

Budha Dal Public School
ANNUAL PEDAGOGICAL PLAN SESSION 2023 - 24

CLASS: XI
SUBJECT: Mathematics

Duration (No. of Days)	Theme/ Sub- theme	Learning Objectives		Activities & Resources	Expected Learning Outcomes	Innovative/Art Integration/ Experiential Learning/Interdisciplinary
		Subject Specific (Content Based)	Behavioral (Application based)			
20 Days	Sets	Students will be able to learn / understand about 1. Sets & its types(finite and infinite sets, equal sets, subsets) 2. Types of intervals 3. The power set using the concepts of subsets. 4. Venn diagrams. 5. Universal set, union and intersection of sets, difference of sets, complement of a set. 6. Cartesian products of sets 7. ordered pair 8. Image	Through this chapter students will attain following behavioral objectives, 1. Decision making 2. Appreciate different approaches (representation) 3. Observation	Class Activity related to venn diagram on gender equality. - To find the number of subsets of a given set and verify that if a set has n number of elements, then the total number of subsets is 2^n .	Students learned about 1. Identify set, roster notion 2. Sets & its types(finite and infinite sets, equal sets, Subsets) 3. Types of intervals 4. The power set using the concepts of sub sets. 5. Venn diagrams. 6. Types and operation on sets 7. Intersection ,union and difference of sets	Ask the students to make a list of most influential people of world. *Students would be asked to identify politicians, sportspersons, artists and make different venn diagrams.
20 Days	Relations & Functions	1. Relations 2. Domain & range of Relations 3. Functions & its types 4. Domain & range of functions		- To represent set theoretic operations using Venn diagrams. Q4 To distinguish between a Relation and a Function		Students would be asked to make a family tree ,and then ask their relations with family .

					<ol style="list-style-type: none"> 1. Cartesian products of sets(ordered pair) 2. Relations 3. Functions & its types 4. Domain ,range and image of Relations as well as functions. 5. Analytical thinking (though the activity1) 6. Visualization(though the activity2) 7. systematic approach (activity) 	<p>2. Activity Students would be given id numbers ,which can not be duplicated with the other student name Is this a relation , a function or both a relation and function? lets find out 3.Arrow diagrams would be made to understand concept of relations and functions</p>
20 Days	Trigonometry	<p>Students will be able to learn / understand about</p> <ol style="list-style-type: none"> 1. Measure of Angles (<i>Degree measure&Radian measure</i>) 2. Relation between degree and radian 3. Trigonometric Functions & its Sign 4. Domain and range of trigonometric functions 5. Trigonometric Functions of Sum and Difference of Two Angles 	<p>Students will attain</p> <ol style="list-style-type: none"> 1. Application of acquired knowledge to find distance between any to objects. 2. Problem solving & Critical thinking in sum angle properties <p>Analyzing a musical tone.</p>	<p>-Unit circle will be drawn then students will be asked to calculate all T-ratio for different angles i.e $90^\circ, 180^\circ, 270^\circ$ -etc. To plot the graphs of $\sin x, \sin 2x, 2\sin x$, using same coordinate axes.</p>	<p>Students learned about</p> <ol style="list-style-type: none"> 1. Measure of Angles (<i>Degree measure&Radian measure</i>) and its relation 2. Trigonometric Functions & its Sign <p>Domain and range of trigonometric functions</p> <ol style="list-style-type: none"> 4. Trigonometric Functions of Sum and Difference of Two Angles 3. Application of trigonometric function will Develop Critical thinking and problem solving skill. 	<ol style="list-style-type: none"> 1.An innovative parody to learn to learn all six t-ratios peter bryn peter hello hi beta school calling theta 2.Eg.of Ocean waves to imagine graphs of sin and cosine functions

10 Days	Complex Numbers and Quadratic Equations	<p>Students will be able to learn / understand about</p> <ol style="list-style-type: none"> 1. meaning and importance of Complex Number 2. Algebra of Complex Numbers, Modulus, Conjugate and multiplicative inverse of a Complex Number. 3. Representation of complex number on Argand Plane 	<p>Students will attain following behavioural objectives</p> <ol style="list-style-type: none"> 1. Decision making 2. Reasoning 3. Appreciate different approaches of representation 	<p>To interpret geometrically the meaning of $i^2 = -1$ and its integral powers.</p>	<p>Students learned about</p> <ol style="list-style-type: none"> 1. Algebra of Complex Numbers, including multiplicative inverse of the non-zero complex number and Representation of complex number on argand plane. 	<p>Complex numbers would be explained innovatively through venn diagrams .</p>
10 Days	Linear Inequations	<p>Students will be able to learn / understand about</p> <ol style="list-style-type: none"> 1. Linear inequalities 2. Algebraic solutions of linear inequalities in one variable 3. Representation on the number line of one variable 	<p>1. Observation Problem solving</p>	<ol style="list-style-type: none"> 1. Plotting the point on the number line 2. Shading of a common solution 	<p>Students learned about</p> <ol style="list-style-type: none"> 1. Linear inequalities 2. Differentiate between equations and inequalities 3. Algebraic solutions of linear inequalities in one variable 4. Solution of system of linear inequalities in one variable 5. Observation 	<p>An innovative activity using graph, that an inequality represents the only one of the two half planes.</p>

<p>10 Days</p>	<p>Permutations & Combinations</p>	<p>Students will be able to learn / understand about</p> <ol style="list-style-type: none"> 1. Fundamental Principle of Counting 2. Meaning of Factorial 3. Concept and application of Permutations 4. Concept and application of Combinations 	<p>Students will attain following skills through solving variety of problems.</p> <ol style="list-style-type: none"> 1. Order 2. Imagination 3. Management Reasoning 	<p>To find the number of ways in which three cards can be selected from given five cards.</p>	<p>Students learned about</p> <ol style="list-style-type: none"> 1. Fundamental Principle of Counting 2. Meaning of Factorial 3. Concept and application of Permutations 4. Concept and application of Combinations 5. Order Imagination 	<p>An experiential learning activity. Students would be asked to open a four digit manual lock, to make them understand the concept of order in permutations.</p> <p>2) In making pizza with onion (O) capicum (C), tomato (T). it does not matter if you make OCT, TCO, COT pizza as it would be the same pizza. So it's a combination</p>
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7 Days	Binomial Theorem	<p>Students will be able to learn / understand about</p> <ol style="list-style-type: none"> 1. Pascal's triangle 2. Binomial Theorem for Positive Integral Indices <p>Simple Applications</p>	<p>After learning this chapter students will be able to develop</p> <ol style="list-style-type: none"> 1. Reasoning Skill 	<p>To construct a Pascal's Triangle and to write binomial expansion for a given positive integral exponent.</p>	<p>Students learned about</p> <ol style="list-style-type: none"> 1. Pascal's triangle 2. Binomial Theorem for Positive Integral Indices 	<p>As interdisciplinary, Binomial theorem is applied in weather forecast, determine rank in exams, economy forecasting</p>
10 Days	Sequence & Series	<p>Students will be able to learn / understand about</p> <ol style="list-style-type: none"> 1. Sequences and Series, 2. Arithmetic Progression (A.P.) 3. n^{th} term and sum of n terms of A.P. 4. Geometric Progression (G.P.) 5. A.M. ,G.M. <p>Relation between A.M and G.M</p>	<p>Students will be able to</p> <ol style="list-style-type: none"> 1. Identify the general term (rules/characteristics) of a sequence which further enable them 	<p>Random pattern will be given and students will be asked to find general term.</p>	<p>Students learned about</p> <ol style="list-style-type: none"> 1. Sequences and Series, 2. Arithmetic Progression (A.P.) 3. n^{th} term and sum of n terms of A.P. 4. Geometric Progression (G.P.) <p>A.M.& G.M. and the relation between them</p>	<p>examples of pyramid like patterns, where objects are increasing or decreasing.</p>
15 Days	Straight Lines	<p>Students will be able to learn / understand about</p> <ol style="list-style-type: none"> 1. Slope of a Line 2. Conditions for parallelism and perpendicularity of lines in terms of their slopes 3. Various forms of the equation of a line 4. Angle between two lines 5. General equation of a line 6. Distance of a point from a line 	<p>After learning this chapter students will be able to develop</p> <ol style="list-style-type: none"> 1. Presentation skill 2. Visualization 3. Give responses according to situation 	<p>Generation of equation by two point form</p>	<p>Students learned about</p> <ol style="list-style-type: none"> 1. Slope of a Line 2. Conditions for parallelism and perpendicularity of lines in terms of their slopes 3. Forms of the equation of a line 4. Angle between two lines 5. General equation of a line 	<p>As interdisciplinary learning, light travels in straight lines, Roads, railway</p>

					6. Distance of a point from a line 7. Presentation skill 8. Visualization Give responses according to situation	tracks, ants walk in straight lines
25 Days	Conic sections	Students will be able to learn / understand about Equation of Circle 1. Sections of a Cone 2. Definition, Focus, Latus rectum and <i>Directrix</i> of parabola 3. Equation of Parabola 4. Definition, Major axis, minor axis, Focus, Latus rectum and <i>directrix</i> of Ellipse 5. Equation of Ellipse 6. Definition, Transverse axis, Conjugate axis, Focus, Latus rectum and <i>directrix</i> of hyperbola Equation of Hyperbola	After learning this chapter students will be able to develop 1. Imagination skill 2. Creativity	Generation of equation by distance formula To construct an ellipse when two fixed points are given.	Students learned about 1. Equation of Circle 1. Sections of a Cone 2. Definition, Focus, Latus rectum and <i>Directrix</i> of parabola 3. Equation of Parabola 4. Definition, Major axis, minor axis, Focus, Latus rectum and <i>directrix</i> of Ellipse 5. Equation of Ellipse 6. Definition, Transverse axis, Conjugate axis, Focus, Latus rectum and <i>directrix</i> of Hyperbola 7. Equation of Hyperbola 8. Imagination skill	Students would be explained parabola is formed when a football is kicked, dolphins jump, ellipse by the shapes of orbits of planets and satellites, an hour glass for hyperbola
10 Days	Introduction to 3-D Geometry	Students will be able to learn/understand about 1. Coordinate axes and Coordinate planes in Three dimensional Space 2. Coordinates of a point in space 3. Distance between two points 4. Section Formula	After learning this chapter students will be able to develop 1. Visualization skill in 3 dimension	Visual demonstration of octant	Students learned about 1. Coordinate axes and planes in 3-D Space 2. Coordinates of a point in Space 3. Distance between two points 4. Section formula 5. Visualization skill	To establish the direction of z-axis, we can apply right- hand thumb rule.

25 Days	Limits & Derivatives	Students will be able to learn / understand about 1. Algebra of limits 2. Limits of polynomials and rational functions 3. Limits of Trigonometric Functions 4. Limits of Logarithmic and Exponential Functions 5. Algebra of derivative of functions 6. Derivative of the functions from first principle 7. Derivatives of functions	Students will be able to develop 1. Visualization of change when other thing changes. 2. Dependency		Students learned about 1. Algebra of limits 2. Limits of polynomials and rational functions 3. Limits of Trigonometric Functions 4. Limits of Logarithmic and Exponential Functions 5. Algebra of derivative of functions 6. Derivative of the functions from first principle 7. Derivatives of functions 8. Visualization of change 9. Dependency	
15 Days	Statistics	Students will be able to learn / understand about 1. Measures of Dispersion 2. Range 3. Mean Deviation 4. Variance and Standard Deviation	Students will be able to develop 1. interpretation and analyze the data 2. Effectiveness of data	- -	Students learned about 1. Measures of Dispersion 2. Range 3. Mean Deviation 4. Variance and Standard Deviation	Survey would be conducted by students of covid19 vaccination in various age groups of school children
15 Days	Probability	Students will be able to learn / understand about 1. Random experiments 2. Outcomes and sample space 3. Types of events 4. Algebra of events 5. Probability of an event	After learning this chapter students will be able to develop 1. Reasoning Skill	To write the sample space, when a coin is tossed once, two times, three times, four times.	Students learned about 1. Random experiments 2. Outcomes and sample space 3. Types of events 4. Algebra of events 5. Probability of an event 6. Reasoning Skill	Play the spinner with yes/no/maybe options, probability tree model explained

FINAL EXAMS FEBRUARY

