CHAPTER : Knowing our numbers

Grade: **6**
Board: **CBSE**
Book: **NCERT**

1.

Chapter Summary and Placement

<Read through the following to understand how this chapter is connected with the previous and next grades and also the important concepts covered in it.>

1. Numbers were introduced to children much earlier, in this chapter student is made aware of large numbers and their estimations which will help in arithmetic calculations in the longer run
2. This chapter recapitulates comparison of numbers, basic operations of numbers and introduces new system of representation of numbers in the form of Roman numerals
3. Central idea of this chapter is large numbers and working on the basic operations, giving real life situations and making the student to explore them is right way of practice

2.

LEARNING OUTCOMES

<On completion of the chapter, students will be able to:>

1. Recapitulate the rules of comparison of two large numbers
2. Identify the numbers represented in Indian/international system
3. Encounter the situations with large numbers like population in town, conversions in metric system and solve problems related to them using basic arithmetic operations
4. Estimates sum, difference, product of large numbers
5. Solve mathematical statements involving brackets with different operations
6. Represent indo arabic numeral in roman numeral form and vice versa

3. TEACHING PLAN

Follow this section for getting ideas on teaching the content covered in the chapter. The subtopic given in the first column with the matching learning outcome can be explained using instructions and resources listed subsequently

Subtopic and Learning Objective #1

Comparison of numbers and introduction of larger numbers
LO: Recapitulates the rules of comparison of two large numbers

1.To find greatest and smallest numbers
2. To write expanded/short form

3. To identify larger numbers

Teacher Activity

1.Explain the rules of comparison of two numbers
2. Explain the term place value, place value chart of indian system and international system of numeration, smallest one digit number, greatest one digit number
3. Introduce 5 and 6 digit numbers in Indian system and also higher place values

Activity 1 can be performed to make learners understand well

Check for understanding:

a) Find the greatest and smallest numbers in the following set of numbers (numbers can be of teachers choice)
b) Write the expanded form of given number. (numbers can be of teachers choice)
c) Starting from greatest 6 digit number write 5 previous numbers

Resources Suggested

Pen and paper,
Blackboard,
Resource:1(a) Place value chart, **1(b)** Abacus

Teacher Activity

Name of the activity- Framing numbers
Type of activity – Group
Use it for – Making large numbers from given digits and operations on them
Materials –Bowl · Chits [Each chit should have a single digit number written on it. Prepare multiple chits of a single digit.]
Procedure –
Instructions to the teachers:

1. Divide the class into small groups.
2. Ask each group to pick five/six chits from the bowl.
3. Each group then has to write down the numbers which can be formed from the digits written on the chits. [the digits of the number must be as many as the number of chits picked out. like if they pick out 5 chits the number should be five digit number. By setting this mark student get to know that he should not place zero in the highest place value]
4. Students need to represent the numbers in both indian and international system
5. They also need to identify the smallest and the greatest numbers that are formed by using rules of comparison

Extension (if time permits)

1. Students can write expanded forms of above smallest and greatest numbers.
2. They can also arrange all the numbers that they have formed in ascending and the descending orders.

Subtopic and Learning Objective #2

Indian and International system of numeration
LO:
Identify the numbers represented in indian/international system
1. To identify the indian/international system number

LO
: Encounter the situations with large numbers like population in town, conversions in metric system and solves problems related to them using basic arithmetic operations
2.To solve word problems related to real life situations

Teacher Activity

Introduce indian and international system of notation rules for placing period

2. Real life situations can be given and the learner should be asked to solve by using basic arithmetic operations. Can include metric system of conversions with a good recap of conversion table. Teacher can use

Example: a. A class 1 boy student needs 1 meter 250 cms cloth for making a shirt and 750 cms for shorts, how much cloth is required in total?

b. Present population of a state in America is 2 million and the previous year it was 1,345,560, how much is the increase in population?

Check for understanding:

1. Identify the number system of given number (number of teachers choice)
2. Write the given number in international system (number of teachers choice)
3. Till which place value both the systems are same.
4. How many zeros does a trillion have.

Resources Suggested

Pen and paper,
Blackboard,

Subtopic and Learning Objective #3

Estimation
LO:
Estimates sum, difference, product of large numbers
1. To estimate sum, difference and product of given numbers

LO:
Solve mathematical statements involving brackets with different operations
2.To simplify the given mathematical statement involving brackets and different mathematical operations

Teacher Activity

1.Introduce the rules of estimation by splitting numbers and using brackets with a quick recap of rounding off numbers to nearest tens, hundred and thousands
Activity 2 can be performed for better understanding
2. Introduce BODMAS rule of simplification

Check for understanding:

a) Round off the given 5 digit number to the nearest hundreds (number of teachers choice)
b) Estimate the product of given numbers to the nearest thousands without actual multiplication (numbers of teachers choice)
c) Simplify the given mathematical expression (any expression of teachers choice)

Resources Suggested

Pen and paper,
Blackboard,

Activity 2

Name of the activity- Rounding of numbers and to estimate sum/ difference/ product
Type of activity – Group
Use it for – To make students practice and get perfection in rounding and arithmetic operations
Materials –Bowl and Chits [Each chit shou
ld have a single digit number written on it. Prepare multiple chits of a single digit.]
Procedure –

1. Divide the class into small groups.
2. Ask each group to select five chits.
3. Each group needs to form three numbers from the digits given on the chits[number of digits can be their choice based on their ability].
4. Students have to round of each number to nearest tens, hundreds and thousands places
5. Students have to estimate the outcome when the three numbers are added, subtracted and multiplied.

Subtopic and Learning Objective #4

Roman numerals
LO:
Represent indo arabic numeral in roman numeral form and vice versa

To represent the given number into roman numeral

Teacher Activity

Introduce the rules to write roman numerals

Activity 3 can be performed for better understanding

Check for understanding:

a) How many maximum number of times a numeral can be repeated

b) Which roman numerals can not be repeated more than once consecutively

Resources Suggested

Pen and paper,
Blackboard,

Activity 2

Name of the activity- Representation in roman numerals
Type of activity – Individual
Use it for – To practice writing roman numerals
Materials –Pen and paper
Procedure:

1. Learners can be asked to write important dates in their lives[birthdays of parents and siblings, marriage anniversary of their parents, their own birthday] in roman numerals

Resource 1 (a)

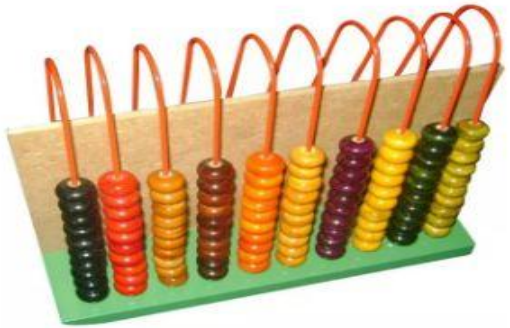
Place Value Chart- Indian system of numeration

Crores		Lakhs		Thousands		Ones		
Ten Crores (TC) (10,00,00,000)	Crores (C) (1,00,00,000)	Ten Lakhs (TL) (10,00,000)	Lakhs (L) (1,00,000)	Ten Thousands (TTh) (10,000)	Thousands (Th) (1000)	Hundreds (H) (100)	Tens (T) (10)	Ones (O) (1)

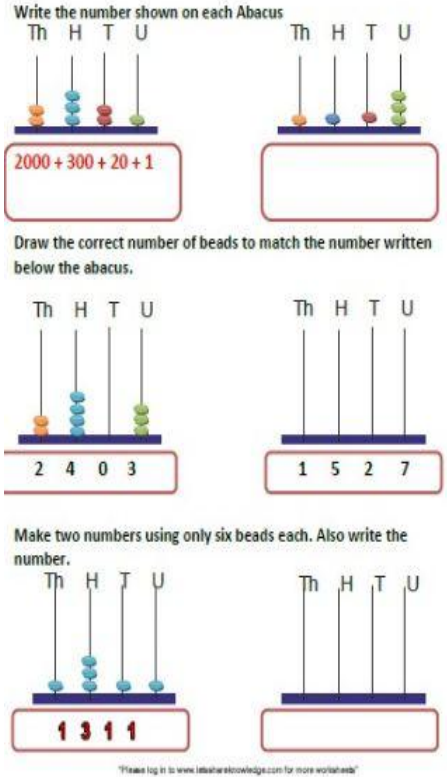
Place Value Chart- International System of numeration

Millions			Thousands			Ones		
Hundred Millions (HM) (100,000,000)	Ten Millions (TM) (10,000,000)	Millions (M) (1,000,000)	Hundred Thousands (HTh) (100,000)	Ten Thousands (TTh) (10,000)	Thousands (Th) (1,000)	Hundreds (H) (100)	Tens (T) (10)	Ones (O) (1)

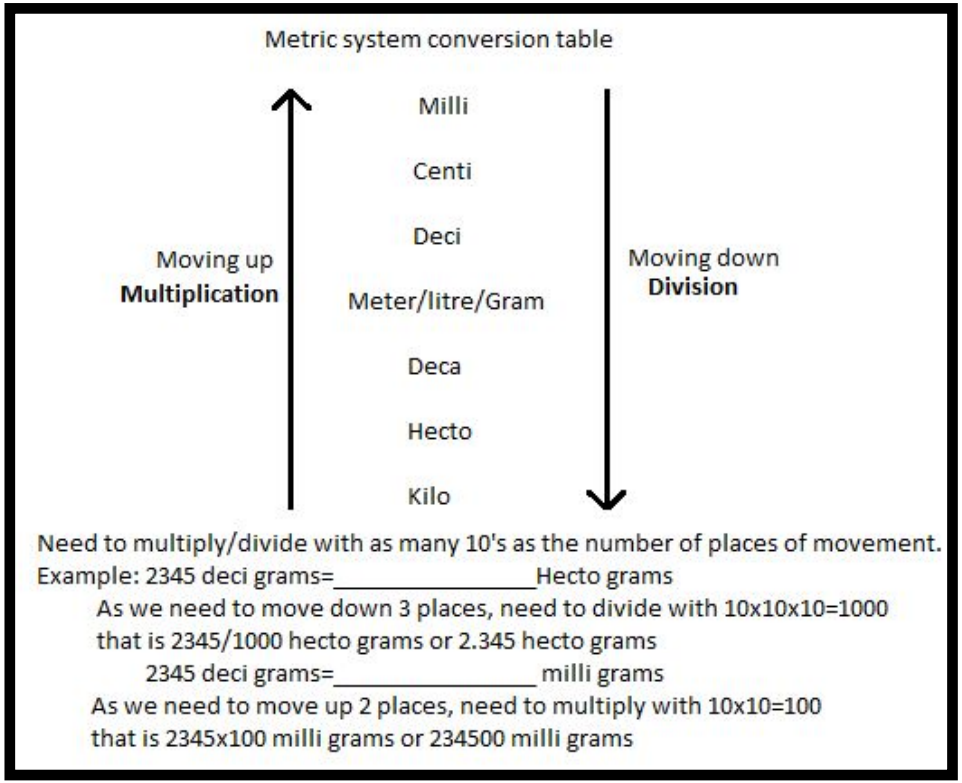
Resource 1 (b)



Place values can be marked on the base with periods and can move the beads as the number to explain place value chart effectively



Resource 2


Metric system conversion table
Milli
Centi
Deci
Meter/litre/Gram
Deca
Hecto
Kilo
Moving up
Multiplication
Moving down
Division
Need to multiply/divide with as many 10's as the number of places of movement.
Example: 2345 deci grams=_____Hecto grams
As we need to move down 3 places, need to divide with 10x10x10=1000
that is 2345/1000 hecto grams or 2.345 hecto grams
2345 deci grams=_____ milli grams
As we need to move up 2 places, need to multiply with 10x10=100
that is 2345x100 milli grams or 234500 milli grams

4. WORKSHEETS

Print or copy the worksheet questions on the blackboard and ask the students to attempt them. They can be given as homework or a class test as well.

Worksheet 1

Use it like: test after the chapter is complete, homework

Answer the following:

1. 20cm _____ 200mm (<,=,>)
2. 1,231,098 _____990980 (<,=,>)
3. Write the number name of 789, 004,456.
4. One crore twenty lakhs and twenty three=_____
5. Write expanded form One million two thousands and twenty
6. Write MDXV in Indo arabic numeral
7. Round off 12,345 to nearest thousands
8. Frame any one real life situation problem by using the given numbers involving any one arithmetic operation.

   2345, 345, 2000

Worksheet 2

Use it like: test after the chapter is complete, homework

Answer the following:

1. Write the rules that are to be followed while writing roman numerals.
2. Population of the town is increasing 23,145 every year, what is the population after 2 years when its population presently is 23,456,890.
3. Estimate the product of 109 and 79 to nearest tens without actual multiplication
4. Find the sum of largest 4 digit number and smallest 5 digit number
5. Write the product of place values of 9's in 2,39,090
6. A man needs 2 kg and 500 gm of wheat flour for preparing 20 rotis. How much flour is required for 3 rotis?
7. A man went to vegetable market and bought 3kg of onions, 750 gm of green chillies 1kg and 500 gms of potatoes and 1kg of tomatoes. His shopping bag with filled vegetables was weighing 7 kgs find the weight of empty bag
8. Add 289 to the difference of 1998 and 90. Represent the answer in roman numerals
9. Simplify: 23(45-5)+405

5. SOLUTIONS

This section gives you sample answers for activities and questions listed above.

Worksheet 1

1. =
2. >
3. Seven hundred eighty nine millions,four thousands,four hundred and fifty six
4. 1,20,00,023
5. 1,002,020= 1x1,000,000+0x100,000+1x10,000+2x1,000+0x100+2x10+0x1
6. 1515
7. 12,000
8. In a village there are 2345 children out of them 345 children don’t go to school. How many children go to school? Answer is 2000 children go to school.[Question may vary as per students imagination]

Worksheet 2

1. 1) Repeating a numeral up to three times represents addition of the number.
   2) Writing numerals that decrease from left to right represents addition of the numbers.
   3) Writing a smaller numeral to the left of a larger numeral represents subtraction.
   4) V, L, D are neither repeated nor subtracted
2. 23,503,180
3. 8800
4. 19,999
5. 900x90=81000
6. 375 gm
7. 750 gm.
8. MMCXCVII
9. 928

6. EXTRA RESOURCES

Carry out the following suggested activities/ tasks if you have the time and resources to do them

Teacher can use these videos if time and facilities permit:

1. Video to remove confusion between greater than and less than sign
https://www.youtube.com/watch?v=M6Efzu2slaI

2. Video showing how to write roman numerals greater than 4000
https://www.youtube.com/watch?v=3uLpCKJYdC8