

HANSRAJ MODEL SCHOOL
PUNJABI BAGH, NEW DELHI
CURRICULUM PLAN
SESSION: 2024-25
CLASS: VIII
SUBJECT: MATHEMATICS

Month	Topic / Sub-topics	Learning Intentions (Learning Outcomes + Competencies)	Activities	Assignments
April	<p>Chapter-1: Squares and Square Roots</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Squares ● Facts about Perfect Squares ● Square Roots ● Finding Square Root by Repeated Subtraction Method ● Finding Square Root by Prime Factorization Method ● Finding Square Root by Long Division Method ● Square Root of a Rational Number 	<p>The learners:</p> <ul style="list-style-type: none"> ● Interpret square of the even number is even, and the square of the odd number is odd. ● Identify numbers ending with 2, 3, 7 and 8 are never perfect squares. ● Explain the concept of Pythagorean Triplets. ● Solve square root of a number by prime factorization and by long division method. ● Apply the following rules for finding square root: <ul style="list-style-type: none"> □ Rule1 <p>If a and b are perfect square</p>	<ul style="list-style-type: none"> ● Ice breaking activity ‘MATH ABOUT ME’ ● Activity on defining relationship between Triangular Numbers and Perfect Square Numbers using squared sheet and isometric sheet. 	<p>A-1 Pg 10 & 11 WS 3: Q1(i to iv), Q3, Q4, Q8</p> <p>A-2 Pg 14 WS 4: Q1(i, ii, iv, viii), Q2, Q4, Q6</p> <p>A-3 Pg 21 WS 5: Q1(i, ii, iii), Q2(i, ii), Q3(i, ii), Q4(i), Q5(i)</p>

	<ul style="list-style-type: none"> ● Square Root of Numbers in Decimal Form. ● Approximate value of the Square Roots of Natural Numbers 	<p>numbers ($b \neq 0$), then</p> $\sqrt{a \times b} = \sqrt{a} \times \sqrt{b}$ <p>and $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$</p> <ul style="list-style-type: none"> □ Rule 2 The pairing of numbers in the division method starts from the decimal point. For the integral part it goes from right to left and for the decimal part, it goes from left to right. □ Rule 3 If p and q are not perfect squares, then to find $\sqrt{\frac{p}{q}}$, we express $\frac{p}{q}$ as a decimal and then apply the division method to find the square root. <ul style="list-style-type: none"> ● Solve Brain Teasers and HOTS. ● Develop critical thinking and problem solving skills. 	<ul style="list-style-type: none"> ● Finding square root of perfect squares by joining the diagonal of a square on a squared sheet. 	
April	<p>Chapter-2: Cubes and Cube Roots</p> <p>Sub topics</p> <ul style="list-style-type: none"> ● Cube of a number ● Properties of cube of a number 	<p>The learners:</p> <ul style="list-style-type: none"> ● Interpret cube and cube root of a negative number is negative 	<ul style="list-style-type: none"> ● Worksheet on different roots 	<p>A-4 Pg 28 WS 1: Q3, Q4</p>

	<ul style="list-style-type: none"> • Cube Roots of a perfect cubes by Factorization • Cube Root of a number through Estimation 	<ul style="list-style-type: none"> • Describe cube of an even natural number is even and cube of an odd natural number is odd. • Apply the following laws(a and b are any two integers): <ul style="list-style-type: none"> • $\sqrt[3]{a \times b} = \sqrt[3]{a} \times \sqrt[3]{b}$ • $\sqrt[3]{\frac{a}{b}} = \frac{\sqrt[3]{a}}{\sqrt[3]{b}} ; b \neq 0$ • Solve Brain Teasers and HOTS. • Develop critical thinking and problem solving skills. 	<ul style="list-style-type: none"> • Make a cube root clock of first twelve cube roots. 	<p>A-5 Pg 33 & 34 WS 2: Q1(i, ii), Q2(i, iv), Q4(i). Q7(i, ii)</p>
<p>April</p>	<p>Chapter-4: Direct and Inverse variation</p> <p>Sub Topics</p> <ul style="list-style-type: none"> • Introduction • Types of Variations <ul style="list-style-type: none"> □ Direct variation □ Inverse Variation • Time and Work, Time and Distance <p>(continued in May)</p>	<p>The learners:</p> <ul style="list-style-type: none"> • Distinguish between Direct Variation and Inverse Variation • Solve the problems on time and work as well as time and distance using the concepts of direct and inverse variations. • Solve Brain Teasers and HOTS. • Develop problem solving skills. 	<ul style="list-style-type: none"> • Understanding the concept of Direct Variation by drawing a number of circles of different radii and then developing the concept by relating the radius and the Area of circle 	<p>A-6 Pg 55 & 59 WS 1: Q2, Q3, Q4, Q5 WS 2: Q4, Q5, Q6, Q7</p> <p>A-7 Pg 62 & 63 WS 3: Q1, Q3, Q4, Q6, Q10</p>

			<ul style="list-style-type: none"> ● Inverse Variation: Number of diameters and sector angle 	
<p>May</p>	<p>Chapter-16: Rotational Symmetry</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Meaning of rotation ● Line symmetry and Rotational symmetry ● Order of rotation of symmetry of different polygons for eg: Square, Rectangle etc. ● Calculating the angle of rotation about a fixed point 	<p>The learners:</p> <ul style="list-style-type: none"> ● Recall symmetry. ● Distinguish between line symmetry and rotational symmetry. ● Explain rotational turns an object about a fixed Point. ● Determine the order of rotational symmetry i.e. four in a square and three in an equilateral triangle. ● Calculate the angle of rotation about a fixed point. ● Solve Brain Teasers and HOTS. ● Learn public speaking and will learn how to incorporate technology in subject. 	<ul style="list-style-type: none"> ● Working model showing rotational symmetry, angle of rotation and order of rotation of any object from surroundings 	<ul style="list-style-type: none"> ● Activity based chapter

May	<p>Chapter-10: Parallel Lines</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Parallel and Intersecting Lines ● Distance between parallel lines ● Division of a line segment into equal parts ● Division of a line segment in a given ratio. <p>(continued in July)</p>	<p>The learners:</p> <ul style="list-style-type: none"> ● Describe different types of angles and their relation when a transversal intersects two parallel lines and vice-versa. ● Construct the division of a line segment into equal parts using parallel lines with the help of ruler and compass. ● Comprehend those two lines parallel/perpendicular to the same line are parallel to each other ● Solve Brain Teasers and HOTS. ● Integrate Math with art. 	<ul style="list-style-type: none"> ● Warli Art Activity -Identifying parallel lines, intersecting lines and different pairs of angles in any stick drawing 	<p>A-8 Pg 167, 168 & 174 WS 1: Q1, Q2, Q7, Q8 WS 3: Q2, Q4, Q6, Q8</p>
July	<p>Chapter- 14: Mensuration</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Area of Trapezium ● Area of a general Quadrilateral ● Area of a polygon ● Surface area of a Cube, Cuboid and Right Circular Cylinder 	<p>The learners:</p> <ul style="list-style-type: none"> ● Explain the area of plane figures. ● Find the area of a polygon by dividing it into various quadrilaterals and triangles. ● Calculate the surface area of solid shapes, namely cube, cuboid and cylinder. 	<ul style="list-style-type: none"> ● Draw net of different solids and fold it to make a 3-D model of the cube. 	<p>A-9 Pg 231, 234 & 235 WS 1: Q1, Q3, Q4, Q6 WS 2: Q1(i, ii), Q2(i)</p> <p>A-10 Pg 238, 239 & 243 WS 3: Q3, Q5, Q6 WS 4: Q1, Q3, Q9</p> <p>A-11 Pg 245, 248 & 249</p>

	<ul style="list-style-type: none"> ● Volume of a Cube, Cuboid and Right Circular Cylinder 	<ul style="list-style-type: none"> ● Calculate the volume of solid shapes, namely cube, cuboid and cylinder. ● Distinguish between surface area of a right circular cylinder and cube/cuboid. ● Understand the formation of the cube, cuboid with the help of nets. ● Label side view, top view, and front view of solid figures. ● Verify Euler's formula for polyhedrons. ● Design the map of different routes. ● Solve Brain Teasers and HOTS. ● Develop problem solving skills. 		<p>WS 5: Q2, Q3, Q6 WS 6: Q1(i, ii), Q2, Q8</p>
July	<p>Chapter-13: Introduction to Graphs</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Linear Graph ● Cartesian Plane ● Plotting a point on Cartesian Plane ● Construction of Graphs 	<p>The learners:</p> <ul style="list-style-type: none"> ● Describe the Cartesian Plane and its various elements. ● Identify the coordinates of a point. ● Identify the distance of a point from X- axis and Y –axis. ● Locate the points on a Cartesian plane. ● Join the points and identify the figure so formed. 	<ul style="list-style-type: none"> ● Draw any sea creature by joining coordinates on a graph. 	<p>A-12 Pg 218 & 224 WS 1: Q2, Q5 WS 2: Q1, Q2, Q3</p>

August		<ul style="list-style-type: none"> ● Identify abscissa and ordinate of a point. ● Solve Brain Teasers and HOTS. ● Enhance collaboration and team spirit. 		
August	<p>Chapter-5 : Profit, loss and Discount</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Profit and Loss ● Discount ● GST 	<p>The learners:</p> <ul style="list-style-type: none"> ● Understand the concept of profit and loss. ● Calculate S.P. / C.P. ● Use the concept of discount. ● Evaluate G.S.T. ● Solve Brain Teasers and HOTS ● Enhance problem solving skills. 	<ul style="list-style-type: none"> ● Creating a bill. 	<p>A-13 Pg 71, 75 & 76 WS 1: Q1 WS 2: Q1, Q3, Q5, Q8</p>
August	<p>Chapter-7 : Algebraic Identities</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Identities <p>*$(a + b)^2 = a^2 + b^2 + 2ab$ *($a - b$)² = $a^2 + b^2 - 2ab$ *($a + b$)($a - b$) = $a^2 - b^2$ *($a + b + c$)²</p>	<p>The learners:</p> <ul style="list-style-type: none"> ● Distinguish between identity and equation. ● Analyze the application of identities. ● Complete the factorization of algebraic expressions using 	<ul style="list-style-type: none"> ● Cutting , pasting activity verifying the identities ● Factoring puzzle 	<p>A-14 Pg 110 & 113 WS 1: Q1(i, ii), Q2(i, ii) WS 2: Q1(i, ii), Q2(i, iv)</p> <p>A-15 Pg 115 & 116 WS 3: Q1(i, ii), Q2(i, iii), Q3(i, ii) WS 4: Q1, Q2, Q3</p>

	$= a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$ $* (x + a)(x + b)$ $= x^2 + (a + b)x + ab$ <ul style="list-style-type: none"> ● Factorization of Algebraic Expressions using identities ● Factorization of Algebraic Expressions of the form $x^2 + qx + r$ 	<p>identities.</p> <ul style="list-style-type: none"> ● Use the identities in different practical situations. ● Solve Brain Teasers and HOTS. ● Develop creativity and critical thinking skills. 		<p>A-16 Pg 119, 121, 122 & 124</p> <p>WS 5: Q1(i, ii), Q2(i, ii), Q3(i, ii)</p> <p>WS 6: Q1, Q2, Q8, Q7</p> <p>WS 7: Q1, Q4, Q5</p>
October	<p>Chapter 3: Exponents and Radicals</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Idea of Rational Exponents ● Laws of exponents including Rational Numbers as Exponents ● Positive Numbers as Exponents ● Negative Rational Numbers as Exponents 	<p>The learners:</p> <ul style="list-style-type: none"> ● Convert radical form to exponential form and vice – versa. ● Use the following rules: <ul style="list-style-type: none"> ❖ If a is any positive rational number different from zero and x, y are any rational numbers then: <ul style="list-style-type: none"> □ $a^x \times a^y = a^{x+y}$ □ $a^x \div a^y = a^{x-y}$ □ $(a^x)^y = a^{xy}$ □ $a^0 = 1$ 	<ul style="list-style-type: none"> ● Wheel activity worksheet 	<p>A-17 Pg 47</p> <p>WS 2: Q1(i, ii, iii), Q2(i, ii, iv, v), Q3(i, ii), Q4(i), Q5(iii)</p>

October		<ul style="list-style-type: none"> ● Solve Brain Teasers and HOTS. ● Develop problem solving skills. 		
	<p>Chapter-6 : Compound Interest</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Computation of Compound Interest ● Find Compound Interest and amount when interest is compounded: <ul style="list-style-type: none"> ○ Yearly ○ Half yearly ○ Quarterly ● Formula for finding compound interest and amount ● Growth & Depreciation 	<p>The learners:</p> <ul style="list-style-type: none"> ● Distinguish between simple interest and compound interest. ● Calculate C.I. by the method of simple interest (annually, semi-annually, and quarterly) ● Use direct formula for finding C.I. (annually, semi-annually, and quarterly) ● Analyze growth and depreciation applicable in various situations. ● Solve Brain Teasers and HOTS. ● Enhance critical thinking and problem solving skills. 	<ul style="list-style-type: none"> ● Role play 	<p>A-18 Pg 86 & 88 WS 1: Q1, Q2, Q3 WS 2: Q1, Q3</p> <p>A-19 Pg 98, 99 & 103 WS 3: Q3, Q8, Q11, Q12, Q16 WS 4: Q1, Q2</p>
November	<p>Chapter-8: Polynomials</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Degree of a polynomial ● Terms in a polynomial 	<p>The learners:</p> <ul style="list-style-type: none"> ● Identify coefficients and degree of a polynomial. ● Apply division of a polynomial in one variable by a monomial or a binomial. 	<ul style="list-style-type: none"> ● Solving Crossword puzzle 	<p>A-20 Pg 133, 138 & 139 WS 2: Q1(i, ii), Q2(i), Q3(iii) WS 3: Q1(i, ii), Q2(ii, iii),</p>

	<ul style="list-style-type: none"> • Division of a polynomial in one variable by a monomial or a binomial. • Verification of the dividend = Divisor × Quotient + Remainder • Factor of a polynomial when remainder is zero. • Division of a polynomial by other polynomial if the remainder is non-zero 	<ul style="list-style-type: none"> • Verify Division Algorithm: Dividend = Divisor × Quotient + Remainder • Decide the factor of a polynomial when the remainder is zero. • Solve Brain Teasers and HOTS. • Enhance reasoning skills. 		<p style="text-align: center;">Q3(iii, vii)</p>
<p style="background-color: #4a7ebb; color: white; padding: 2px;">November</p>	<p style="background-color: #e67e22; color: white; padding: 2px;">Chapter-9: Linear Equations In One Variable</p> <p style="color: #e91e63; margin-top: 10px;">Sub Topic</p> <ul style="list-style-type: none"> • Introduction • Equations of the form $\frac{ax+b}{cx+d} = k$; $cx + d \neq 0$ • Cross Multiplication Method • Applications of Linear Equations 	<p>The learners: Solve linear equations in one variable of the form $\frac{ax+b}{cx+d} = k$; $cx + d \neq 0$ using Cross multiplication method.</p> <ul style="list-style-type: none"> • Translate the statements given in the problem step by step into a mathematical statement. • Solve Brain Teasers and HOTS. • Enhance reasoning devising strategies. 	<ul style="list-style-type: none"> • Application based puzzle (decoding the phone number) 	<p style="background-color: #fff9c4; padding: 2px;">A-21 Pg 148 WS 1: Q1(i, ii, iii, iv, v, vi), Q2(ii)</p> <p style="background-color: #fff9c4; padding: 2px;">A-22 Pg 157 & 158 WS 2: Q1, Q5, Q7, Q9, Q15, Q17</p>

	(Word problems)			
November	<p>Chapter-11: Understanding Quadrilaterals</p> <p>Sub Topics</p> <ul style="list-style-type: none"> ● Introduction ● Adjacent sides, vertices and diagonals of a polygon ● Interior and exterior of a curve ● Convex and concave polygons ● Regular polygons ● Angle sum property ● Sum of the measures of Exterior Angles of a Polygon ● Properties of parallelogram, rectangle, square and rhombus <p>(continued in December)</p>	<p>The learners:</p> <ul style="list-style-type: none"> ● Describe adjacent sides, vertices, and diagonals of a polygon. ● Recall interior and exterior of a curve. ● Define different types of quadrilaterals i.e. trapezium, parallelogram, rectangle, rhombus, square and kite. ● Explain convex polygons, concave polygons and regular polygons. ● Define different types of quadrilaterals i.e. trapezium, parallelogram, rectangle, rhombus, square and kite. ● Describe angle sum property of a quadrilateral. ● Explain the properties of parallelogram, rectangle, square and rhombus. ● Distinguish between different types of quadrilaterals. ● Solve Brain Teasers and HOTS. ● Develop creativity and communication skills. 	<ul style="list-style-type: none"> ● Identifying the properties of special types of quadrilateral using quilling strips. 	<p>A-23 Pg 187 & 193 WS 1: Q2(ii, iii), Q5 WS 2: Q1, Q3, Q4</p> <p>A-24 Pg 193 & 198 WS 2: Q5, Q9 WS 3: Q3, Q7</p>

<p>December</p>	<p>Chapter-12: Construction of Quadrilaterals</p> <p>Sub Topics</p> <p>Construction of the quadrilaterals:</p> <ul style="list-style-type: none"> • When 4 sides and 1 diagonal are given • When 3 sides and both diagonals are given • When 2 adjacent sides and 3 angles are given • When 3 sides and 2 included angles are given 	<p>The learners:</p> <ul style="list-style-type: none"> • Construct when 4 sides and 1 diagonal are given. • Construct when 3 sides and both diagonals are given • Construct when 2 adjacent sides and 3 angles are given • Construct when 3 sides and 2 included angles are given • Judge whether construction of a quadrilateral with given data is possible or not. • Solve Brain Teasers and HOTS. • Develop creativity and representation skills. 	<ul style="list-style-type: none"> • Teaching of concept using self – made videos. • Art Integration Worksheet 	<p>A-25 Pg 207, 208 & 209 WS 1: Q2, Q4, Q6 WS 2: Q2, Q4, Q6</p> <p>A-26 Pg 210, 211 & 212 WS 3: Q1(iii, iv), Q2(i) WS 4: Q1(iv, v), Q2(iv, v)</p>
<p>December</p>	<p>Chapter-15: Statistics and Probability</p> <p>Sub Topics</p> <ul style="list-style-type: none"> • Introduction • Observations, Raw Data, Range, Class marks, Frequency, Frequency Table • Histogram and pie chart • Define the term trial, outcome, probability 	<p>The learners:</p> <ul style="list-style-type: none"> • Describe the terms – observation, raw data, range, class marks, frequency, frequency table. • Differentiate between raw data, ungrouped and grouped data. • Draw pictorial representations through histogram and pie chart and interpret the same. • Define the terms trial, outcome and probability 	<ul style="list-style-type: none"> • Making Definition Tree 	<p>A-27 Pg 273, 275 & 276 WS 1: Q1, Q2, Q7, Q9, Q10</p> <p>A-28 Pg 280 & 283 WS 3: Q1, Q3 WS 4: Q1, Q2</p>

		<ul style="list-style-type: none">● Find probability under different given situations.● Solve Brain Teasers and HOTS.● Apply the knowledge and exhibit their creativity.		
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