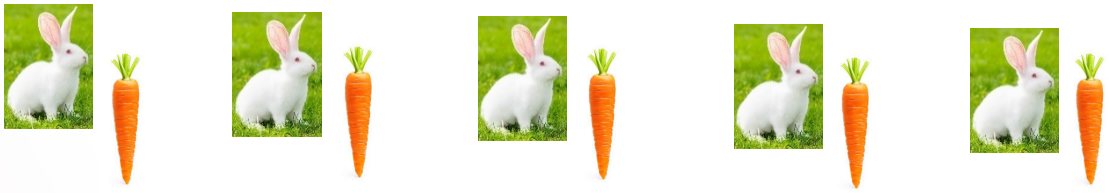
Can you guess the division fact?

Division by subtraction method

Let us divide 15 carrots among 5 rabbits.

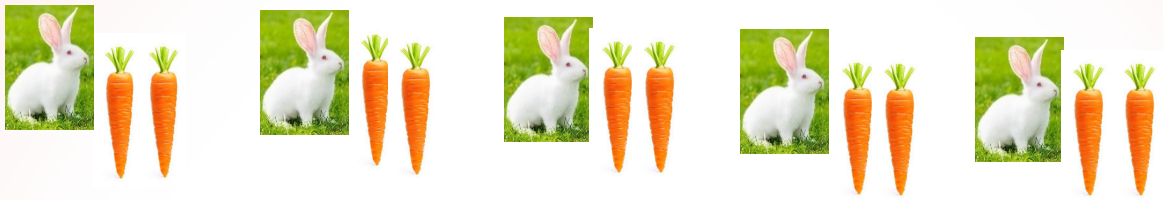


First give 1 carrot to each rabbit.



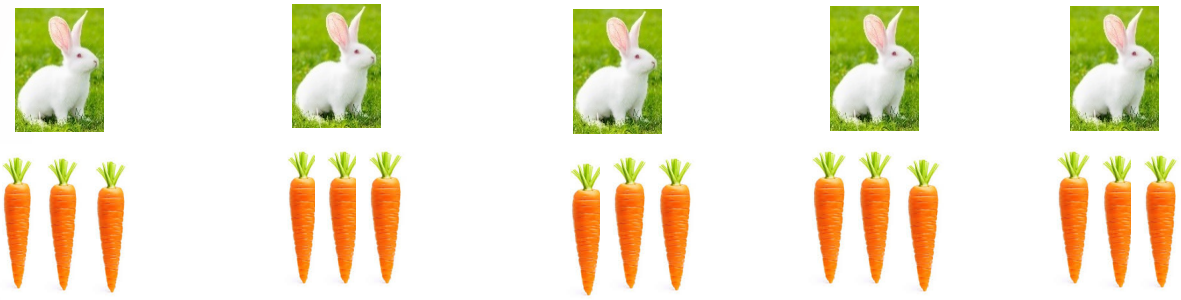
We are left with 10 carrots. **15 – 5 = 10**

Out of 10, give 1 more carrot to each rabbit.



We are left with 5 carrots. **10 – 5 = 5**

Out of 5, give 1 more carrot to each rabbit.



Now, we are left with 0 carrots. **5 – 5 = 0**

15 – 5 – 5 – 5 = 0. Number of steps = 3

Each rabbit has got 3 carrots. **15 ÷ 5 = 3**

Here, we have done the division by subtracting the same number repeatedly till we got 0.

Repeated subtraction is division.

Value based question

Pintu was sitting with her Aaji.(Grandmother in Marathi)

Pintu: Aaji , I am hungry. Please give me some biscuits.

Aaji : There are 12 biscuits in this packet.

Take only 3 biscuits a day.

Pintu: 'Thank you Aaji'.

Pintu eats 3 biscuits every day.

In how many days will the biscuit packet get over?

Ans._____

Division by repeated subtraction method

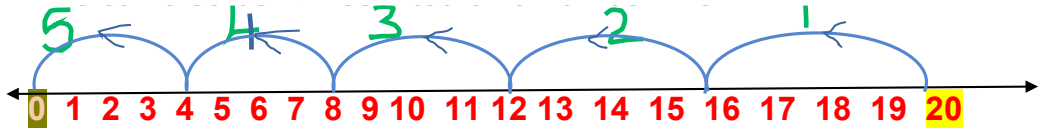
Example-1. 20 ÷ 4. Subtract 4 repeatedly.

		20
First time	–	4
		16
Second time	–	4
		12
Third time	–	4
		8
Fourth time	–	4
		4
Fifth time	–	4
		0

4 can be repeatedly subtracted from 20, five times.

So, 20 ÷ 4 = 5

This can also be represented on a number line.



Here,4 is subtracted 5 times from 20.

20 ÷ 4 = 5

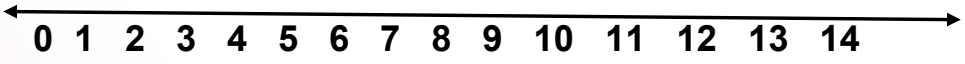
EXERCISE 6.3

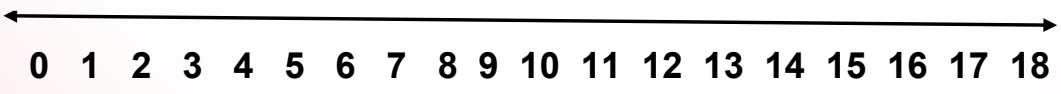
I) Divide by repeated subtraction method

a) 14 ÷ 7 b) 24 ÷ 8 c) 45 ÷ 9 d) 18 ÷ 6

e) 28 ÷ 7 f) 30 ÷ 5 g) 21 ÷ 3 h) 28 ÷ 4

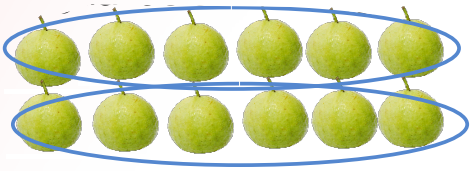
II) Divide using the number line. **a) 14 ÷ 2 =** **b) 18 ÷ 3 =**





Relation between multiplication and division

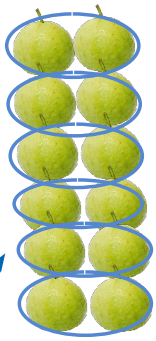
12 guavas are arranged in 2 rows with 6 guavas in each row.



Multiplication fact is 2 x 6 = 12

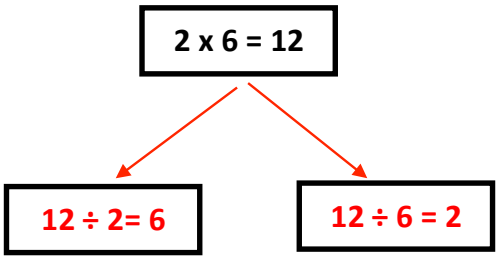
If we divide 12 guavas in 2 rows, we get 6 guavas in each row.

So, 12 ÷ 2 = 6



If we divide 12 guavas in 6 rows, we get 2 guavas in each row.

So, 12 ÷ 6 = 2



EXERCISE 6.4

Write the division facts for the given multiplication fact

a) 5 x 3 = 15

Division facts = _____ and _____

b) 10 x 4 = 40

Division facts = _____ and _____

c) 7 x 8 = ___

Division facts = _____ and _____

d) 6 x 6 = ___.

Division fact = _____

e) 9 x 3 = ___

Division fact = _____ and _____

Division using multiplication tables

Example. We can use multiplication table of 10 to find the quotient.

a) 30 ÷ 10 = [3] 10 x **3** = 30

b) 70 ÷ 10 = [7] 10 x **7** = 70

c) 100 ÷ 10 = [ ]

d) 40 ÷ 10 = [ ]

EXERCISE 6.5

1) Divide using multiplication tables

a) 8 ÷ 2 = ___ (2 x __= 8)

b) 15 ÷ 3 = ___ (3 x __ = 15)

c) 21 ÷ 7 = ___ (7 x __ = 21)

d) 45 ÷ 5 = ___ (5 x __ = 45)

e) 16 ÷ 4 = ___

f) 20 ÷ 5 = ___

g) 42 ÷ 6 = ___

h) 56 ÷ 7 = ____

2) Answer the following

a) How many fours are there in 28?_____

b) How many sevens are there in 56? _____

c) How many twos are in 20? _____

d) How many times can you take out 9 from 45? _____

e) How many times can you take out 8 from 48? _____

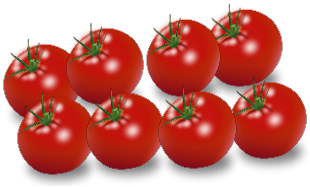
4) Write the multiplication table of 2, 5 and 10 and write the division facts.

Activity

Take 18 pencils. How many times can you take away 3 pencils?

Properties of division

- If 8 tomatoes are to be packed in 1 basket, it will have all the 8 tomatoes.

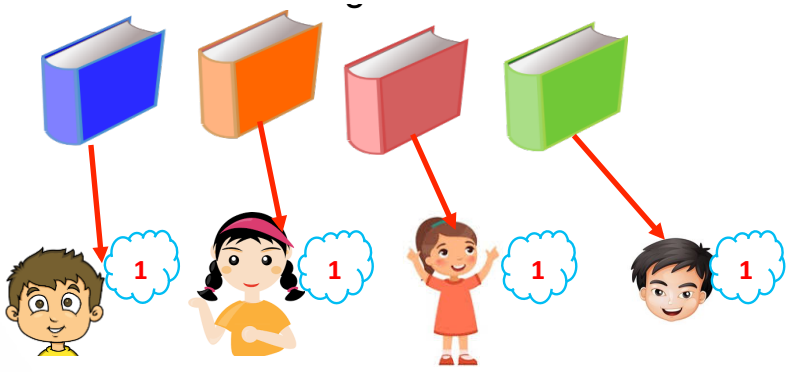


So, 8 ÷ 1= 8

12 ÷ 1 = 12 **143 ÷ 1 = 143** **2150 ÷ 1=2150**

Any number divided by 1, gives the same number as the quotient

- If 4 books are divided equally among 4 students, each student will get 1 book.

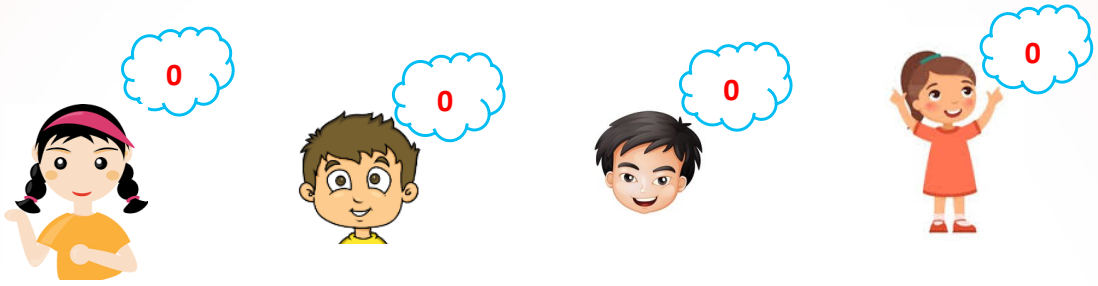


4 ÷ 4 = 1

13 ÷ 13 = 1 **204 ÷ 204 = 1** **3150 ÷ 3150 =1**

Any number divided by itself, gives 1 as the quotient

- If ' 0 'Chocolates are divided among 4 children, each child will get '0 'chocolates.



0 ÷ 4 = 0

0 ÷ 15 = 0 **0 ÷ 512 = 0** **0 ÷ 6423 = 0**

When 0 is divided by any number, the quotient is 0.

Division by Zero is not defined.

EXERCISE 6.6

Fill in the box

a) 8 ÷ 8 = ☐

b) 0 ÷ 6 = ☐

c) 14 ÷ ☐ = 1

d) ☐ ÷ 4 = 0

e) 407 ÷ 1 = ☐

f) ☐ ÷ 1 = 81

g) 0 ÷ 205 = ☐

h) 52 ÷ ☐ = 1

i) ☐ ÷ 412 = 1

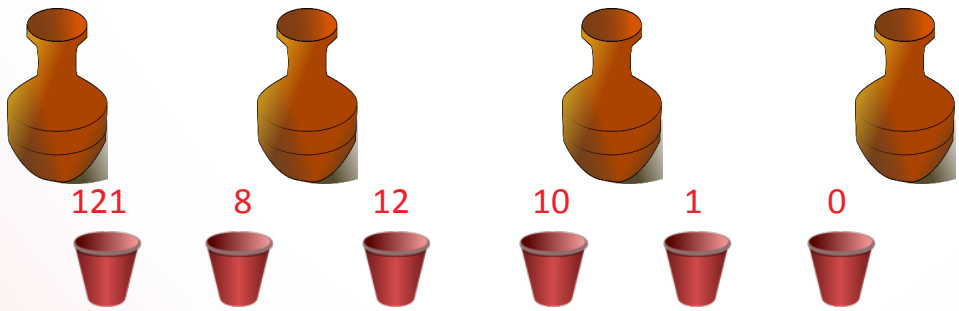
j) 728 ÷ 728 = ☐

k) 1610 ÷ ☐ = 1610

l) 819 ÷ ☐ = 1

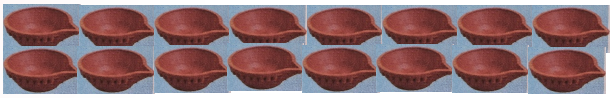
Match:

40 ÷ 4 **12 x 1** **40 ÷ 5** **12 ÷ 12**



WORKSHEET

1) Find how many are in each group?

a)  16 ÷ 2 = ☐

____ in each group.

b)  36 ÷ 4 = ☐

____ in each group.

c)  6 ÷ 6 = ☐

____ in each group.

d)  15 ÷ 3 = ☐

_____ in each group.

2) Answer the following

a) Divide 27 marbles into groups of 3 each and write the division fact.

b) There are 2 pens in a packet. Arjun needs 14 pens.

How many packets should he buy?

He should buy ____ packets. Division fact: _____

c) Rachana bought 20 pencils and gave 4 pencils to each of her friends. She did not have any pencils left. How many of her friends got the pencils?

_____ friends. Division fact: _____

d) There were 18 rasgullas in a bowl. If 3 rasgullas were served in each of the plates available and no rasgullas were left, how many plates were there?

_____ plates were needed. Division fact: _____

3) Divide by repeated subtraction method

a) 8 ÷ 2 b) 18 ÷ 3 c) 42 ÷ 6 d) 35 ÷ 5

4) Write the dividend, divisor and quotient

a) 40 ÷ 5 = 8 b) 35 ÷ 7= 5 c) 80 ÷ 10 = 8

5) Divide using multiplication tables

a) 25 ÷ 5 = e) 36 ÷ 4 = i) 49 ÷ 7 =

b) 70 ÷ 10 = f) 42 ÷ 6 = j) 28 ÷ 1 =

c) 32 ÷ 8 = g) 27 ÷ 3 = k) 0 ÷ 73 =

d) 81 ÷ 9 = h) 56 ÷ 7 = l) 12 ÷ 12 =

Activity

Arun has ₹ 60 in his piggy bank.

He wants to share it equally with his sister. How much money will he share with her?

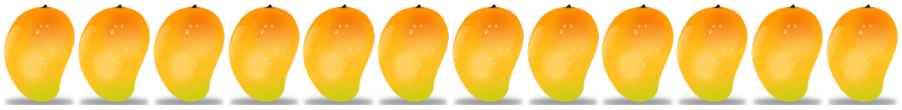
₹ 10	₹ 10	₹ 10	₹ 10

₹ 5 ₹ 5 ₹ 2 ₹ 2 ₹ 2 ₹ 1

₹ 1 ₹ 1 ₹ 1

Lab activity

1) Arrange the mangoes equally in 4 baskets



Each basket will have _____ mangoes.

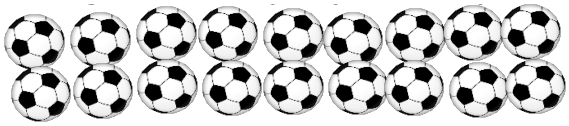
2) Using measuring cups of 100 mL, 500 mL, 1000 mL, find the following.

How many 100 mL cups of water are required to fill a 1000 mL cup?

How many 500 mL cups of water are required to fill 1000 mL cup?

How many 100 mL cups of water are required to fill 500 mL cup?

3) Arrange 18 balls equally in the racks of cupboards A,B,C,D



A

B

C

D

Experiential learning

Radha has 28 shells. She placed them equally in the pits.

How many shells were placed in each pit? Ans. _____

Facts Corner

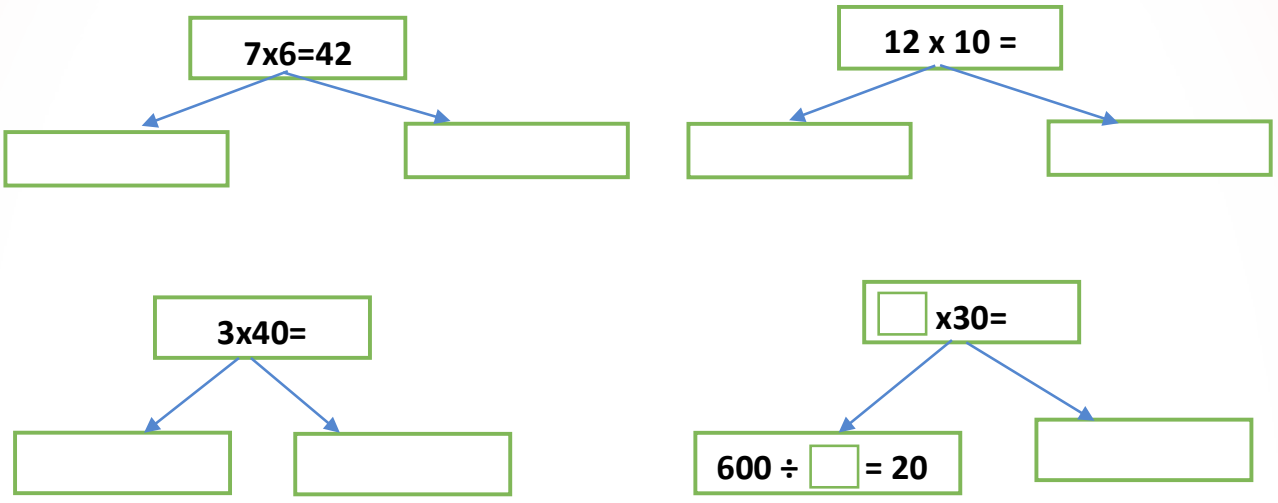
Pallanguzhi is a traditional ancient game played in Tamil Nadu. Shells, tamarind seeds or small pebbles are used as counters. Playing this game improves motor skills and numerical ability.

6) Divide using the number line

a) 16 ÷ 4 = b) 12 ÷ 3 = c) 18 ÷ 2 =

d) 14 ÷ 7 = e) 10 ÷ 5 = f) 6 ÷ 6 =

7) Write the division facts for the given multiplication fact



8) Use the given set of numbers to make multiplication fact and division facts

a) 8, 3, 24 b) 45, 9 , 5

c) 90, 10, 9 d) 14, 140, 10

9) Decide the operation and find the answer

a) 50 students can sit in a bus. How many buses are needed for 100 students?

Multiply / Divide Ans._____

b) The cost of a bat is ₹ 530. What is the cost of 3 such bats?

Multiply / Divide Ans. _____

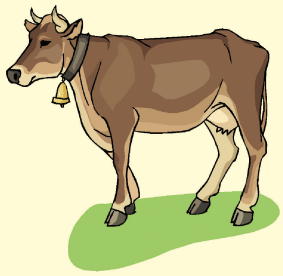
c) Cost of a toy is ₹ 200. How many such toys can be bought with ₹ 600?

Multiply / Divide Ans. _____

d) There are 20 desks in a classroom. How many desks are in 9 such classrooms?

Multiply / Divide Ans. _____

THINKING SKILLS



Selvam is a milkman. He has 6 cows. Each cow gives 3 litres of milk in the morning and 2 litres in the evening.
He delivers milk equally to 10 houses.

a) How many litres of milk is supplied to each house in a day?

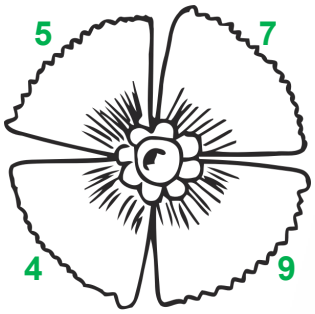
b) Find the total quantity of milk supplied in a week?

Arts Integrated activity

Divide and colour the petals given in the picture, based on the quotient

1) 35 ÷ 7
2) 36 ÷ 9
3) 4 ÷ 1
4) 56 ÷ 8
5) 27 ÷ 3

4 – green, 5 – yellow, 7 – red, 9 – blue



Vedic Mathematics

SUTRA: एकाधिकेन पूर्वेण
Ekādhikena Pūrveṇa
Meaning: **By one more than the previous one**

UPASUTRA: अन्त्योर्दशकेऽपि
Antyayor-dashake-api
Meaning: **Sum of last digits is ten**

Condition 1 **Sum of the digits in the units place should be 10**

Condition 2 **The digits in the tens place should be the same number**

Example

$$\begin{array}{r} 76 \\ \times\ 74 \\ \hline 5624 \end{array}$$

Calculation:
7+1=8
8x7=56
6x4=24

Srinivasa Ramanujan was an Indian mathematical genius who was born on December 22, 1887. Every year, his birth anniversary is celebrated as National Mathematics Day.

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CLASS III MATHEMATICS PART 1