INSTRUCTIONS TO TEACHERS

(General and Pedagogic Instructions)

- ☞ This text book is prepared as per the syllabus and academic standards conceived by Mathematics position paper of State Curriculum Framework - 2011 (SCF-2011). and instructions of Right to Education Act - 2009 (RTE - 2009).
- ☞ This text book is formed by chapters with concepts like Numbers, four operations on numbers (Addition, Subtraction, Multiplication and Division), Geometrical concepts, Measurements, Datahandling etc.
- ☞ Situations, examples, games, activities etc in daily life are taken into consideration in the formation of these 12 chapters.
- ☞ We should strive to achieve "Academic Standards", by making every child to participate in the activities in the textbook by understanding the concepts.
- ☞ This textbook is prepared to achieve skills like conceptual understanding, problem solving, reasoning proof, correcting errors, forming new problems, solving problems in different ways and the concepts are reinforced by the respective concepts in the previous class.
- ☞ The pictures, examples and daily life situations are given in the textbook to understand clearly the concepts to solve problems systematically and to think logically to give reasons.
- ☞ The pictures in exercises are given in the textbooks sothat the child can understand them easily by observing them and respond to the questions.
- ☞ Exercises of "Do this" are given to know how far the child has understood concepts, problem solving and how he is responding. Similarly "Try these" or "Try this" exercises are given extensively after completion of two or three concepts in a chapter.
- ☞ The exercises given in this text book enable the students not only to understand the conscepts but also practice them with ease. As such, the children should be made to solve them in the text book only to the maximum extent. Whenever, they are not possible children should be made to work in the note book.
- ☞ The Teacher should prepare his own problems related to the concept besides solving the problems in the textbook. More over the teacher should encourage the student to prepare problems on his own.
- ☞ The teacher should collect TLM related to the concepts and activities given in the textbook and make the students to use them and participate in every activity effectively.
- ☞ The teacher should read and understand the concepts and problems those are given in the textbook thoroughly in the begining. Try to solve all the problems which are given in the textbook.
- ☞ At the end of this textbook, Syllabus and Academic standards of 3rd class mathematics are given. The teacher should read and understand them and should strive to achieve them through effective teaching learning processes.
- ☞ The teacher should keep in mind that whenever the academic standards prescribed for

each chapter are achieved by children, then only he/she has to feel that the syllabus is completed. Mere completion of the syllabus will not serve any purpose.

☞ Instructions are given for each chapter separately, besides the above general instructions. Read them thoroughly and understand logical sequence of the chapters to convey better subject to the student.

☞ Teaching learning strategies and the expected learning outcomes, have been developed class wise and subject-wise based on the syllabus and compiled in the form of a Hand book to guide the teachers and were supplied to all the schools. With the help of this Hand book the teachers are expected to conduct effective teaching learning processes and ensure that all the students attain the expected learning outcomes.

1. SHAPES AND SPATIAL UNDERSTANDING

- ♣ Introducing different perspectives of objects from different sides.
- ♣ Identifying the picutres of objects in different perspectives and drawing them.
- ♣ Drawing different shapes by tracing the objects which are used in daily life.
- ♣ Identifying shapes in a net of a cuboid by opening objects like match box, book etc in cuboid shapes.
- ♣ Forming different shapes like square, rectangle, triangle by playing with match sitcks. Identefying shapes in Rangoli.
- ♣ Tiling with squares, rectangles and triangles. forming different types of tiling. Tiling with circles which forms with gaps.
- ♣ Making paper boats, rockets, etc. by folding of papers. In this chapter, students understand the shapes of square, rectangle, triangle and circle by different activities in daily life used objects. They identify these shapes by enjoying while playing.

2. NUMBERS

- ♣ Reading and writing the 3-digit numbers by counting objects in Hundreds, Tens and Ones.
- ♣ Understanding the sequence of numbers upto 999.
- ♣ Estimating the objects in groups upto 50.
- ♣ Identifying the digits in a given number and explaining it in terms of value of digits.
- ♣ Identifying the before number and the after number of a given number and the middle number between two given numbers upto 999.
- ♣ Understanding expanded form of a number and short form of an expanded form of numbers upto 999.
- ♣ Comparing the numbers upto 999. Writing ascending and descending orders of given numbers. using <, > and = symbols to compare numbers.
- ♣ Rounding the given number in 10's and 100's.
- ♣ Writing 2-digit or 3digit numbers by given digits and compare them without repetition of digits.

3. ADDITION

- ♣ Understanding the concept of addition by 'joining' and by 'combining' activities.
- ♣ Able to solve addition problems by 'joining' and by 'combining'objects.

- ♣ Adding the 3 digit numbers horizantally and vertically with carry forward and without carry forward with result not more than 999.
- ♣ Giving reasoning proofs to the answers in addition and explaining it.
- ♣ Estimating the sum of two numbers.
- ♣ Identifying errors and correcting mistakes in addition problems
- ♣ Applying the cocept of addition in situations arising in daily life situations
- ♣ Solving the problems with addition in different ways.
- ♣ Solving the problems by reading stories and pictures on his own

4. SUBTRACTION

- ♣ Understanding the concept of subtraction by activities of "eliminating", by "remaining" and by "summation".
- ♣ Solving the problems by understanding the concept by "separating objects from given total and remaining objects", by "Decreasing from given total" and by " Comparing two quantities and difference of them".
- ♣ Solving the subtraction problems arising in above three solutions by horizantal and vertical methods with carry forward and without carry forward.
- ♣ Giving reasoning proof to the answers in subtraction problems
- ♣ Estimating "difference" in between two given numbers.
- ♣ Identifying errors and correcting mistakes in subtraction problems.
- ♣ Applying the concepts in "subtraction" in daily life situations
- ♣ Solving the subtraction problems in stories and pictures by reading them on his own.

5. USING ADDITION AND SUBTRACTION

- ♣ Understanding the relation between processes of addition and subtraction.
- ♣ Verifying the subtraction problems with addition.
- ♣ Solving the addition and subtraction problems by reading the information given in the tables.
- ♣ Identifying the paterns of numbers with addition and subtraction completing the patterns and forming new patterns.
- ♣ Forming new problems with the concepts of addition and subtraction.
- ♣ Solving addition and subtraction problems in stories and pictures by reading them on his own.

6. MULTIPLICATION

- ♣ Identifying similar groups with same number of objects.
- ♣ Forming the groups with same number of objects.
- ♣ Adding the number of objects in groups with same number of objects.
- ♣ Introducing multiplication by above three concepts.

- ♣ Understanding multiplication in situations 1) grouping increasing at the rate of 2) Array of objects in rows and columns.
- ♣ Communicating the above three concepts of multiplication in mathematical language.
- ♣ Writing tables from 2 to 10 by repeated addition.
- ♣ Identifying errors in solutions of multiplication problems and correcting the mistakes.
- ♣ Giving reasoning proof to the answers of problems of multiplication.
- ♣ Understanding the multiplication properties of '0' and '1'.
- ♣ Multiplying 2-digit number by single digit number and verifying the answer.
- ♣ Solving the problems arising concept of multiplication in daily life situations.

7. DIVISION

- ♣ Understanding the concept of division in situations "Dividing into groups with same number of objects" and "sharing equally".
- ♣ Understanding the terms involved in "Division" ("Divisor", "Dividend", "Quotient" and "Remainder").
- ♣ Expressing situations of division in mathematical language.
- ♣ Children will understand the division is repeated subtraction.
- ♣ Identify errors in the process of division and correcting the mistakes in it.
- ♣ Giving reasoning proof for the answers in division problems.
- ♣ Solving the division problems by division algorithm.
- ♣ Understanding the relation between multiplication and division.
- ♣ Solving and verifying the division problems which occur in daily life situations.

8. MEASUREMENT

- ♣ Measuring the objects by non-standard units and estimating measurements.
- ♣ Appreciating the need for standard units.
- ♣ Knowing that the scale is used to measure the length in centimeters.
- ♣ Measuring the lengths of objects and comparing them.
- ♣ Understanding the concept of "Capacity" of containers and identifying the vessels which hold more liquid.
- ♣ Measuring capacity of a container by another container and expressing capacity of a container in terms of capacity of another container.
- ♣ Solving problems related to capacity of containers in non-standard units.
- ♣ Appreciating need for standard unit of capacity and Understanding concept of "Litre".
- ♣ Understanding conservation of capcity and appreciating the property.
- ♣ Measuring the weights of objects in terms of "kg".
- ♣ Comparing the objects according to their weights.
- ♣ Estimating the weight of an object in terms of "kg".
- ♣ Solving problems related to weight in terms of "kg".

9. TIME

- ♣ Identifying chronological order of a daily life activities in a day.
- ♣ Comparing the events with time intervals.
- ♣ Reading clock and expressing time in "Hours".
- ♣ Solving the problems related to time in "Hours".
- ♣ Solving the problems, when any two of "Starting time", "Duration" and "Ending time" are given, then finding the third one.
- ♣ Identifying the chronological order of days in a week.
- ♣ Identifying the names of months in a year and understanding chronological order of them.
- ♣ Reading the calendar. Identifying months and dates with days.
- ♣ Comparing months with their number of days in them.
- ♣ Identifying the magical relations in numbers of a month in a calendar.

10. DAY TO DAY MATHEMATICS

- ♣ Identifying the situations in daily life in which mathematical operations are needed.
- ♣ Applying the concepts in four fundamental operations in the situations arise in daily life.
- ♣ Relating the concept of money with other concepts of length, weight, capacity and solving problems.
- ♣ Solving problems related to money and preparing rate charts.

11. DATA HANDLING

- ♣ Collecting data from various resources in daily life.
- ♣ Arranging the collected data in a particular order.
- ♣ Analyse the arranged data and come to a conclusion.
- ♣ Makes grouped data by using tally marks and classify it.
- ♣ Representing the data by pictogram.

12. PATTERNS

- ♣ Identifies the similar objects and patterns in them in daily life.
- ♣ Sorting the objects which are symmetrical and non-symmetrical.
- ♣ Identifying the axis of symmetry to divide them into two halves. Drawing axis of symmetry.
- ♣ Making, symmetrical shapes by folding papers and by cutting papers.
- ♣ Identifying patterns in lines and geometrical shapes. Understanding and completing the pattern.
- ♣ Understanding the patterns with numbers and letters. Completing the pattern.