Outline of class 8th (Mathematics)

TOPIC	LEARNING OUTCOMES	INNOVATIVE / ARTINTEGRATION / EXPERIENTIAL LEARNING / INTER DISCIPLINARY
Chapter 1: Rational Numbers	After this Chapter the students will have proper understanding about Whole number, natural number, integers, rational numbers and properties of rational numbers.	Art Integration: Figures and computer. Experiential learning: The students were asked to make colorful charts on properties of rational numbers. Innovative methods: Properties of rational number explained with smart class and crossword puzzle
Chapter 2: LINEAR EQUATIONS IN ONE VARIABLE	The main objective of this chapter is that the students will understand the methods to solve various types linear equations and their applications in daily life.	Innovative methods: Students were exposed to smart class module. Students were asked to solve few puzzle activities involving linear equations. Experiential learning: Explanation of algebraic equations Art Integration: Figures and computer.

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Chapter 3: **Understanding** **Quadrilateral**	**The students will understand the concepts related to** **1.Classification of polygons** **2.Interior/ exterior angle sum property of polygons** **3.Various quadrilaterals and their properties**	**Art Integration:** **Figures and computer.** **Experiential learning:** **Demonstrated angle sum property of a triangle and a quadrilateral by using cut and paste activity. Three Dimentional figures were used in the smart class to explain the concept of polygon(regular, irregular), parallelogram, rhombus , quadrilateral, etc**

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Chapter 4: Square and Square Roots	**Students would be able to:** **1. The students will understand the following topics.** **2. Skill of knowing square number by observing unit digit.** **3. Finding square of a number by different methods.** **4. Finding square root of a number by estimation method.** **5. Applying Knowledge of square roots.**	**Innovative methods:** **To make a book mark of square numbers. Few activities were carried out eg: Doublament of a method to find Pythagorean triplets.** **Experiencing Learning: To find square root by distribution of slips and discussion of result and outcomes.** **Art Integration:** **Figures and computer.**
Chapter 5: **Comparing Quantities**	**Students would be able to:** **1.Understand selling price, cost price, profit and loss .** **2. Understand the difference between simple interest and compound interest.** **3.Understand the concept of ratio, percentage and money transactions.** **4.Remember and form the formulae.** **5.Compare and analyze the cases.** **6.Apply the concepts to day to day bases life activities.**	**Innovative methods** **Understanding of various axioms using daily life Examples. Few group activities, dummy market analysis and money transaction games were carried out for better understanding.** **Art Integration:** **Figures and computer.**

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Chapter 6: **Exponents and Powers**	**Students would be able to:** 1.Understand power notation as exponential form 2.Express the numbers in exponential form and using scientific notation (standard form) 3.Understand and applying laws of exponent. 4.Express and Comparing.	**Innovative methods:** Quiz and class group activity (Share and pair) activity was performed. Students are asked to compute exponential numbers in their own way and verify the answer using proper method. **Art Integration:** Figures and smart class.
Chapter 7: **Algebraic Expressions and Identities**	**Students would be able to:** 1. Identify the algebraic expressions 2.Solve degree of Polynomials, monomials, Binomials and Polynomials 3.Solve Addition, Subtraction an Multiplication of Algebraic Expressions 4.Learn Standard Identities	**Innovative methods:** Students were asked to make ppt's in the smart class. Smart class is used by teacher to explain the methods to solve Addition, Subtraction and Multiplication of Algebraic Expressions etc. **Art Integration:** Activity1$(a+b)^2=a^2+2ab+b^2$ Activity2$(a-b)^2= a^2-2ab+b^2$ Activity3$(x+a)(x+b)=x^2+x(a+b)+ab$. **Experiential learning:** Student will use the property of triangles to solve geometrical problems thus, develop critical thinking and collaboration in the process.

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Chapter 8: Cube and Cube Roots	Students would be able to: To understand the meaning of cube and identify the perfect cubes. To know how to verify a give number is a perfect cube or not. To find the cube root of a number by themethod of prime factorization.	Art Integration: To make book mark Experiential Learning To find the cube root by distribution of slips and discuss the answers
Chapter 9: Direct & Inverse Proportion	Students will be able to: The children should be able to verify whetherthe given quantities are in direct proportion They should be able distinguish between thedirect and indirect proportion.	Art Integration: To make a colorful chart on formula of direct and inverse proportion Experiential Learning Give real life examples on direct and inverse proportion.
Chapter 10: Factorization	Students will be able to: Understand the concept of factorization (Understanding) Factorize the expression (application) Understand the different method of factorization (Understanding) Factorize the expression by taking the common and rearranging the expression (Understanding) Factorize the expression by using the identities (Applying)	Art Integration: Colorful chart on identities. Experiential learning: dividing a square sheet of side (a+b) in four parts to prove $(a+b)^2 = a^2 + b^2 + 2ab$

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Chapter 11: Data handling.	Students would be able to: Students will be able to collect, record, and interpret data. Students will learn to construct bar and picture graphs for data theycollect	Innovative methods: Smart class modules. Art Integration: Make a colorful pie chart Experiential learning: Collect data from real life and make a graph
Chapter 12: Introduction to Graph	Students would be able to: Draw and interpret scale diagrams.Extract information from tables. Draw, interpret and compare pie charts, barcharts and frequency diagrams. Use and interpret coordinates. plot points and draw graphs, using suitableaxes and scales	Innovative methods To understand linear graphExperiential learning: To understand time-distance, time-speed and time-temperature graph
Chapter 13: Mensuration	Students would be able to: The students should be able to know the formula for the area and perimeter of various figures and how to apply in different situations. To identify the shape of a trapezium and how to find the area using the formula. To know the formula and its application To know how to split the given polygon into different plane figures whose area can be calculated. To understand the formula for finding the surface area of a cuboid = 2(lb+lh+bh) and	Innovative methods: To drive area of triangle, parallelogram and rhombus from rectangle (Lab Activity) Art Integration: To make colorful chart on area, parameter, surface area and volume.

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	surface area of a cube = $6a^2$ Volume = a3 To understand the formula for finding the total surface area 2 πr(r+h) Volume = $\pi r^2 h$ Volume of cylinder = base area x height – πr2h	