

ANNUAL CURRICULAM PLAN 2020-2021

MATHEMATICS

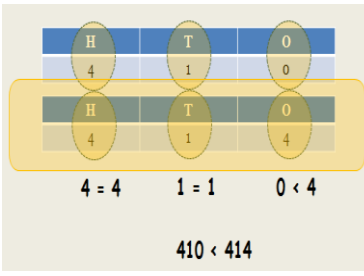

CLASS VI

VISION FOR TEACHING MATHEMATICS

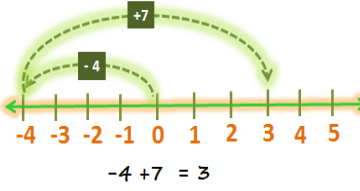

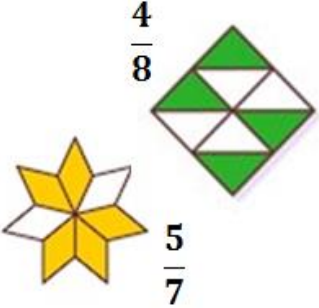
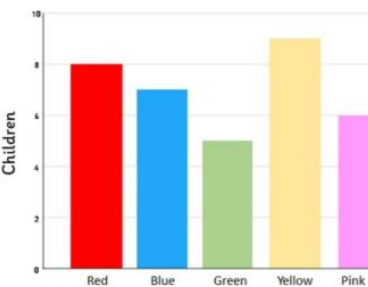
Knowledge & understanding of fundamental concepts are key to the study of Mathematics. This significantly enhances the analytical ability of students to deal with day to day practical applications in future. The objective of imparting mathematical knowledge is

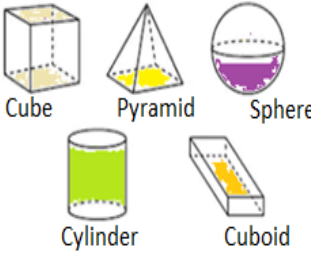
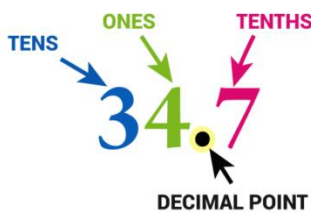
- to create liking towards learning of mathematics
- to enhance students' confidence, curiosity and belief in the subject.
- to increase the students' proficiency level in problem solving technique.

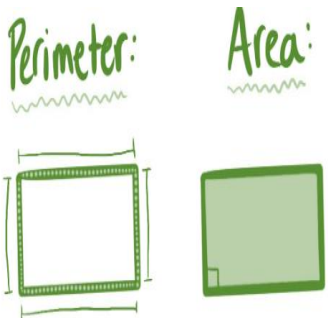
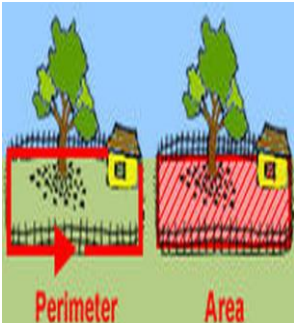
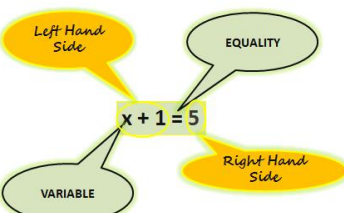
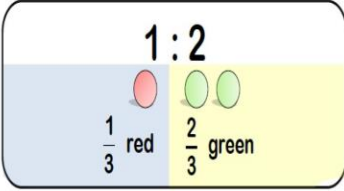
APRIL TO SEPTEMBER

CHAPTER	TRANSACTION STRATEGIES / INNOVATIVE PEDAGOGY	LEARNING OUTCOME	CORE SKILLS/ ART INTEGRATION/ INTER-DISCIPLINARY LINKAGES
<p>1)KNOWING OUR NUMBERS</p> <ul style="list-style-type: none"> - Place Value - Systems of Numeration - Operations On Large Numbers - Estimation - Roman Numerals 	<p>The concepts are delivered using PowerPoint presentation in online teaching. Pre-requisite knowledge of the students are used and then applied to make them understand the various systems of numeration and operations on numbers. Interactive Method will be used to form numbers using given digits, write them in words. Introductory activity will be given to the students. Administering multiple choice tests to evaluate understanding of Roman Numbers. Explanation of Estimation by dividing 10 digits in two groups.</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> •Write numbers with systems of Numeration. •Know the rules of expressing in Roman Numeration. •Apply in solving day-to-day practical examples 	<p>•Core Skills Understanding Application of knowledge Thinking skill</p> <p>•Art Integration</p> <p>Make Place Value Charts for the system of numerations. Identify limitations of Roman System of numeration. Students will be asked to make a wall clock and write numbers in roman system.</p>  <p>•Inter-disciplinary Linkages History, Space Science, Commerce</p>
<p>2) WHOLE NUMBERS</p> <ul style="list-style-type: none"> - Number Line - Properties of Whole Numbers - Patterns Observation 	<p>Importance of properties of Whole numbers for easy and quick calculations will be explained with lots of examples. Timed exercises to ensure that they have mastered the foundational skills.</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Understand the appropriate grouping of numbers. • Apply the properties 	<p>•Core Skills Innovation, Classification, Comparison, Application of properties for quick calculations.</p> <p>•Art Integration Draw the reign (period) of different Mughal emperors of India using number line.</p>

			<p>• Inter-disciplinary Linkages History, Mental Games</p>
<p>3) PLAYING WITH NUMBERS</p> <ul style="list-style-type: none"> - Factors and Multiples - Tests for Divisibility - Prime Factorization - Highest Common Factor - Lowest Common Factor <p>The prime factors of 18 are $2 \times 3 \times 3$.</p>	<p>The concepts will be delivered using PowerPoint presentation in online teaching. Interactive method to explain Factors, Multiples, Prime numbers, twin primes and Perfect numbers. Sieve of Eratosthenes is very effective method to find all prime numbers up to 100. Different methods to find HCF and LCM will be explained with active participation of students.</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Apply divisibility rules to facilitate prime factorization • Apply HCF & LCM concepts to solve practical problems. 	<p>• Core Skills Problem Solving Attitude Awareness, Creativity, Imagination, problem solving skill, memorization.</p> <p>• Art Integration Create Table to separate prime numbers up to 100 using Sieve of Eratosthenes method. Understand, memorize and apply divisibility rules.</p> <p>• Inter-disciplinary Linkages Mathematics, Science</p>
<p>4) BASIC GEOMETRICAL IDEAS</p> <ul style="list-style-type: none"> - Point - Line - Curves - Polygons - Angles - Triangles - Quadrilaterals - Parts of Circle 	<p>Introduction of the topic with specific examples and concrete things and then move to generalizations and abstract things. Use the activities that include a sort of play with lots of figures on the white board to make learning interactive. This helps to develop interest in mathematics, motivates them to learn more and reduces the abstract nature of the subject. Administering multiple choice tests to evaluate the conceptual level and diagnose the learning difficulties. Remedial instructions are given to remove the difficulties</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Learn mathematical language, symbols, formulae figures, diagrams, definitions. • Identify collinear points, segments, rays, parts of geometrical figures • Appreciate role played by mathematics in modern life. 	<p>• Core Skills Following conventions, self-expression creative and critical thinking</p> <p>• Art Integration 1) Cut different Geometric Shapes and make a colorful collage. 2) Make a greeting card by joining chords of circle by Pin & Thread method.</p> <p>• Inter-disciplinary Linkages Graphic designs, Art & Craft</p>
<p>6) INTEGERS</p> <ul style="list-style-type: none"> - Ordering of Integers - Addition & 	<p>Infusing real life examples into the discussion</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Understand 	<p>• Core Skills Appreciate the role, value and use of Mathematics in society.</p>

<p>Subtraction On Number Line - Addition & Subtraction Using Sign Rules</p> <p><u>Addition of integers on a number line</u></p>  <p>$-4 + 7 = 3$</p>	<p>enriches classroom learning. Visual graphics is very effective for understanding the abstract concept of negative numbers. Use of Number Line to explain successor and predecessor. Regular “Do yourself exercises” and on the spot discussion.</p>	<p>importance of integers & properties of mathematical operations.</p> <ul style="list-style-type: none"> • Add & Subtract integers using sign rules. • Apply in solving day-to-day practical examples. 	<ul style="list-style-type: none"> • Art Integration As every positive integer there exists a negative integer. This concept will be explained to understand the bad and good virtues in daily life. Students will be motivated to follow good values and stay away from bad values. • Inter-disciplinary Linkages Moral Science, Science, Commercial mathematics, Geography
<p>7) FRACTIONS - Pictorial Representation - Types of Fractions - Equivalent Fractions - Simplest Form - Comparing Fractions - Addition & Subtraction of Like & Unlike Fractions</p> <p>Comparing Fractions</p>  <p>$\frac{2}{5} < \frac{2}{3}$</p>	<p>Students shade equal parts of the figure to understand fraction. Through lots of sums and students’ active participation, topic can be explained. Timed exercises to ensure that they have mastered the foundational skills of fractions. Continuous and comprehensive evaluation has to be ensured as it plays an important role for the required modification in learning process.</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Understand concept of fraction. • Compare fractions. • Add & subtract by expressing them as equivalent fractions of same denominator. 	<ul style="list-style-type: none"> • Core Skills Sharing, Appreciate the role, value and use of Mathematics in society. • Art Integration Colorful pattern of Fractions. Also, draw the art designs of Sikkim to represent shaded region. • Inter-disciplinary Linkages Home Science, Geography, Commerce 
<p>9) DATA HANDLING - Organization of Data - Pictograph - Bar Graph</p> <p>Favourite Colour</p> 	<p>Discussion of importance of collection of data through real life examples. Arrangement of data using tally marks. Representation of data by Pictograph and Bar graph. Colouring and drawing of pictograph will keep students active and alert.</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Develop the ability to organize and interpret the given data • Enjoy learning of mathematics. 	<ul style="list-style-type: none"> • Core Skills Observation, Critical thinking, Analytical thinking, Drawing skills • Art Integration Sorting their toys into categories such as blocks and cars. Express the given data using colorful pictograph. • Inter-disciplinary Linkages Statistics, Physical education, Geography

CHAPTER	TRANSACTION STRATEGIES / INNOVATIVE PEDAGOGY	LEARNING OUTCOME	CORE SKILLS/ ART INTEGRATION/ INTER DISCIPLINARY LINKAGES
<p>5) UNDERSTANDING ELEMENTARY SHAPES</p> <ul style="list-style-type: none"> - Measuring line segments - Types of angles - Classification of triangles - Types of Quadrilaterals - Polygons - Three dimensional shapes <p style="text-align: center;">Three Dimensional Shapes</p> 	<p>Introduction of the topic with specific examples. Students will be asked to draw all types of angles and measure them using protractor. Using Interactive method properties of quadrilaterals will be explained. Infusing real life examples into the discussion enriches classroom learning. Solid shapes will be explained with real life examples.</p> <p>Activity: To make a Protractor by paper folding method</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Identify kinds of angles. • Classify types of triangles. • Learn properties of Quadrilaterals. • Associate 3D shapes with practical examples' 	<ul style="list-style-type: none"> •Core Skills Creativity, imagination Classification, Adaptation of color schemes •Art Integration MathArtProject Figure2 Draw different types of polygon. •Inter-disciplinary Linkages Graphic designs
<p>8) DECIMALS</p> <ul style="list-style-type: none"> - Place value chart - Comparing Decimals - Addition & Subtraction of Decimals 	<p>Decimal number a combination of whole part and fraction part is explained with Place Value Chart. Students shade equal parts of the figure to understand decimals. Formative assessment methodology – an oral test- to ensure that students understand the concepts. Lots of practice sums to ensure that students develop attitude of systematically pursuing a task of addition and Subtraction of Decimals.</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Read and express decimals in words • Arrange in order. • Solve sums using Decimals. • Appreciate use of Decimals in day-to-day life' 	<ul style="list-style-type: none"> •Core Skills Analytical thinking, Logical reasoning, Accuracy, Problem Solving Skills •Art Integration We use <u>decimals</u> every day while dealing with money, weight, length etc. Decimal numbers are used in situations where more precision is required than the whole numbers can provide. In order to know our exact weight, we must understand what the decimal value on the scale means. •Inter-disciplinary Linkages Commerce, Astronomy, Science

<p>10) MENSURATION</p> <ul style="list-style-type: none"> - Perimeter of Rectangles - Perimeter of regular shapes - Area of rectangle - Area of square 	<p>The concepts are delivered using PowerPoint presentation in online teaching. Visual graphics is very effective for understanding the abstract concept. By Inductive - Deductive method formulae for Rectangle and Square will be explained. "Do yourself exercises" and on the spot discussion will be effective evaluation tool. Use of proper units will be emphasized.</p> 	<p>The students will be able to</p> <ul style="list-style-type: none"> • Understand difference between Perimeter and Area of plane figures. • Apply them in solving sums. 	<ul style="list-style-type: none"> • Core Skills Visualization, Computational skills, Logical Reasoning, Application skill • Art Integration Students will compare the perimeter of match box, mathematics copy and table top by measuring the actual dimensions. • Inter-disciplinary Linkages Solid geometry, Space Science, Engineering, Architecture
<p>11) ALGEBRA</p> <ul style="list-style-type: none"> - Variables - Use of Variables in Common Rules - Expressions with Variables - Solving an equation 	<p>Introduction of the topic with specific examples and concrete things and then move to generalizations and abstract things. Make them understand the terms Literals, Coefficients, Terms, Algebraic Expression and Equation by taking lots of examples. Application of Algebra in day to day life will be explained in detail.</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Identify various terms in the given expressions. • Appreciate ease of its application in expressing statement in short form. 	<ul style="list-style-type: none"> • Core Skills Self-Awareness, understanding and analytical thinking, Logical reasoning • Art Integration Create patterns using the rules to make paper merchandise (industry products like wallpaper, gift paper, etc.) Integrate algebraic expression with arts and visual arts. • Inter-disciplinary Linkages Science, Advance mathematics
<p>12) RATIO AND PROPORTION</p> <ul style="list-style-type: none"> - Ratio - Proportion - Unitary Method 	<p>Comparison of two similar quantities will be explained with examples. Then Ratio concept will be introduced. Proportion will be explained by taking practical examples. Infusing real life examples into the discussion enriches classroom learning. Walking through the classroom and observing the students while they</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> • Understand the terms antecedent, consequent. • Know condition of proportionality and apply in solving sums. • Use unitary method to solve day to day life. 	<ul style="list-style-type: none"> • Core Skills Accuracy, Understanding and application • Art Integration The relationships between the amounts of various ingredients in recipes are essential to cooking the most delicious meals. • Inter-disciplinary Linkages Home Science, Astronomy, Science,

	work helps significantly.		Fashion and interior designing
13) SYMMETRY -Symmetrical Figures -Making of Symmetrical Figures - Reflection and symmetry	Symmetrical Figures will be shown on Smart Board to make teaching -learning interesting. Line of symmetry and Rotational symmetry will be explained by figures on white board and by showing symmetrical figures. Students will be asked to find number of lines of symmetry in various geometrical figures.	The students will be able to <ul style="list-style-type: none"> • Enjoy symmetrical pictures on the Smart Board. • Appreciate the use of symmetry in creating world famous buildings • Apply the knowledge in making beautiful cards. 	•Core Skills Creativity, Neatness, Accuracy Colour Scheme •Art Integration To make Greeting Card by drawing symmetrical designs using paints and thread. To make greeting card using combination of symmetrical geometrical shapes. •Inter-disciplinary Linkages Art & Craft, Architecture, Historical Monuments.
14) PRACTICAL GEOMETRY - Construction of Circle, Segments Perpendicular Bisector, Perpendicular, Angle Bisector, Standard angles	Students will be asked to construct various geometrical figures using ruler, pencil, and pair of compasses. Neatness, accuracy, writing steps of construction will be emphasized in the class. Walking through the classroom and observing the students while they work helps significantly.	The students will be able to <ul style="list-style-type: none"> • Construct various figures using ruler, pencil and pair of compasses. • Develop drawing skills. 	•Core Skills It reinforces accurate measuring constructing skills Analytical thinking concentration Neatness and accuracy in drawing •Art Integration Encourages students to construct neatly and Using ruler, protractor verify their work by measuring. •Inter-disciplinary Linkages Arts Engineering Building construction

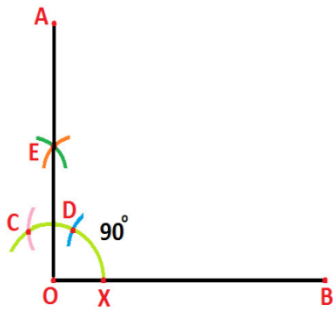


Figure 1

1 Cut strips of different coloured papers of same Length & breadth.

2 Now cut them into smaller pieces indicating Fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ etc.

3 Using these parts create design showing parallel & perpendicular lines.

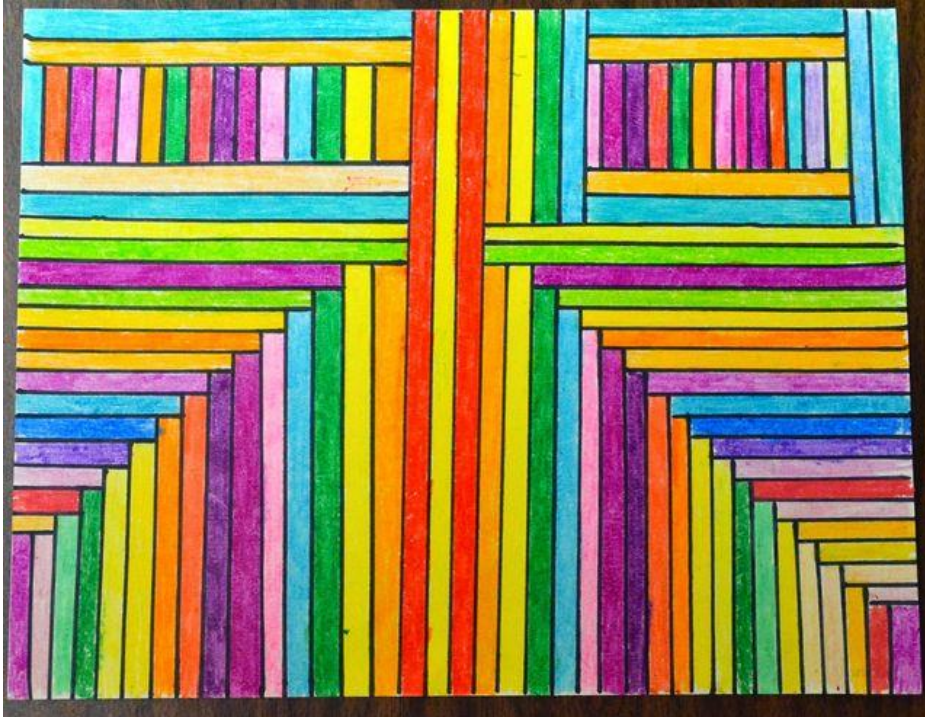


Figure 2
Cut different kinds of regular polygons
and join them to form symmetrical
figure

