

**KIDS WORLD SCHOOL, NAGPUR**

**SESSION – 2026-27**

**CLASS - X**

**SUBJECT – MATHEMATICS**

UNIT		Topic	Sub-Topic	Month		Suggested Ice- Breaking Activity	Teaching Pedagogy	Curricular Goals	Competency	Expected Learning Outcome	Assessment
No.	Name			Starting	Closing						
1	Real numbers	*Fundamental theorem of Arithmetic * LCM and HCF * $\sqrt{2}, \sqrt{3}, \dots, \sqrt{n}$ are irrational	Introduction (1) Ex.1.1(3) Ex.1.2(3)	APRIL	APRIL	Single clap on odd and double clap on even numbers.	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Inductive and deductive *Concrete-Pictorial-Abstract (CPA) *Explicit Direct Instruction	CG.1. Understanding numbers (natural, whole, integer, rational, irrational and real), ways of representing numbers, relationships amongst numbers, and number sets. CG.2. Builds deductive and inductive logic to prove theorems related to numbers and their relationships (such as $\sqrt{2}$ is an irrational number, recursion relation for Virahanka numbers, formula for the sum of the first n square numbers)	C.1.1- Develops understanding of numbers, including the set of real numbers and its properties. C.1.2- Extends the understanding of powers (radical powers) and exponents. C.1.3- Applies Fundamental Theorem of Arithmetic to solve problems related to real life contexts	LO.1. Applies the identity that $HCF(a, b) \times LCM(a, b) = a \times b$ to find the LCM of any two positive integers a and b. LO.2. Expresses the prime factorization of a number in exponential form. LO.3. Uses the fundamental theorem of arithmetic to check the digit in the place of unit in the power of a number. LO.4. Justifies the classification of rational numbers into terminating and non-terminating decimals factorization (recurring) by prime of the denominator of its simplest form. Solves HCF and/or LCM problems based on real life contexts. LO.5. Students recall rational numbers and irrational numbers. LO.6. Understanding real Numbers and being able to understand Rational, Irrational, and Real Number.	
2	Polynomials	*Relationship between zeroes and coefficient * Forming a quadratic polynomial	Introduction (1) Ex.2.1(1) Ex.2.2(3) Extra questions (R.D. Sharma)(5)	APRIL	APRIL	Rise up left hand Left hand for negative parabola right hand for positive parabola.	*Visualisation *collaborative Learning *constructivist *Problem solving *Concrete-Pictorial-Abstract (CPA)	CG.1. Discovers and proves algebraic identities and the models real - life situations in the form of equations to solve them. CG.2. Builds skills such as visualization, optimization, representation, and mathematical modelling along with their application in daily.	C.1.1- Develops a relationship between algebraic and graphical methods of finding the zeroes of a polynomial. Describes plotting a pair of linear equations and graphically finding the solution. C.1.2- Models and solves contextualised problems using equations (e.g., simultaneous linear equations in two variables).	LO.1. Students are able to represent in graphical form. LO.2. Able to relate graphs of quadratic polynomials with its coefficients. LO.3. Able to represent in graphical form. LO.4. Able to verify and utilize the relationships between zeroes and coefficients of Linear and Quadratic Polynomials. LO.5. Able to verify and utilize the relationships between zeroes and coefficients of Linear and Quadratic Polynomials. LO.6. Able to apply concept of polynomials in different situations.	

3	Pair of Linear Equations in Two variables	*Graphical Method of Solution *Substitution Method *Elimination Method	Ex.3.1(4) Ex.3.2(4) Ex.3.3(4)	APRIL	APRIL	Make hand gestures to intersecting, parallel or coincident lines on comparing ratios of coefficients.	*Visualisation * Inquiry _ Based Learning *constructivist *Problem solving *Concrete-Pictorial-Abstract (CPA) *Explicit Direct Instruction	CG.1. Discovers and proves algebraic identities and the models real- life situations in the form of equations to solve them. CG.2. Analyses characteristics and properties of two dimensional geometric shapes and develops mathematical arguments to explain geometric relationships. CG.3. Builds skills such as visualization, optimization, representation, and mathematical modelling along with their application in daily Life.	C.1.1- Describes plotting a pair of linear equations and graphically finding the solution. C.1.2- Models and solves contextualised problems using equations (e.g., simultaneous linear equations in two variables).	LO.1. Interpret the concepts of linear equations in order to represent any given situation algebraically and graphically. LO.2. Demonstrate given two linear equations in order to comment on the nature/behaviour of the lines representing the linear equations. LO.3. Check the given pair of linear equation are consistent or consistent and find solution (if consistent). LO.4. Use the concepts of pair of linear equations in two variables in order to represent any given situation algebraically and find its solution.	
4	Quadratic Equations	*Forming Quadratic Equations * Solutions of QE by factorization * Nature of Roots	Ex.4.1(2) Ex.4.2(3) Ex.4.3(3)	JULY	JULY	Stand if roots are real, sit if roots are equal and touch your head by hand if roots are imaginary.	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Inductive and deductive *Explicit Direct Instruction	CG.1. Discovers and proves algebraic identities and the models real- life situations in the form of equations to solve them. CG.2. Knows and appreciates important contributions of mathematicians from India and around the world. CG.3. Explores connections of Mathematics with other subjects.	C.1.1- Demonstrates strategies of finding roots and determining the nature of roots of a quadratic equation.	LO.1. Able to express the given real-life situation in to quadratic equation. LO.2. Give the examples of real-life situations which leads Quadratic equations (quadratic functions) verify the given equation is quadratic or not. LO.3. Able to find roots of Quadratic equations. LO.4. solve situational problems based on quadratic equations related to day-to day activities. LO.5. Finding roots of quadratic equations using quadratic formula. LO.6. Find Nature of roots for a quadratic equation. LO.7. Finding discriminant and find the nature of roots *The comprehension and problem-solving skills. LO.8. Apply the concept of quadratic equations In situational problems based on quadratic equations related to day-to-day activities.	ASSESSMENT AS LEARNING

5	Arithmetic Progression	*nth term of AP *Sum of first n terms of AP	Ex.5.1(2) Ex.5.2(4) Ex.5.3(4)	JULY	JULY	Click snap of fingers after every 5 seconds.	* Inquiry _ Based Learning *constructivist *Problem solving *Visualisation *Explicit Direct Instruction	CG.1. Builds deductive and inductive logic to prove theorems related to numbers and their relationships. CG.2. Discovers and proves algebraic identities and the models real- life situations in the form of equations to solve them. CG.3.Develops computational thinking, i.e., deals with complex problems and is able to break them down into a series of simple problems that can then be solved by suitable procedures/ algorithms. CG.4. Explores connections of Mathematics with other subjects.	C.1.1 - Develops strategies to apply the concept of A.P. to daily life situations.	LO.1. Produce pattern in order to observe that succeeding terms are obtained by adding a fixed number to preceding term. LO.2. Distinguish between finite and infinite AP in order to determine the nature and write the last term of the given AP. LO.3. Calculate nth term of a given AP in order to find its terms and their nature. LO.4. Calculate the nth term of a given AP in order to solve for a real life word problem. LO.5. Calculate the nth term of a given AP in order to solve for a real life word problem. LO.6. Calculate the sum of a given AP in order to solve for various question. LO.7. Calculate the last term of a given AP in order to find the solution of a real life word problem. Develops strategies in order to apply the concept of AP to daily life situation.	
6	Triangles	* Similar figures * Similarity of Triangles	Ex.6.1(2) Ex.6.2(4) Ex.6.3(5)	JULY	AUGUST	Take out similar objects from pouch, throw up and catch.	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Concrete- Pictorial-Abstract (CPA) *Visualisation	CG.1. Analyses characteristics and properties of two dimensional geometric shapes and develops mathematical arguments to explain geometric relationships. CG.2. Begins to perceive and appreciate the axiomatic and deductive structure of Mathematics. CG.3. Knows and appreciates important contributions of mathematicians from India and around the world.	C.1.1- Works out ways to differentiate between congruent and similar figures. C.1.2- Establishes properties for similarity of two triangles logically using different geometric criteria established earlier such as, Basic Proportionality Theorem, etc.	LO.1. Recall the previous knowledge, provides examples and non-examples of similar figures and polygons. LO.2. Explain the conditions for similarity of two triangles, distinguishes between congruency and similarity of triangles, uses appropriate symbols, recalls that areas of triangles with same base and between same parallel lines are equal and proves BPT. LO.3. To prove converse of BPT. Apply BPT and its Converse. LO.4.To apply similarity criteria's (SSS, SAS, ASA, AAS, RHS). *Able to apply concept of similarity different situations	ASSESSMENT FOR LEARNING

7	Coordinate Geometry	*Distance Formula *Section Formula	Ex.7.1(3) Ex.7.2(3)	AUGUST	AUGUST	Stand in a queue, at one hand distance and pass the given object to one who is behind by just turning upper part of body.	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Visualisation *Concrete-Pictorial-Abstract (CPA) *Explicit Direct Instruction	CG.1. Analyses characteristics and properties of two dimensional geometric shapes and develops mathematical arguments to explain geometric relationships. CG.2. Begins to perceive and appreciate the axiomatic and deductive structure of Mathematics.	C.1.1- Derives formulae to establish relations for geometrical shapes in the context of a coordinate plane, such as, finding the distance between two given points, to determine the coordinates of a point between any two given points.	LO.1. students will learn to plot point on a coordinate plane using ordered pairs (x, y) and understanding the significance of each coordinate in locating point. LO.2. Student will learn to apply distance formula. Enables to think critically and solve problems based on distance formula and used in multi-disciplinary perspective. LO.3. Student will learn to apply section formula for find out the points on the line segment from the given ratio. Additionally, the will understand and used the midpoint formula to find the midpoint between two points. LO.4. Enable learners to think critically and solve problems based on section formula and mid-point formula and used in multidisciplinary perspective.
8	Introduction to Trigonometry	*Trigonometric ratios *Trigonometric Identities	Ex.8.1(3) Ex.8.2(3) Ex.8.3(4)	AUGUST	SEPTEMBER	Sing the Rhyme "Pandit Badri Prasad Har Har Bole".	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Inductive and deductive *Concrete-Pictorial-Abstract (CPA) *Explicit Direct Instruction	CG.1. Analyses characteristics and properties of two dimensional geometric shapes and develops mathematical argument to explain geometrical relationship. CG.2. Define and apply sine, cosine, and tangent ratios for acute angles. *Analyse and interpret trigonometric relationships and identities. CG.3. Apply trigonometry to model real-world situations.	C.1.1- Understands the definitions of the basic trigonometric functions (including the introduction of the sine and cosine functions).	LO.1. Determines all trigonometric ratios and identities with respect to a given acute angle (of a right triangle) and uses them in solving problems. LO.2. Understand the definitions of sine, cosine, and tangent ratios. LO.3. Use trigonometry to solve problems involving right triangles. LO.4. Use trigonometry to solve problems involving heights and distances. LO.5. Analyse and interpret trigonometric relationships and identities.

9	Applications of Trigonometry	Height and distance	Ex.9.1(12)	SEPTEMBER	SEPTEMBER	Sing the Rhyme "Old-Harry, And-His, Old-Aunt."	<ul style="list-style-type: none"> <li>* Inquiry _ Based Learning</li> <li>*collaborative Learning</li> <li>*constructivist</li> <li>*Problem solving</li> <li>*Visualisation</li> <li>*Concrete-Pictorial-Abstract (CPA)</li> <li>*Explicit Direct Instruction</li> </ul>	CG.1. Analyses characteristics and properties of two dimensional geometric shapes and develops mathematical arguments to explain geometric relationships.	C.1.1- Uses Trigonometric identities to solve problems. C.1.2- Derives proofs of theorems related to the tangents of circles.	LO.1. Develops strategies to apply the concept of angle of elevation to daily life situations. LO.2. Determines all trigonometric ratios with respect to acute angles and uses them in solving problems in daily life contexts like distance and height. LO.3. Develops strategies to apply the concept of Angle of Depression to daily life situations.	
10	Circles	<ul style="list-style-type: none"> <li>*Tangent to a circles</li> <li>*Number of tangents from a pint on a circle</li> </ul>	Ex.10.1(2) Ex. 10.2(4)	SEPTEMBER	SEPTEMBER	Perform any dance step describing circle.	<ul style="list-style-type: none"> <li>* Inquiry _ Based Learning</li> <li>*collaborative Learning</li> <li>*constructivist</li> <li>*Problem solving</li> <li>*Concrete-Pictorial-Abstract (CPA)</li> </ul>	CG.1. Analyses characteristics and properties of two dimensional geometric shapes and develops mathematical arguments to explain geometric relationships. CG.2. Begins to perceive and appreciate the axiomatic and deductive structure of Mathematics.	C.1.1- Applies Trigonometric ratios in solving problems in daily life contexts like finding heights of different structures or distance from them.	LO.1. Derive proves of theorems related to the tangents of Circle. LO.2. Identifies the angle made by the radius and the tangent. LO.3. Proofs the tangent at any point of a circle is perpendicular the radius through the point of contact. LO.4. Recall no. of tangents that can be drawn different points through any given circle. LO.5. Proves that the length of tangents drawn from an external point to a circle are equal.	
11	Areas Related to Circles	*Area of Sector and Segment	Ex.11.1(6)	SEPTEMBER	OCTOBER	Sing a song containing the word "Moon".	<ul style="list-style-type: none"> <li>* Inquiry _ Based Learning</li> <li>*constructivist</li> <li>*Problem solving</li> <li>*Inductive and deductive</li> <li>*Explicit Direct Instruction</li> </ul>	CG.1. Analyses characteristics and properties of two dimensional geometric shapes and develops mathematical arguments to explain geometric relationships. CG.2.Begins to perceive and appreciate the axiomatic and deductive structure of Mathematics.	C.1.1- Derives and uses formulae to calculate areas of plane figures.	LO.1. Applies formulas related to circumference and Area of circle, arc length. Solves problems on Areas related to Circles. LO.2. Applies formulas related to Area of Minor sector and Area of Major sector Solves problems on Areas related to Sectors. LO.3. Estimates and approximates measures of Areas.	ASSESSMENT OF LEARNING

12	Surface Areas and Volumes	*Surface areas of a combination of Solids * Volumes of a combination of Solids	Ex.13.1(4) Ex.13.2((4)	OCTOBER	OCTOBER	Hold up any object on head and try to balance.	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Visualisation *Explicit Direct Instruction	CG.1. Derive and use formulas to calculate areas of plane figures, and surface areas and volumes of solid objects. CG.2. Builds skills such as visualisation, optimization, representation and mathematical modelling along with their application in daily life.	C.1.1- Visualises and uses mathematical thinking to discover formulae to calculate surface areas and volumes of solid objects (cubes, cuboids, spheres, hemispheres, right circular cylinders/cones, and their combinations).	LO.1. Understand and apply formulas for Surface area and volume of basic 3D shapes: cube, cuboid, sphere, hemisphere, right circular cone, and right circular cylinder. LO.2. Composite solids formed by combining these shapes. LO.3. Calculate surface areas of 3D objects in real life contexts LO.4. Calculate volumes of 3D objects to solve practical problems. LO.5. Convert units accurately in problems involving surface area and volume (e.g., $\text{cm}^2$ to $\text{m}^2$ , $\text{cm}^3$ to liters). Use formulas in reverse to find missing dimensions when given surface area or volume.	
13	Statistics	*Mean (i) Direct Method (ii) Assume Mean (iii) Step deviation Method *Mode *Median	Ex.13.1(4) Ex.13.2(3) Ex.13.3(3)	NOVEMBER	NOVEMBER	Student share their hobbies and songs.	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Concrete-Pictorial-Abstract (CPA) *Explicit Direct Instruction	CG.1. Analyse and interprets data using statistical concepts (such as measures of central tendency, standard deviations) and probability CG.2. Explores connections of Mathematics with other subjects.	C.1.2- calculate mean, median and mode for different sets of data related with real life context.	LO.1. Calculates mean for different sets of data related to real life contexts. LO.2. Computes mean for ungrouped tabulated data. LO3. Computes mean for grouped data. LO.4. Interprets the meaning of the computed mean of a given dataset. LO.5. Calculates mean, median and mode for different sets of data related with real life contexts	
14	Probability	*A Theoretical Approach *Space Probability	Ex.14.1(5)	DECEMBER	DECEMBER	Give truth or dare to a student seating just beside.	* Inquiry _ Based Learning *collaborative Learning *constructivist *Problem solving *Visualisation	CG.1. Analyses and interprets data using statistical concepts (such as measures of central tendency, standard deviations) and probability. CG.2. Explores connections of Mathematics with other subjects.	C.1.1- Applies concepts from probability to solve problems on the likelihood of daily events.	LO.1. Apply the concept of probability in solving daily life problems. LO.2. Compute the probability of an event in daily life context using count (discrete probability i.e., countable sample space). LO.3. Computes the probability of an event in daily life context using measurement for a continuous sample space.	ASSESSMENT OF LEARNING