MATHEMATICS

CLASS - 1



State Council of Educational Research & Training Chhattisgarh, Raipur

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PREFACE

After the formation of the new state Chhattisgarh, it became necessary that concerns of education should be determined again and curriculum, syllabus and textbooks should be developed in new perspective as per the needs of the state. Keeping the needs of the state in view, development of new textbooks started in the state in the session 2003-04 as per the new planning. In the beginning, newly developed textbooks were tried out in selected schools of 4 districts. On the basis of the feedback received from children, teachers and educationists; textbooks were corrected. In the session 2006-07, textbooks of classes I, II, and VI were mainstreamed at the state level. Then, the target was to translate these books for the students of English medium schools.

In the textbooks all the concepts have started with some reference to what the children already know so that they can use it while learning the concept and they start adding something new to their experiences, use them in new situations and slowly start learning.

This process of learning is the basis of this book. We expect that the child's language / mother-tongue is used in the classroom so that he can put together the concepts with the structure of the language.

While preparing this book, we got support and guidance from teachers, teacher-educators and other people who are closely associated with education. No creation is best or final. Continuous refinement is necessary for making it better. So kindly send your valuable suggestions to improve this book further.

> **Director** S. C.E. R. T. Chhattisgarh, Raipur

SUGGESTIONS FOR TEACHERS AND PARENTS

There have been continuous efforts to make teaching-learning processes interesting and effective. There have been efforts to understand the objects of having different disciplines in the school syllabus and to understand and explain nature of each subject. Yet in teachers and children a reflection on clarity and good understanding does seem to be evident. This is particularly true about mathematics.

If you were to pose the question, "What is mathematics?", the answers would range from counting objects, displaying numbers, doing number operations, lines, making shapes and so on. A few answers might differ from the ones cited above, but these would be largely the things mentioned.

Before we go ahead, let us try and understand what all happens when we are attempting to solve a problem in mathematics. For example, "A bus travels a distance of 35 kilometers in 1 hour. How far will it travel in 6 hours?"

Here, time is an abstract concept. We have defined an interval as the unit of this abstract concept and expressed large time intervals in terms of these units. Similarly, for distance, we have defined a unit, which then helps us quantify it.

In the next step we explore the relationship between these two units of time and distance. We have stated, "The bus travels a distance of 35 kilometres in 1 hour". This defines a relationship, which we translate in term of an operation-for instance, either addition or multiplication.

Let us consider another example. A kilogram of rice costs Rs. 16. How much will 54 kilograms of rice cost?

In this example, we have again defined a unit for quantity of rice, and expressed the total quantity in terms of the unit. The same can be observed while solving problems related to area, etc. It is clear from these examples that mathematics is not just limited to counting or operations on numbers. In the same way, mathematics of shapes and lines is about exploring and establishing the relationships between them. Further, while we include the concept of measurement for use, the sorting, classification searching for and establishing their properties, constitute important facets of mathematics.

When a child begins learning mathematics, in order to express abstract ideas understand operations as well as simple problems faced in daily life, it becomes necessary to use concrete (real physical) objects. However, this dependence on real objects progressively decreases as mathematical skills develop.

Children then begin to build arguments. Their ability to deal with abstractions increases. They begin to abstract arguments from their daily life, and translate abstractions into reality. They also begin to seek solutions to problems of their own accord using various methods. This whole process helps children understand how and where available information can be used to solve problems.

Therefore, it is imperative that in the teaching of mathematics children be allowed to have maximum opportunity to think and work independently. This will only happen if children are not provided with readymade solutions, and are instead encouraged to think on their own, with guidance towards the right direction. This might seem strange in the beginning, but it is difficult to teach mathematics without developing the ability to think independently and take decisions on the basis of this thought. The development of this ability will make the children self-confident and reduce the fear of mathematics that is widely prevalent.

The class 1 textbook has been developed keeping in mind that it could be used by teachers as a guide and for self-learning by children. We have also tried to provide many opportunities for students following this textbook to think and act independently.

Beginning mathematics using concrete objects and games generates interest amongst the children. Therefore, we have also begun the book with games. The first section develops the ability to focus and concentrate, develop, eye-hand coordination, learn to sort and classify objects, and make pairs. These are through games and would help develop the abilities for sorting, classification, understanding one to one correspondence and comparing quantities.

It is expected that children will be given sufficient time to use as concrete objects while working on the materials given in the book. We have given some examples of the concrete objects that can be used for this purpose but you have to think of some more. Some suggestions can also be seen from the teachers' guide which is being published separately. The purpose of having children engaged with activities with concrete objects and for creation of supplementary materials for games is to ensure that they work with concrete objects while learning new concepts. They should work on their own, understand operations and slowly move towards greater abstractions. In this period they should be given opportunities to use language in the context of these concepts and operations. These occasions should be both in small groups and in common situations along with teachers so that they can build their self confidence. If there is an opportunity in each chapter to do this then many difficulties that arise in learning Mathematics would be destroyed from the root. Children would develop different attitudes towards mathematics there is a need to pose for a while and think about this point.

Children love stories. One sees children completely engrossed in a story being told to them, especially, if it being related well. In order to understand mathematics because of its abstraction it is useful to have it embedded in stories or contexts, understanding and enjoying stories is a prerequisite. Keeping this in mind, some characters have been created in the textbook. Children can be encouraged to name these characters imaginatively and a short story could be woven around them at the beginning of the lesson. Problems can be posed through play, activities with concrete objects and stories, which would help children form their own base for understanding mathematics better.

No lesson or activity is complete in itself. The materials in the text are just indicative. According to the needs of your classroom and the interest of the children, develop and use new materials, new interesting activities and new games. We have given some suggestions for this purpose. Wherever extra things can be

thought of symbols at the bottom of the page show what is possible according to use. The key to the symbols is given at the beginning of the book. Children could be encouraged to interpret the symbols and complete the activities on their own.

To summarise:-

- □ Children must be given the opportunity to flip through their books, look at the pictures given and attempt to read in an independent manner
- □ Every page of the textbook contains interesting activities and practice exercises. Make more such tasks, ask children to develop them and also to solve them.
- □ Children must be given sufficient time to understand and learn a new concept. Children develop new techniques to understand concepts, and must be encouraged in these endeavors.
- The objective of solving problems is to understand the underlying mathematical concept. Solving a select set of questions or rote learning of select solutions is not the correct way to teach mathematics. Children must, therefore, be encouraged to solve problems as well as develop new problems.
- Mistakes are a natural process of learning while learning a concept or in solving problems. Children must not be discouraged on mistakes. Instead, they should be encouraged to develop new methods and ways to solve problems.
- □ Children learn from their peers, and therefore, must be encouraged to indulge in conversations and group work, and then to present the work that was done in the group.
- □ If children have difficulty in solving a problem guidance can be provided in the form of pointed questions that help students think along a certain direction.
- □ The materials mentioned in the book are indicative. Please develop and use new materials, innovative games, exercises, and activities depending on the needs, interest and background of the children. The use of symbols in the book indicates the areas where this is possible. Children should be encouraged to understand the symbols independently and work according to the instructions given.

This book is an attempt to dialogue with the teachers/parents and children. All suggestions to improve the book are invaluable and you must please send these to the SCERT.

Director State Council of Educational Research and Training Raipur (Chattisgarh)

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IDENTIFY AND UNDERSTAND THESE



Do activities with concrete objects.

Do more exercises of this type.

Practice using cards.

Work in groups/discuss in groups/ form question and give to each other

Use dice for activity

Create new questions

The symbols provided above will be seen spread across the book. Perform the activities according to the suggestion that each symbol stands for. Group discussions and making questions have been put together to imply that each member should create questions. These questions could be then posed to the other members of the group. Alternatively, questions could be created by members of a group and posed for the other groups.

Lesson - 1

LET'S PLAY MATHS

Place a marble on a spoon, hold it in your mouth and walk on the line drawn on the ground. Take care that the marble does not fall.



Draw a line on the ground. Place a marble in a spoon and walk on this line. Ask your friends to walk on the line in a similar way. Count the number of steps that each person can walk without dropping the marble.

Did any one reach the end of the line?



Place pebbles on the outline of each of these pictures.



Draw the following pictures on the ground and place pebbles on the outlines.



Circle similar objects.



Collect objects around you. Group similar objects together.



Match similar pictures.





Match similar pictures.







Match similar shapes in the two columns.



Match the shapes that are similar.



Make more such shapes and match similar shapes among them.



Our surrounding figures.

Draw a line match the same figures.



Lesson - 2

COMPARISON

Go out and collect some twigs. Place twigs on the sticks and compare lengths.

Can you find the longest one? Which one is shortest?



Now, arrange the twigs starting from the longest to the shortest.



Draw lines on the ground. Place twigs on these lines. Can you tell which line is the longest, and which one is the shortest?





Put a cross (X) on the taller object.





Make some more pictures and identify the largest objects from them.

Think of different animals names. Which of these animals is the largest?





Circle the heavier object in each picture given below.



Think of more objects like these. Identify the heavy and light objects among them.





Put a tick mark (\checkmark) on the cow nearer to the tree.



Put a tick mark (\checkmark) on the fish for to the flower.



Put a tick mark (\checkmark) on the tree nearer to the house.



Put a tick mark (\checkmark) on the child who is on the lower side of the seesaw.



Put a tick mark (") on the higher kite



Put a tick mark (") on the cat under the cot



Inside-outside

Put a tick mark (\checkmark) on the ball inside the glass.



Put a tick mark (\checkmark) on the objects inside the classroom and cross (x) on the object outside the classroom.



Former - later

Put a tick mark (✓) on the child who will first enter the class.



Put a tick mark (\checkmark) on the squirrel which will reach down last.



16

Lesson - 3

NUMBERS FROM ONE TO NINE

Continue the pictures in the correct order.



Continue the shapes in the correct order.



Collect pebbles and place one pebble on each fruit in the picture. Make as many dots as the number of pebbles.



Take dot-cards from your teacher and place appropriate dot card with each picture.



Place pebbles on each dot. Match kites, with equal pebbels.



Make dot cards, count the dots and pick cards with equal dots ?



Match the pictures with the same numbers.



Count and identify the numbers.



How many teachers, children and mats are there in your school? Count all of them.



Count and write.







Place a tamarind (Imli) seed on each object in a group and match the groups with the same number.



Draw one more picture, count and write.











Identify these in picture, count and write.





Count and identify the number.




Fill in the missing numbers.





Add one more, count and write.





Draw as many pictures as the number.





Count and write.





Which balloon belongs to whom?









Fill the blank spaces with the correct numbers.



Join the pictures in order.



Join the numbers in order.



Remove one dot from each kite. Count the remaining numbers of dots and write.



How many dots are left in the last kite?



Maths-1

Take away one from column A and add one to column B





Write the number before the given number.



Fill the number after the given number.



Count, add and write.





Count, subtract and write.





Count and write.













Count and write.



Make group

5 candles	
3 balls	S S S
2 kites	
4 flowers	
8 pencils	
7 bats	

Lesson - 4

ADDITION

See the objects count and read.









46

Count and add.



How many beads with each necklace require to make its total 9.



Draw pictures in the space provided as required.





Maths-1

Add and write.

	V				
4	+	1	=	5	
0	+	3	=		
3	+	0	=		
6	+	2	=		
3	+	4	=		
8	+	1	=		
5	+	5	=		
7	+	0	=		
2	+	3	=		
1	+	4	=		
3	+	2	=		
5	+	4	=		
2	+	2	=		

🎧 🛃 🧖

Solve these.



Lesson - 5

COUNTING TILL TWENTY

Go and collect some pebbles. You can do this in groups of four. Try to pick up as many pebbles turn by turn. Count the number and tell how many pebbles each person is able to pick.





Throw three dice all-together. Count and write down the total of the numbers displayed on each dice.





Take a few twigs from your teacher. Make bundles of 10. How many twigs are left? How many bundles could you make?

An example:



Play amongst your friends.

Give some twigs to your friend and ask him how many bundles he could make and how many loose sticks are left?



Enclose ten objects in each group.





Enclose ten dots in each group. Make boxes and loose sticks.





Count and write. How many boxes and how many loose sticks.





Count and write the number. For each number write the sentence given at the bottom of the page. 1 box meaning 1 Ten and 1 Loose meaning 1 Unit





Count boxes and open sticks and write the number.



Maths-1

Join the numbers in order.



Join the numbers in order.



Remove one and write.



Add one and write.

	12	13
\square		

Maths-1

Write the in-between number.



Write the numbers before and after the given number.





61

Arrange from smallest to largest.



Arrange from largest to smallest.





Write numbers from one to twenty.





Lesson - 6

NUMBERS TILL FIFTY

Count the following and read out aloud.


Count and move forward.





Add one and write.



Remove one stick and write.





Complete the following.





Arrange the number from smallest to largest.



Arrange the number from largest to smallest.





Maths-1

Write the in between number.



Fill in the number before and after the given number.





69

Count and write.





Write down the numbers from one to fifty.







Add one and write.

$\boxtimes\boxtimes\boxtimes$	31

Remove one and write.

$\boxtimes\boxtimes\boxtimes\boxtimes$	39
$\boxtimes \boxtimes $	



Write the in-between number.



Write the number before and after the given number.



Arrange the numbers from the smallest to the largest.



Arrange the numbers from largest to smallest.



Write numbers from 1 to 50.





Lesson - 7

SUBTRACTION

Look at the pictures and subtract.







78









How many left after removing crossed ones.



6 - 2 = 4	7 - 1 = <u>6</u>
5 - 3 = _	7 - 6 = _
5 - 2 = _	8 - 1 = _
4 - 2 = _	6 - 4 = _
3 - 2 = _	8 - 2 = _
8 - 6 = _	6 - 4 = _



Maths-1

Solve these.

7	-	<u>2</u>	=	5	8	-	6	=	2
5	+	2	=	_	7	+	2	=	_
9	-	7	=	_	7	-	2	=	_
0	+	5	=	_	6	-	0	=	_
8	-	5	=	_	4	+	5	=	_
6	-	3	=	_	0	+	3	=	_
3	-	3	=	_	3	+	4	=	_
4	+	1	=	_	7	-	3	=	_
7	-	7	=	_	7	-	4	=	_
6	+	2	=	_	9	-	6	=	—



Some more sums.

7 - <u>2</u> = 5	8 - 2 = _
_+5=6	3 = 3
3 + _ = 3	6 = 4
2 + 3 = _	2 = 2
6 + _ = 7	9 - 7 = _
_+4 = 8	4=0
5 + _ = 6	7 = 6
7 + _ = 9	5 - 0 = _



Which flag belongs to whom?



Solve the following.

6	4	6 - 2 = 4
- 2 4	- 1	8 - 7 = _
6	6	2 - 1 = _
- 4	- 5	5 - 5 = _
		8 - 5 = _
8 - 6	7	6 - 3 = _
		3 - 3 = _
_	9	9 - 8 = _
E		7 - 7 = _
<u></u>		

Maths-1

Some more sums.

9 - 6 = <u>3</u>	9	9
	- 4	- 1
9 - 5 = _	5	
0 0	9	9
9 - 2 = _	- 6	- 0
9 - 3 =		
	9	9
$9 - 0 = _{-}$	- 5	- 2
9 - 9 = _	9	9
9 - 8 -	- 7	- 9
J - U		
9 - 1 = _	9	9
	- 8	- 3
9 - 4 = _		

85

Lesson - 8

NUMBERS TILL HUNDRED

...Eighty, Ninety, Hundred !!



Count from 51 to 70 and fill as shown.

<u> </u>	





Join the numbers in order.



Write the in between number.



Write the numbers before and after the given number.



Count and write.



Count and read.

	81
	82
$\boxtimes \boxtimes $	83
	84
	85
$\boxtimes \boxtimes $	86
	87
	88
	89
\boxtimes	90

Count and read.

	91
	92
	93
	94
	95
	96
	97
	98
	99
$\boxtimes \boxtimes $	100









Write the numbers in order.



Write the numbers, immediately before and after the given number.



Maths-1

Write the in-between numbers.





95

Arrange in ascending order.



Arrange in descending order.





Lesson - 9

LENGTH





Measure using your steps and write.

Length of the classroom	•••••	steps.
Width of the classroom		steps.
Length of the veranda		steps.
Length of the school building		steps.
Width of the school building		steps.





Measure with your hand span and write.

Length of the table	•••••	hand spans.
Height of the table		hand spans.
Height of the chair		hand spans.
Length of the blackboard		hand spans.
Width of the door		hand spans.





Lesson - 10

CAPACITY

Put a cross (X) on the vessel that can hold more water.




Put a cross (X) on the vessel that can hold the least amount of water.





Lesson - 11

MONEY

Let us buy the toys



How much do the Gudda and Gudia cost together ? How much do the Gudda and the rat cost together ? How much do the Gudia and elephant cost together ? How much do the elephant and rat cost together ?



Recognize these –



Current prevalent in India.



Add different coins or notes to make the following amount –

Rs. 3	2	1	
Rs. 5			
Rs. 8			
Rs. 15			
Rs. 20			

Write the total amount.



Lesson - 12

TIME

Days and months











Draw shapes in the space given below.





Lesson - 14

UNDERSTANDING DATA



Count the figures drawn in the above picture



Draw the figure which is highest in number

Draw the figure which is lowest in number



How many are there?

Rabbit



Monkey





Deer



















Draw figures of your own choice.

Our Devanagari Numerals Introduction and Exercises



Our Numerals

Introduction

Numbers are also written on this calender.

These numbers are written differently from your textbook.

The numerals used in this calender are numerals of Devanagari.

Let us identify these Devanagari numerals.

Number one is written as 1 in international numeral and as 9 in Devanagari numerals.



Like this 2 is written as R in Devanagari numerals.

3, 4 and 5 are written as 3, 8 and 2 in Devanagari numerals.

In the given table numbers from 1 to 10 written in international numerals and Devnagiri numerals. See it carefully and understand.

Number	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten
International numerals	1	2	3	4	5	6	7	8	9	10
Devnagiri numerals	9	ર	'n	8	¥	હ્	ଓ	ς	£	90









9 70

See and understand

60

71

9

8

8

G

6

9

ζ

¢

x

Complete the following

00

Ŵ

x

9 70

Arrange the numbers from the smallest to the largest



Arrange the numbers from largest to smallest

२,४,१,५
>
५
४
२
१

४, ८, ६, ३
>
>
>
>
>
9

५,७,४,२
>
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9

१, ८, ४, २
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9

१, ८, ४, २
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Place a tamarind (Imli) seed on each object in a group and match the groups with the same number.





Fill in the missing numbers



Maths-1

Draw as many pictures as the number

₩





Write the number before the given number



Fill the number after the given number



Maths-1





Write the in-between number



0	२
M,	Y
દ્	ς
9	£

Write the numbers before and after the given number

R	
Y	
m	
8	

9	
ς	
ଓ	
હ્	

Count and write the number. For each number write the sentence given at the bottom of the page

Maths-1



129



Join the numbers in order







Write the in-between number



Maths-1

Write the numbers before and after the given number



Write numbers from 9 to २०

ς

२

9

95



Add one and write



Remove one stick and write



Maths-1 $\widehat{}$ Write the in between number 2ξ 2ξ 2ξ 2ξ 2ξ

Fill in the number before and after the given number

२०

२२

२३	
	২৩
२०	
	२६



Count and write

<u> २१</u>	$\boxtimes \boxtimes \boxtimes \boxtimes \boxtimes $
	<u>ଅଷଷା</u> ୪၃
$\boxtimes \boxtimes \boxtimes \boxtimes \boxtimes \boxtimes $	
13	5




Write the number before and after the given number



Maths-1



Solve these





Solve the following



६	-	२	=[8
ς	_	७	=[
२	_	9	=[
Y	_	٤	=[
ς	-	Y	=[
६	-	R	=[
२	-	R	=[
£	_	ς	=	

Maths-1





Count from ২৭ to ৩০ and fill as shown



Maths-1

Write the in-between number



Write the numbers before and after the given number



142



Write the total amount



क्या आप जानते हैं इकबाल आपसे क्या कह रहा है?



इकबाल आपसे कह रहा हैं मैं कक्षा में प्रथम आया!

सांकेतिक भाषाः सामान्य परिचय

सांकेतिक भाषा का उपयोग श्रवण बाधित व्यक्ति द्वारा संप्रेषण हेतु किया जाता है। सुनने के अभाव में श्रवण बाधित सांकेतिक भाषा का उपयोग करते हैं। आमतौर पर लोगों की धारणा है कि सांकेतिक भाषा में व्याकरण का अभाव होता है परन्तु यह सही नहीं है, सांकेतिक भाषा में भी व्याकरण है। व्याकरण की दृष्टि से अमेरिकन सांकेतिक भाषा सबसे ज्यादा उन्नत है। अमेरिकन सांकेतिक भाषा फिंगर स्पेलिंग पर निर्भर है तथा वहां सिंगल हैण्डेड फिंगर स्पेलिंग का प्रयोग किया जाता है। इंडियन सांकेतिक भाषा में डबल हैंड़ेड फिंगर स्पेलिंग का प्रयोग किया अब हम डबल हैंड़ेड फिंगर स्पेलिंग जाने—

