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**Start Up**  
**MATHEMATICS**  
**Activity Book**

**NEP-Aligned**  
**Skill Development and Practice**

Effective **NEP** implementation  
tools for learning mathematics

- Discovery, discussion and analysis-based learning
- Interdisciplinary and co-curricular strategy
- HOTS, critical thinking and problem solving
- Life skills
- Experiential learning promoting exchange of ideas
- Case studies to promote investigative thinking
- Precisely mapped with Start Up Mathematics coursebook

# 1

## Knowing Our Numbers

### Picture Study

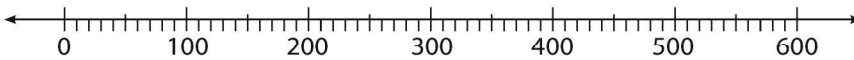
Skills Covered: • Problem solving • Creativity • Logical and critical thinking  
• Observation • Decision making

1. Estimate the following numbers as indicated and mark your answers on the number line.

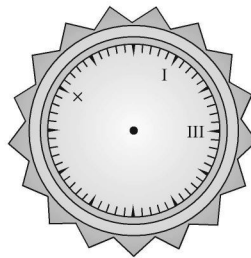
(a) 28 to nearest tens



(b) 576 to the nearest hundreds



2. Fill in the missing Roman numerals on the face of the clock.



### Data Study

Skills Covered: • Problem solving • Logical and critical thinking  
• Observation • Decision making

Some numbers are written in International place value chart. Read the table carefully and then answer the questions that follow.

Number	Billions		Millions			Thousands			Ones		
	Ten Billion	Billion	Hundred Million	Ten Million	Million	Hundred Thousand	Ten Thousand	Thousand	Hundred	Ten	One
34,563,477,315	3	4	5	6	3	4	7	7	3	1	5
21,356,908,625	2	1	3	5	6	9	0	8	6	2	5
72,356,758				7	2	3	5	6	7	5	8
344,928,876			3	4	4	9	2	8	8	7	6
458,769,202			4	5	8	7	6	9	2	0	2

1. Which is the smallest number?
2. Which is the largest number?
3. Write the number names of all the numbers given in the table using the Indian system of numeration.

### Life Skills

**Skills Covered:** • Problem solving • Logical and critical thinking • Decision making • Analytical skills  
• Communication skills • Interpersonal skills • Teamwork • Social and emotional skills

1. If a contestant in a game show wins 7 crore, how much would that be in International numeration system?
2. How many millions make a crore?
3. How many millimetres make a kilometre?
4. A trader receive ₹ 14,569 and ₹ 24,784 from two sources. He has to pay ₹ 37,000 to someone by evening. He rounds off the numbers to the nearest thousands and quickly works out the rough answer. He is happy he has enough money. Do you think so? Find out without doing the exact addition/subtraction.

### Time To Investigate

**Skills Covered:** • Creativity • Teamwork • Problem solving • Observation • Logical and critical thinking  
• Mathematical aptitude • Investigation • Data recording

Collect data about the population of each state in India according to 2011 census. Then answer the following questions.

1. Arrange the data obtained in a table in increasing order of population.
2. Which state has the highest and the lowest population?
3. Write the population of each state in words using the International system of numeration.

### Integrated Learning (History)

**Skills Covered:** • Problem solving • Logical and critical thinking  
• Cultural awareness • In-depth learning

The Hindu-Arabic numeral system is the most common system for the symbolic representation of numbers in the world.

This numeral system was invented between 1st and 4th century by Indian mathematicians. Hindu-Arabic numerals have 10 symbols – 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 – that represent numbers in decimal number system. The Indian numeral system is a writing system adapted in India for expressing numbers using these 10 symbols.

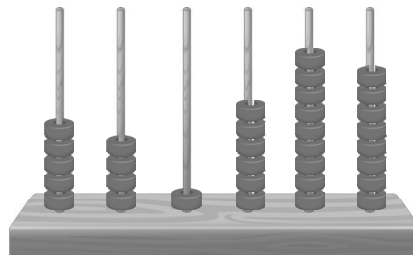
**Now answer the following questions.**

1. What is the difference between Indian numeral system and International numeral system?
2. How are numerals written in the Indian system?
3. What comes after 10 crore in the Indian numeral system?

## Apply Your Learning

Skills Covered: • Observation • Critical and logical thinking  
• Experiential learning • In-depth learning

- This abacus shows the number 541698.
  - Write the place value and face value of each digit of the number 541698.
  - Write the numeral in its expanded form.



- Ananya has formed a numeral with her number cards.



If the 3rd and 5th cards from the right are interchanged, compare the new number with the original number.

## Identify and Rectify

Skills Covered: • Observation • Critical and logical thinking  
• Analytical reasoning

Identify the errors in the given calculations and then rectify them.

- $$\begin{array}{r} 3,65,761 \\ + 4,76,288 \\ \hline 7,31,949 \end{array}$$
- $$\begin{array}{r} 9,87,359 \\ + 6,78,345 \\ \hline 15,55,694 \end{array}$$
- $$\begin{array}{r} 17,000 \\ \times 4,000 \\ \hline 68,000 \end{array}$$
- $$\begin{array}{r} 31,000 \\ \times 8,000 \\ \hline 2,48,000 \end{array}$$

## Higher Order Thinking Skills

Skills Covered: • Problem solving • Logical and critical thinking • Analytical skills  
• Reasoning • Creativity and judgement

- If population of India is approximately 1396605602 and population of China is approximately 1446145400 in September 2021, whose population is greater and by how much? Write the populations of the two countries according to International system of numeration using commas and in word form.
- Find the sum of the greatest and the smallest 5-digit number formed by the digits 8, 9, 4, 0 and 6 using each digit only once.

## Case Study

Skills Covered: • Logical and critical thinking • Observation • Comprehension skills  
• Analytical skills • Computation • Problem solving

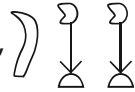
### Egyptian Numeration System

The Egyptian numeration system evolved around 3400 BCE. It uses tally bars to represent numerals from 0 to 9 as shown below.

Hindu-Arabic	1	2	3	4	5	6	7	8	9
Egyptian Numeral					 	 	 	 	     

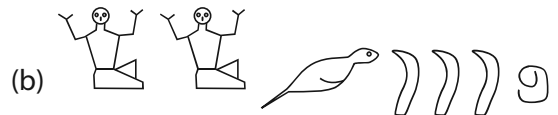
Other powers of 10 are represented by symbols as shown below.

Egyptian Numeral	Hindu-Arabic
pole	1
∩ heel bone	10
☉ scroll	100
🪷 lotus	1,000
👉 finger	10,000
🐊 burbat fish	100,000
🧑 man	1,000,000

The value of a number is the sum of the face values of the numerals. The numerals are written in decreasing order from left to right. For example,  means  $10,000 + (1,000 + 1,000) + (100 + 100 + 100) + 10 + (1 + 1) = 12,312$

Answer the following questions using the above symbols.

- Write the number 1,211,531 in Egyptian system.
- Use the Hindu-Arabic system to represent the following.



- Solve the following.

