

## Theme 1: Number System

The idea about numbers that children built-up up to class V is of representing the number of items/objects in a collection. But in class VI children have to initiate the learning of numbers that are abstract which starts with negative numbers and extension of whole numbers to integers. This is the stage where the collection of integers is seen as a system that satisfy certain properties and have correlated structure.

A preparation of the extension of fractions and integers to rational numbers also takes place in this class. A gradual move helps children in developing these concepts. Let children observe various patterns while applying operations on integers and fractions (common and decimals). Generalization of these patterns will lead to many properties of integers and decimal fractions.

The multiples and factors of numbers can be obtained by just playing with numbers. Therefore, it is expected that children will learn about these concepts through a play way method. Children will be enabled to explore and develop their own rules for finding HCF and LCM of two or more numbers.

Sets are important way of expressing groups of numbers and other objects. In this class a preliminary idea of language and terminology related to sets is to be introduced. This will also help children in looking into various collection of numbers as sets satisfying certain properties. The knowledge about sets will be further strengthened in higher classes too.

### Learning Outcomes:

Children will be able to:

- ✓ describe place and face values of a digit in a large number;
- ✓ create situations around them in which they find negative numbers;
  - ♥ through situations like money transactions, measuring of height, budget, etc. child uses larger numbers and thus appreciates their use;
  - ♥ reduces fractions involving larger numbers to simplest (lowest) forms;
- ✓ identify a situation for a given fraction (like proper, improper, equivalent, etc.);
- ✓ construct examples through which they demonstrate the addition and subtraction of integers;
- ✓ create daily life situations where opposites are involved and represent such quantities by positive and negative numbers;
- ✓ make their own strategies of ordering, adding and subtracting integers;
- ✓ use divisibility rules to find factors of a number;
- ✓ demonstrate ways of finding HCF and LCM of two numbers;
- ✓ devise strategies to identify appropriate situations to use the concepts of HCF and LCM.

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p><b>Numbers</b></p> <ul style="list-style-type: none"> <li>➤ Consolidating the <i>sense</i> of numberness up to 5 digits, size, estimation of numbers, identifying smaller, larger, etc.</li> <li>➤ Place value (recapitulation and extension.,</li> <li>➤ Operations on large numbers.</li> <li>➤ Word problems on number operations involving large numbers This would include conversions of units of length &amp; mass (from the larger to the smaller units).</li> <li>➤ Estimation of outcome of number operations.</li> <li>➤ Introduction to a sense of the largeness of, and initial familiarity with, large numbers up to 8 digits and approximation of large numbers).</li> <li>➤ Numbers in Indian and International Systems and their comparison.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Making children compare numbers up to 5 digits through various situations like cost of two houses, number of spectators present in two cricket matches etc.</li> <li>➤ Extending number up to 8 digits through patterns that exist in numbers up to five digits and then citing/observing daily life situations e.g. cost of property,</li> <li>➤ Involving children in the activities that include classification of numbers on the basis of their properties like even, odd, multiples and factors. These properties can be used to classify numbers in to various categories.</li> <li>➤ Providing opportunities to children to observe divisibility rules through patterns in multiplication facts. This could be followed by taking different division problems and discussing their use. For example, let children form multiplication tables of different numbers like 2, 3, 4, etc. and then from the multiplication facts ask them to identify the pattern like multiple of 3 has sum its digits divisible by 3, multiple of 5 has either 5 or zero in its one's place, etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Number cards to create large numbers.</li> <li>➤ Number cards to demonstrate operations on numbers.</li> <li>➤ Maths Kit.</li> <li>➤ Multiplication table chart.</li> </ul>
<p><b>Natural numbers and Whole numbers.</b></p> <ul style="list-style-type: none"> <li>➤ Natural numbers.</li> <li>➤ Whole numbers.</li> <li>➤ Properties of numbers (commutative, associative, distributive, additive identity, multiplicative identity).</li> <li>➤ Number line.</li> <li>➤ Seeing patterns, identifying and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide opportunities to children to understand that whole numbers are extension of natural numbers with the number zero included in it.</li> <li>➤ Provide children opportunities to perform operations of natural numbers with zero and to form rules like when zero is added to any number or subtracted from any</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Geoboard with rubber band.</li> <li>➤ Videos/Life history of Mathematicians and their contributions.</li> </ul>

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
formulating rules for operations on numbers.	<p>number the result is the same number.</p> <ul style="list-style-type: none"> <li>➤ Conducting the activity to conclude that <math>a \div 0</math> is not defined. For example, <math>a/0</math> is a number whose product with zero is <math>a</math>, which never exist if <math>a</math> is non-zero.</li> </ul>	
<p><b>Negative Numbers and Integers</b></p> <ul style="list-style-type: none"> <li>➤ Need for negative numbers.</li> <li>➤ Connection of negative numbers in daily life.</li> <li>➤ Representation of negative numbers on number line.</li> <li>➤ Ordering of negative numbers, Integers.</li> <li>➤ Identification of integers on the number line,</li> <li>➤ Operation of addition and subtraction of integers,</li> <li>➤ Addition and subtraction of integers on the number line</li> <li>➤ Comparison of integers,</li> <li>➤ ordering of integers.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Conducting activities in the classes in groups of 4-5 children to represent opposite situations by numbers like moving up and down from a reference point, paying and getting some amount etc.</li> <li>➤ Asking children to extend the number line to represent negative numbers and zero along with natural numbers and let them realise that corresponding to every positive numbers there is a negative number and vice-versa.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Geoboard with rubber band.</li> </ul>
<p><b>Sets</b></p> <ul style="list-style-type: none"> <li>➤ Idea of sets.</li> <li>➤ Representation of sets.</li> <li>➤ Types of sets: Finite/infinite and empty.</li> <li>➤ Cardinality of a set.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Taking examples from children's context for introducing the idea of set.</li> <li>➤ Letting children work out their own definitions and rules to work with sets as specific collections like classifying sets as finite/infinite and empty.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> </ul>
<p><b>Fractions</b></p> <ul style="list-style-type: none"> <li>➤ Revision of what a fraction is.</li> <li>➤ Fraction as a part of whole.</li> <li>➤ Representation of fractions (pictorially and on number line).</li> <li>➤ Fraction as a division.</li> <li>➤ Proper, improper &amp; mixed fractions.</li> <li>➤ Equivalent fractions.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Conducting activities with paper folding to show the product of two fractions as 'of' e.g. <math>\frac{2}{3} \times \frac{4}{5}</math> as two-third of four-fifths</li> <li>➤ Encouraging children to demonstrate similar such products by paper folding and to generalise that product of two fractions can be obtained by multiplying the numerators to get numerator and denominator can be</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> </ul>

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Comparison of fractions,</li> <li>➤ Operations on fractions (Avoid large and complicated unnecessary tasks). (Moving towards abstraction in fractions).</li> <li>➤ Review of the idea of a decimal <i>fraction</i>.</li> <li>➤ Place value in the context of decimal <i>fraction</i>.</li> <li>➤ Inter conversion of fractions and decimal fractions (avoid recurring decimals at this stage).</li> <li>➤ Word problems involving addition and subtraction of decimals (two operations together on money, mass, length and temperature).</li> </ul>	<p>obtained by multiplying denominators.</p>	
<p><b>Playing with Numbers</b></p> <ul style="list-style-type: none"> <li>➤ Simplification of brackets.</li> <li>➤ Multiples and factors,</li> <li>➤ divisibility rule of 2, 3, 4, 5, 6, 8, 9, 10, 11. (All these through observing patterns. Children would be helped in deducing some and then asked to derive some that are a combination of the basic patterns of divisibility)</li> <li>➤ Even/odd and prime/composite numbers, Co-prime numbers, prime factorisation, every number can be written as products of prime factors.</li> <li>➤ HCF and LCM, prime factorization and division method for HCF and LCM, the property <math>LCM \times HCF = \text{product of two numbers}</math>.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to create number patterns through which HCF and LCM can be discussed.</li> <li>➤ Conducting activities for number operations to be performed by children which through discussions could help them to know the different properties like closure, commutativity, associativity etc.</li> <li>➤ Creating situations in which numbers are required to be represented for opposite situations, like directions, give and take situations etc. And discuss with children about the ways to represent such situations by numbers.</li> <li>➤ Presenting daily life situations and pictures to introduce fractions and decimals like representing part of a whole as number, a dot mark placed to separate rupees and paise, meter and centimetre, kilometre and meter, litter and millilitre etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> </ul>

<b>Number System</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
All the above concepts are to be embedded in children's contexts so that it brings out the significance and provide motivation to the child for learning these ideas.	<ul style="list-style-type: none"> <li>➤ Encouraging children to look at the pictures showing sum and difference of like fractions and to generalize.</li> <li>➤ Letting children work on their own to evolve and understand that to add or subtract two unlike fractions it is required to convert them into equivalent fractions of same denominators (like fractions).</li> </ul>	

**Life Skills:** Solving daily life problems

## Theme 2: Ratio and Proportion

There are many situations when two quantities are compared by using properties of division of numbers, like heights of two objects as one is half of other or double of other. Using such contexts the terminologies related to ratios need to be brought in home for children. The theme in this class mainly focuses on the basic idea of ratios and proportions which ultimately lead to the major applications of arithmetic in our daily life called commercial 'mathematics'. Percentage, unitary method, simple and compound interests, time and speed, work and time and profit and loss will be focused on in classes VII and VIII. Hence building a strong foundation in Class VI about ratio and proportion is very important.

### Learning Outcomes:

Children will be able to:

- understand how the comparison of two quantities through ratio is different from comparisons done earlier;
- explain the meaning of proportion;
- know how ratio and proportion are related to unitary method;
- solve problems related to daily life using unitary method;
- try to construct examples that require the concept of ratio
- solve problems related to speed, distance and time.

Ratio and Proportion		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Difference between fraction and ratio.</li> <li>➤ Concept of Ratio.</li> <li>➤ Proportion as equality of two ratios.</li> <li>➤ Unitary method (with only direct variation implied).</li> <li>➤ Word problems on ratio and proportions.</li> <li>➤ Idea of percent as fraction with 100 as denominator</li> <li>➤ Idea of speed and simple daily life problems related to speed, time and distance.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Presenting situations before the children that would prompt them to form patterns and feel the need for a symbol in place of number.</li> <li>➤ Organising discussions in the class to show different methods of comparison of quantities are helpful in different situation(s).</li> <li>➤ Encouraging children to create examples to show the difference between comparison of quantities done through operation of subtraction and that through division (ratio)</li> <li>➤ Encouraging children to frame and solve problems on unitary method to understand unit of which quantity is to be found.</li> <li>➤ Providing situations to children to find out the rate and the total</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> </ul>

## Ratio and Proportion

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
	<p>amount in related context using unitary method.</p> <ul style="list-style-type: none"><li>▶ Discussing examples to show the difference between ratio and proportion and to relate them.</li><li>▶ Solving daily life problems related to unitary method that exist in children's daily life like while shopping finding out the rate etc.</li></ul>	

**Life skill:** solving daily life problems

## Theme 3: Algebra

Children have idea of using symbols/letter for numbers from very early classes. Even in class I children use to solve problem like  $5 + \square = 7$ ,  $\square + \square = 9$  etc. and in class V they learnt that perimeter of a square is  $4 \times$  where  $x$  is it's side. Thus the introduction of this topic should be made through these examples which children are already acquainted with and avoid directly bring the abstract idea of variable, unknowns and constants. The aim of this theme in this class is that children will be enabled to understand algebra as generalization patterns on numbers in term of using a letter of any number. Ultimately children learn that algebra is generalization of arithmetic and hence we use all rules as we have in number operations.

### Learning Outcomes:

Children will be able to:

- describe variable and unknown through patterns and through appropriate word problems and generalise (example  $5 \times 1 = 5$ , etc.);
- generate patterns with more examples;
- understand unknowns through examples with simple contexts (single operations);
- define terminology associated with algebra like literal numbers, terms, expressions, factor, coefficient, polynomials, degree, like and unlike terms;
- frame algebraic expressions;
- evaluate value of algebraic expressions by substituting a number for the variable.

Algebra		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Introduction to constants, variable and unknown through patterns and through appropriate word problems and generalisations (For example <math>1+3=2^2</math>, <math>1+3+5=3^2</math>, <math>1+3+5+7=4^2</math>, sum of first <math>n</math> odd numbers = <math>n^2</math>).</li> <li>➤ Generate such patterns with more examples and generalisation.</li> <li>➤ Introduction to unknowns through examples with simple contexts (single operations)</li> <li>➤ Terminology associated with algebra- like literal numbers, terms, expressions, factor, coefficient, polynomials, degree, like and unlike terms.</li> <li>➤ Framing algebraic expressions.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Providing situations in which a pattern or phenomenon is to be generalised like area of a rectangle can be obtained by multiplying the measure of its' two adjacent sides.</li> <li>➤ Encouraging children to find ways to represent this in shorter and more compact way by considering the two adjacent sides as <math>l</math> and <math>b</math> or <math>S_1</math> and <math>S_2</math>.</li> <li>➤ Providing situations which can be mathematically expressed by using numbers and letters in place of numbers like any even number is double of a natural number can be expressed as: Even number = <math>2n</math>, where <math>n</math> is a natural number.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> </ul>



<b>Algebra</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Evaluation of algebraic expressions by substituting a value for the variable.</li> <li>➤ Introduction to linear equation in one variable.</li> </ul>		

**Skills:** Developing efficient strategies for numerical calculation, describing relationships and applying algebraic techniques

## Theme 4: Geometry

Children in this class should be now in Van Heile's level 2 of geometry learning i.e. Properties are perceived at Level 2, but they are isolated and unrelated. At Level 2 children would say "I know it's a rectangle because it is closed; it has 4 sides and 4 right angles; opposite sides are parallel; opposite sides are congruent; diagonals bisect each other; adjacent sides are perpendicular; etc...." All the properties known are listed since the student doesn't perceive any relationship between the properties, e.g., one implies the other. There is no knowledge of necessary and sufficient conditions. Like wise children develop their understanding about properties of other shapes and figure in this class.

### Learning Outcomes:

Children will be able to:

- ✔ differentiate between different geometrical figures on the basis of their observable properties;
- ✔ classify angle into different types on the basis of their measurement;
- ✔ understand the difference between different types of triangles and the basis on which they are classified;
- ✔ classify quadrilaterals as trapezium, parallelogram, rectangle, square, rhombus;
- ✔ classify angles in different groups/types;
- ✔ draw different types of triangles and quadrilaterals;
- ✔ attempt to prepare solids using their nets;
- ✔ observe the objects and tries to make strategies to decide about the symmetry of the object;
- ✔ observe the reflection of objects in mirror and then tries to formulate rules about the symmetry of the object;
- ✔ try to see the logic behind drawing an angle of certain measure using geometrical properties;
- ✔ device ways to draw related angles after learning to draw an angle of certain measure;
- ✔ identify 3-d shapes and their parts;
- ✔ identify 2-d symmetrical objects;
- ✔ understand reflection symmetry;
- ✔ construct angles of different measures using compasses;
- ✔ draw perpendicular line segments.

Geometry		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<p>➤ <b>Basic geometrical ideas (2 -D):</b> Introduction to geometry. Its linkage with and reflection in everyday experiences.</p> <ul style="list-style-type: none"> <li>☛ Line, line segment, ray.</li> <li>☛ Open and closed figures.</li> <li>☛ Interior and exterior of closed figures.</li> <li>☛ Curvilinear and linear boundaries</li> <li>☛ Angle — Vertex, arm, interior and exterior.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Performing activities in which students can be shown concrete models and pictures of different geometrical shapes.</li> <li>➤ Involving children in activities to identify, angles, triangles &amp; quadrilaterals and their nets.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Cardboard, Hardboard, cutter, pencil, adhesive, scale.</li> <li>➤ Geometry Boxes.</li> <li>➤ Geoboard with rubber band.</li> </ul>

## Geometry

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>☛ Triangle — vertices, sides, angles, interior and exterior, altitude and median.</li> <li>☛ Quadrilateral — Sides, vertices, angles, diagonals, adjacent sides and opposite sides (only convex quadrilateral are to be discussed), interior and exterior of a quadrilateral.</li> <li>☛ Circle — Centre, radius, diameter, arc, sector, chord, segment, semicircle, circumference, interior and exterior.</li> </ul> <p>➤ <b>Understanding Elementary Shapes (2-D and 3-D):</b></p> <ul style="list-style-type: none"> <li>☛ Measure of Line segment.</li> <li>☛ Measure of angles.</li> <li>☛ Pair of lines – Intersecting and perpendicular lines, Parallel lines.</li> <li>☛ Types of angles- acute, obtuse, right, straight, reflex, complete and zero angle.</li> <li>☛ Classification of triangles (on the basis of sides, and of angles).</li> <li>☛ Types of quadrilaterals – Trapezium, parallelogram, rectangle, square, rhombus.</li> <li>☛ Simple polygons (introduction) (Upto octagons regulars as well as non-regular).</li> <li>☛ Identification of 3-D shapes: Cubes, Cuboids, cylinder, sphere, cone, prism (triangular and square), pyramid (triangular and square), Identification and locating in the surroundings.</li> <li>☛ Elements of 3-D figures. (Faces, Edges and vertices).</li> <li>☛ Nets for cube, cuboids, cylinders, cones and tetrahedrons.</li> </ul> <p>➤ <b>Symmetry: (reflection)</b></p> <ul style="list-style-type: none"> <li>☛ Observation and identification of 2-D symmetrical objects for reflection symmetry.</li> <li>☛ Operation of reflection (taking mirror images) of simple 2-D objects.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Asking children to make models and Nets of 3-D shapes to get an idea of their number of edges, faces and corners (vertices) etc.</li> <li>➤ Conduct discussion on number and type of corners, edges and faces after showing solid objects to the children like models of cube, cuboid, cylinder, cone, pyramid, prism etc.</li> <li>➤ Performing activities with mirrors in which children are asked to observe the reflections of one part of a shape with its image and image with the other part. This will be followed by discussion.</li> <li>➤ Using the activity of folding of a paper cut out of a shape along specific lines to show the reflection symmetry in case the two halves exactly cover each other.</li> <li>➤ Providing children opportunities to draw an angle measuring <math>60^\circ</math> using compasses. On the basis of this construction let them construct other angles that measure <math>30^\circ</math>, <math>120^\circ</math>, <math>90^\circ</math>, etc.</li> <li>➤ Giving children a feel of dividing a circle into equal segments that correspond to an angle. For example, a circle can be divided into six equal parts by the chords of length equal to radius of the circle and this actually forms <math>1/6^{\text{th}}</math> of complete angle i.e. <math>60^\circ</math> at the centre.</li> <li>➤ Providing opportunities to children to draw different geometrical figures that involve angles of various measures, line segments etc.</li> <li>➤ Demonstrating the construction of bisector of an angle and a line segment.</li> </ul>	

Geometry		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>☛ Recognising reflection symmetry (identifying axes).</li> <li>➤ <b>Constructions (using Straight edge Scale, protractor, compasses)</b> <ul style="list-style-type: none"> <li>☛ Drawing of a line segment.</li> <li>☛ Perpendicular bisector.</li> <li>☛ Construction of angles (using protractor).</li> <li>☛ Angle <math>60^\circ</math>, <math>120^\circ</math> (Using Compasses)</li> <li>☛ Angle bisector- making angles of <math>30^\circ</math>, <math>45^\circ</math>, <math>90^\circ</math> etc. (using compasses).</li> <li>☛ Angle equal to a given angle (using compass.)</li> <li>☛ Drawing a line perpendicular to a given line from a point a) on the line b) outside the line.</li> <li>☛ Construction of circle.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Encouraging children to construct perpendicular bisector of line segment and angles of measure <math>30^\circ</math>, <math>15^\circ</math>, <math>45^\circ</math>, etc.</li> <li>➤ Appreciating children efforts in making angles to let them evolve methods of constructing angles like <math>75^\circ</math>.</li> </ul>	

**Integration:** Arts Education

**Skills:** to identify, visualise and quantify measures, relating abstract information to real life situations

## Theme 5: Mensuration

In the previous three classes children were learning the measurement of various quantities like length, mass, temperature and time. Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision are area, surface area, volume, decomposing, edges, dimensions, net, vertices, face, base, height, trapezoid, isosceles, right triangle, quadrilateral, rectangles, squares, parallelograms, trapezoids, rhombi, kites, right rectangular prism, and diagonal. Children continue to strengthen their understanding that area is the number of squares needed to cover a plane figure. They will also know the formulas for rectangles and triangles. "Knowing the formula" does not mean memorization of the formula but to have an understanding of why the formula works and how the formula relates to the measure (area) and the figure. All children should be enabled to develop this understanding.

### Learning Outcomes:

Children will be able to:

- ✔ describe the concept of perimeter of various shapes;
- ✔ demonstrate the idea of area and volume of shapes;
- ✔ calculate the perimeter of different shapes given, she tries to formulate the perimeter of shapes like rectangle, square;
- ✔ calculate the areas of rectangle and square by dividing them into appropriate smaller units. she tries to think of such small units;
- ✔ use conversion of units of mass, money, time, and capacity in different daily life situations.

Mensuration		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➤ Concept of perimeter and introduction to area</li> <li>➤ Introduction and general understanding of <i>perimeter</i> using many shapes.</li> <li>➤ Shapes of different kinds with the same perimeter.</li> <li>➤ Concept of area, Area of a rectangle and a square</li> <li>➤ Conversion of units (Mass, time, money, and capacity) from to smaller to larger and vice-versa</li> <li>➤ Counter examples to different misconceptions related to perimeter and area.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Showing different shapes and through the notion of boundary, the concept of perimeter can be discussed</li> <li>➤ Organising discussion in the classroom on the measurement of boundary of a closed shape (2-D) and naming this measure as perimeter.</li> <li>➤ Encouraging children to find perimeter of different rectangles and evolving the rule to find perimeter of any rectangle like</li> <li>➤ Perimeter of a rectangle = 2(sum of the measure of its two adjacent sides) = <math>2(l+b)</math></li> <li>➤ Forming small groups of 3-4 children to evolve ways to find the measure of</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit.</li> <li>➤ Use of visuals available in classroom and in surroundings.</li> </ul>

## Mensuration

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>▷ Perimeter of a rectangle – and its special case – a square.</li><li>▷ Deducing the formula of the perimeter for a rectangle and then a square through pattern and generalisation.</li></ul>	<p>a region enclosed by a closed shape on a plane surface. This discussion will lead to understanding the concept of area.</p> <ul style="list-style-type: none"><li>▷ Encouraging children through small hints to drive the rule/formula to find the area of a rectangle when the two adjacent sides are known.</li><li>▷ Providing opportunities to frame and solve simple daily life problems involving perimeter and area of rectangular regions.</li></ul>	

**Skills:** solving daily life problems

## Theme 6: Data Handling

This theme focusses on building on and reinforcing children's understanding of numbers, they begin to develop their ability to think statistically. Children recognize that a data distribution may not have a definite centre and that different ways to measure centre yield different values. The median measures centre in the sense that it is roughly the middle value. The mean measures centre in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point.

### Learning Outcomes:

Children will be able to:

- understand the use of organizing data;
- represent data through pictograph, bar graph;
- identify patterns in numbers and shapes;
- identify daily life situations in which the information is required to be properly arranged;
- explore different ways to organise and represent data;
- appreciate the need for finding a representative value for given data;
- find mean and median of data having not more than ten observations.

<b>Data Handling</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>➤ Collection of data to examine a hypothesis</li> <li>➤ Collection and organisation of data - examples of organising it in tally bars and a table.</li> <li>➤ Pictograph- Need for scaling in pictographs interpretation &amp; construction of pictograph</li> <li>➤ Construction of bar graphs for given data interpreting bar graphs.</li> <li>➤ Mean and median of data not having more than ten observations</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revising previous concepts learnt by children.</li> <li>➤ Building on children's previous learning.</li> <li>➤ Discussing daily life situations involving quantitative information and its presentation.</li> <li>➤ Encouraging children through discussion (whole class/in small groups) to reason out why data should be organised. Children can be motivated to use their own ways in organizing data.</li> <li>➤ Asking children to explore their own ways of representing the data in the form of diagrams/ pictures (Bar Graph) and in tables of numbers.</li> <li>➤ Providing children various situations for interpreting data given in tabular or pictorial form like newspaper cuttings, TV programmes etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maths Kit</li> <li>➤ Newspapers.</li> <li>➤ TV Programmes.</li> </ul>

**Integration:** Arts Education

**Life Skills:** Understanding and interpreting data, drawing inferences