



**JAYPEE PUBLIC SCHOOL,  
GREATER NOIDA  
WEEK WISE SYLLABUS  
SESSION-(2022-23)  
CLASS IX**

# SUBJECT: MATHEMATICS

## MONTH: APRIL

Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week
<b>Chapter 1:</b> Number System  <b>Chapter 2 :</b> Polynomials	<b>Chapter 1 :</b> <ul style="list-style-type: none"> <li>• Irrational numbers.</li> <li>• Real numbers and their decimal representation.</li> <li>• Representing real number on the number line.</li> </ul>	<b>Chapter 1 (Contd.):</b> <ul style="list-style-type: none"> <li>• Operations on real numbers.</li> </ul>	<b>Chapter 1 (Contd.):</b> <ul style="list-style-type: none"> <li>• Law of exponents for real numbers.</li> </ul> <b>Chapter 2: Polynomials</b> <ul style="list-style-type: none"> <li>• Polynomials -its degree and types.</li> <li>• Zeros of polynomial.</li> <li>• Remainder theorem</li> <li>• Factor theorem.</li> </ul>	<b>Chapter 2: (Contd.)</b> <ul style="list-style-type: none"> <li>• Factorization using factor theorem of polynomials.</li> <li>• Algebraic identities.</li> <li>• Expansion using algebraic identities.</li> </ul>
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To familiarize the students with the difference between rational and irrational numbers and its operations.</li> <li>• To understand and apply the factor theorem and the remainder theorem.</li> </ul>			
<b>Expected Learning Outcomes</b>	The students will be able to- <ul style="list-style-type: none"> <li>• Understand the real number system and obtain the decimal representation of rational and irrational numbers.</li> <li>• Represent irrational numbers on number line and construct square root spiral.</li> <li>• Add / subtract/multiply/divide irrational numbers.</li> <li>• Identify degree of a polynomial and classify them.</li> <li>• Find remainder through remainder theorem and hence form factor theorem and apply it to factorise the polynomial.</li> <li>• Use various algebraic identities for expansion.</li> </ul>			
<b>Teaching Aid/Resources</b>	<ul style="list-style-type: none"> <li>• Smart Class Module</li> <li>• Geometry Kit</li> </ul>			
<b>Lab Activity</b>	<ul style="list-style-type: none"> <li>• To construct square root spiral.</li> <li>• To verify the algebraic identity <math>(a+b+c)^2 = a^2+b^2+c^2 + 2ab+2bc+2ca</math></li> </ul>			

## MONTH: MAY

Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week
<b>Chapter 2 :</b> Polynomials (Contd) <b>Chapter 12:</b> Heron's Formula	<b>Chapter 2: (Contd.)</b> <ul style="list-style-type: none"> <li>• Factorization of polynomials using identities.</li> </ul>	<b>Chapter 2: (Contd.)</b> <ul style="list-style-type: none"> <li>• Factorization of polynomials using identities.</li> </ul>	<b>Chapter 12 :</b> <ul style="list-style-type: none"> <li>• Heron's formula</li> <li>• Area of equilateral triangle</li> <li>• Area of triangle by Heron's formula</li> <li>• Application of heron's formula in finding the areas of quadrilateral and polygon</li> </ul>	<b>Summer Break</b>
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To understand and apply the different algebraic identities for expansion /factorization.</li> <li>• To apply the formulae of finding the area of triangle by using Heron's formula.</li> </ul>			
<b>Expected Learning Outcomes</b>	The students will be able to- <ul style="list-style-type: none"> <li>• Use various algebraic identities for factorization of polynomials.</li> <li>• Identify heron's formula.</li> <li>• Apply heron's formula to find formula for finding area of equilateral triangle.</li> <li>• find solutions of area of triangle using heron's formula.</li> <li>• Apply Heron's formula in finding areas of polygon.</li> </ul>			

<b>Teaching Aid/ Resources</b>	<ul style="list-style-type: none"> <li>Smart class module</li> </ul>
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**MONTH: JULY**

<b>Content / Topic</b>	<b>1<sup>st</sup> Week</b>	<b>2<sup>nd</sup> Week</b>	<b>3<sup>rd</sup> Week</b>	<b>4<sup>th</sup> Week &amp; 5<sup>th</sup> Week</b>
<b>Chapter 5 :</b> Euclid's Geometry <b>Chapter 6:</b> Lines And Angles <b>Chapter 7:</b> Triangles	<b>Chapter 5</b> <ul style="list-style-type: none"> <li>Euclid's definitions, axioms and postulates</li> <li>Equivalent versions of Euclid's fifth postulates</li> </ul>	<b>Chapter 6:</b> <ul style="list-style-type: none"> <li>Type of angles and Pair of angles.</li> <li>Parallel lines and pair of angles formed by transversal.</li> </ul>	<b>Chapter 6: (Cont.)</b> <ul style="list-style-type: none"> <li>Angle sum property of a triangle.</li> <li>Exterior anglesum property</li> </ul>	<b>Chapter 7:</b> <ul style="list-style-type: none"> <li>Congruence of triangles</li> <li>SAS Congruence criteria for congruence of triangles</li> <li>ASA Congruence criteria for congruence of triangles.</li> </ul>
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>To familiarize the students with the hidden terms related to geometry introduced by Euclid.</li> <li>To familiarize the students with different terms related to geometry and its real life application.</li> <li>To develop an understanding of congruence of triangles.</li> </ul>			
<b>Expected Learning Outcomes</b>	The students will be able to - <ul style="list-style-type: none"> <li>know various axioms and postulates</li> <li>apply the axioms and postulates to understand its relevance.</li> </ul>			
	<ul style="list-style-type: none"> <li>recognize pair of angles and classify them.</li> <li>prove angle sum property and exterior angle sum property and use them to solve problems.</li> <li>recall congruent figures and identify them.</li> <li>recognize various rules to show two triangles congruent.</li> <li>recall isosceles triangle property and apply it on given questions.</li> </ul>			
<b>Teaching Aid / Resources</b>	<ul style="list-style-type: none"> <li>Jodo kit/teaching aid for explaining various pairs of angles and parallellines.</li> <li>Cut out of triangles to explain congruence of triangles.</li> <li>Smart Class module</li> </ul>			

**MONTH: AUGUST**

<b>Content / Topic</b>	<b>1<sup>st</sup> Week</b>	<b>2<sup>nd</sup> Week</b>	<b>3<sup>rd</sup> Week</b>	<b>4<sup>th</sup> Week</b>	<b>5<sup>th</sup> Week</b>
<b>Chapter 7:</b> Triangles (Contd.)  <b>Chapter 3 :</b> Co-Ordinate Geometry	<b>Chapter 7: (Contd.)</b> <ul style="list-style-type: none"> <li>Isosceles triangle property</li> <li>Applications on isosceles triangle property.</li> <li>SSS Congruence criteria for congruence of triangles</li> </ul>	<b>Chapter 7: (Contd.)</b> RHS Congruence criteria for congruence of triangles	<b>Chapter 7: (Contd.)</b> <ul style="list-style-type: none"> <li>Inequalities in a triangle.</li> <li>Applications based on inequality theorem.</li> </ul>	<b>Chapter 3 :</b> <ul style="list-style-type: none"> <li>Cartesian System</li> <li>Obtaining coordinate of a point in a Cartesian plane.</li> </ul>	<b>Chapter 3: (Contd.)</b> <ul style="list-style-type: none"> <li>Plotting a point in the plane</li> </ul>
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>To develop an understanding of congruence of triangles and inequalities in triangles.</li> <li>To acquaint the students with the Cartesian system.</li> </ul>				

<b>Expected Learning Outcomes</b>	The students will be able to - <ul style="list-style-type: none"> <li>• solve questions using other congruence rules such as sss, rhs</li> <li>• identify inequalities among numbers/expression and form general rules of inequalities.</li> <li>• recognize inequalities in a triangle and use them to solve various questions.</li> <li>• recall cartesian/ rectangular coordinate system</li> <li>• identify coordinate of a point in a cartesianplane.</li> <li>• plot a point in the plane.</li> </ul>
<b>Teaching Aid/ Resources</b>	<ul style="list-style-type: none"> <li>• Roller chart consisting of cartesian system.</li> <li>• Smart Class Module</li> </ul>
<b>Lab Activity</b>	<ul style="list-style-type: none"> <li>• To verify experimentally that in a triangle, sum of any two sides is always greater than the third side.</li> <li>• Any one activity on co-ordinate geometry.</li> </ul>

### MONTH: SEPTEMBER

Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week
	Revision	Revision + TERM I EXAM	<b>TERM I EXAM</b>	Interactive discussion on summative assessment question paper.
<b>Assessment</b>	<b>TERM I EXAM</b>			

### MONTH: OCTOBER

Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week	5 <sup>th</sup> week
<b>Chapter 14 : Statistics</b>  <b>Chapter 8: Quadrilateral</b>	<b>Chapter 14 :</b> <ul style="list-style-type: none"> <li>• Collection of data</li> <li>• Representation of data in tabular form (contd...)</li> <li>• Graphical representation of data</li> <li>• Measures of Central tendency.</li> </ul>	<b>Chapter 8 :</b> <ul style="list-style-type: none"> <li>• Angle sum property of a quadrilateral</li> <li>• Types of quadrilateral and their properties</li> <li>• Conditions for a quadrilateral to be a parallelogram.</li> </ul>	<b>Chapter 8: (Contd.)</b> <ul style="list-style-type: none"> <li>• Midpoint theorem and its converse.</li> </ul>	<b>Chapter 8: (Contd.)</b> <ul style="list-style-type: none"> <li>• Questions related to midpoint theorem and its converse.</li> </ul>	<b>Chapter 8: (Contd.)</b> Conditions for a quadrilateral to be a rhombus, rectangle, square
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To enable the students to organize, represent and interpret the data by using bar graph and histogram</li> <li>• To understand and apply different types of quadrilaterals in problem solving in real life situation.</li> </ul>				
<b>Expected learning outcomes</b>	The students will be able - <ul style="list-style-type: none"> <li>• Collect data and organize data in tabular form and from ungrouped and grouped frequency distribution table.</li> <li>• Make graphical representation of data such as bar graph, histogram etc.</li> <li>• To find mean, median, mode of raw data and discrete frequency table.</li> <li>• Identify types of quadrilateral and their properties.</li> <li>• Use the properties to form conditions to prove a quadrilateral a parallelogram, rectangle, rhombus and square.</li> </ul>				
<b>Teaching aid / Resources</b>	<ul style="list-style-type: none"> <li>• Smart Class module</li> <li>• Cutout of various quadrilaterals/Model for demonstration to find Area of quadrilateral.</li> </ul>				
<b>Lab Activity</b>	<ul style="list-style-type: none"> <li>• To verify Midpoint Theorem of Triangle by paper cutting and pasting Method.</li> <li>• To explore the similarities and differences in the properties with respect to the diagonals of quadrilaterals.</li> </ul>				

NOVEMBER: Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week
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<p><b>Chapter 4 :</b> Linear Equations In Two Variables</p> <p><b>Chapter 9 :</b> Areas of Parallelogram &amp; Triangles</p>	<p><b>Chapter 4 :</b></p> <ul style="list-style-type: none"> <li>• Introduction of chapter Linear Equations in two variables.</li> <li>• Standard form of Linear equations in two variables.</li> <li>• Solutions of linear equation in two variables and graphical representation</li> </ul>	<p><b>Chapter 4: (Contd.)</b></p> <ul style="list-style-type: none"> <li>• Equations of lines parallel to x – axis and y – axis.</li> </ul> <p>Geometric representation of an equation in one variable and two variables</p> <p><b>Chapter 9:</b></p> <ul style="list-style-type: none"> <li>• Figures on the same base and between the same parallels.</li> </ul>	<p><b>Chapter 9 (Contd.)</b></p> <ul style="list-style-type: none"> <li>• Parallelograms on the same base and between same parallels.</li> <li>• Triangle on the same base and between same parallels.</li> </ul>	<p><b>Chapter 9: (Contd.)</b></p> <ul style="list-style-type: none"> <li>• Area of triangle and parallelogram having same base and between same parallels.</li> <li>• Median of triangle divides the triangle into two parts equal in area</li> </ul>
<p><b>Learning Objectives</b></p>	<ul style="list-style-type: none"> <li>• To apply the knowledge of linear equations in problem solving in real life problems</li> <li>• To apply the concept of parallelogram and triangles in real life situations.</li> </ul>			
<p><b>Expected learning outcomes</b></p>	<p>The students will be able to -</p> <ul style="list-style-type: none"> <li>• to find solutions of linear equation in two variables.</li> <li>• to convert word problem into mathematical equation.</li> <li>• to represent an equation geometrically in one variable and two variable.</li> <li>• identify figures on the same base and between the same parallels and properties related to their area.</li> <li>• identify properties related to median of triangle and use it in other situations.</li> </ul>			
<p><b>Teaching aid/ Resources</b></p>	<ul style="list-style-type: none"> <li>• Smart Class Module</li> </ul>			
<p><b>Lab Activity</b></p>	<ul style="list-style-type: none"> <li>• To verify experimentally that the area of parallelogram is product of its base and corresponding altitude.</li> <li>• To verify experimentally that the area of trapezium is half of product of sum of its parallel sides and distance between them.</li> </ul>			

**MONTH: DECEMBER**

Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week
<p><b>Chapter 13 :</b> Surface Areas and Volumes</p> <p><b>Chapter 10 :</b> Circles</p>	<p><b>Chapter 13:</b></p> <ul style="list-style-type: none"> <li>• Surface area of cuboids and cubes</li> <li>• Surface area of cuboid and cubes</li> </ul>	<p><b>Chapter 13:</b></p> <ul style="list-style-type: none"> <li>• Surface area of Right circular cylinder</li> <li>• Surface area of Right circular cone</li> <li>• Surface area of sphere and hemisphere.</li> </ul>	<p><b>Chapter 13:</b></p> <ul style="list-style-type: none"> <li>• Volume of cuboid and cube.</li> <li>• Volume of Right circular cylinder</li> <li>• Volume of Right circular cone.</li> <li>• Volume of Sphere and hemisphere</li> </ul>	<p><b>Chapter 10 :</b></p> <ul style="list-style-type: none"> <li>• Circles and its related terms.</li> <li>• Angle subtended by a chord at a point.</li> <li>• Perpendicular from the centre to a chord..</li> </ul>
<p><b>Learning Objectives</b></p>	<ul style="list-style-type: none"> <li>• To apply the concept of area and perimeter of plane figures in day to day life.</li> <li>• To familiarize the students with the concept of chords and angles subtended by an arc in a circle</li> </ul>			
<p><b>Expected Learning Outcomes</b></p>	<p>The students will be able to-</p> <ul style="list-style-type: none"> <li>• find surface area of cube, cuboid, cylinder, right circular cone, sphere, hemisphere</li> <li>• find volume of cube, cuboid, cylinder, right circular cone, sphere, and hemisphere.</li> <li>• apply the concept of perimeter, area and volume in day to day life situations.</li> <li>• apply the formula of surface area and volume of 3 D shapes</li> <li>• identify various terms related to circles and properties of chord.</li> <li>• apply various properties related to chord, arc and angle subtended by them at the centre and other part of circle.</li> </ul>			

<b>Teaching Aid / Resources</b>	<ul style="list-style-type: none"> <li>Use of Geometry Kit /Circular Geo board.</li> </ul>
<b>Lab Activity</b>	<ul style="list-style-type: none"> <li>To derive an expression for CSA and TSA of cylinder.</li> </ul>

### MONTH: JANUARY

Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week	5 <sup>th</sup> Week
<b>Chapter 10 : Circles</b> <b>Chapter 11 : Constructions</b>	<b>Winter Break</b>	<b>Winter Break</b>	<b>Chapter 10: Contd.):</b> <ul style="list-style-type: none"> <li>Circles through three points</li> <li>Equal chords and their distances from the centre.</li> <li>Angle subtended by an arc of a circle</li> </ul>	<b>Chapter10(Contd.):</b> <ul style="list-style-type: none"> <li>Degree measure theorem</li> <li>Cyclic quadrilateral property</li> </ul> <b>Chapter 11 :</b> <ul style="list-style-type: none"> <li>Basic Constructions and its justification</li> </ul>	<b>Chapter 11:</b> <ul style="list-style-type: none"> <li>Construction of triangle when its base, one base angle and sum/ difference of other two sides are given.</li> <li>Construction of triangle when its perimeter and two base angles are given.</li> </ul>
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>To find the surface area and volume of combination of solid figures.</li> <li>To develop an understanding of construction of different types of angles and triangles.</li> </ul>				
<b>Expected Learning Outcomes</b>	The students will be able to – <ul style="list-style-type: none"> <li>Apply degree measure theorem and cyclic quadrilateral property.</li> <li>Make some basic constructions and justify them through theoretical proof.</li> <li>Construct triangle when its base and one base angle and sum/difference of other two sides is given.</li> <li>Construct triangle when its perimeter and two base angles are given.</li> </ul>				
<b>Teaching Aid/ Resources</b>	<ul style="list-style-type: none"> <li>Models of Cube, cuboids, cylinder, cone, sphere.</li> <li>Net of cuboids to explain surface area (curved and total surface area)</li> <li>Net of Cylinder to explain surface area (curved and total surface area)</li> </ul>				
<b>Lab Activity</b>	<ul style="list-style-type: none"> <li>To verify that in a circle, the angle subtended by any arc at the centre is double of any angle subtended by it on the remaining part of the circle</li> <li>To verify that in a cyclic quadrilateral, sum of its opposite angles in <math>180^{\circ}</math>.</li> </ul>				

### MONTH: FEBRUARY

Content / Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week & 5 <sup>th</sup> Week
<b>Chapter 15 : Probability</b>	<b>Chapter 15 :</b> <ul style="list-style-type: none"> <li>Probability – an experimental approach.</li> <li>Experimental or empirical probability.</li> <li>Probability in real life situations</li> </ul>	Revision	FINAL EXAMS	FINAL EXAMS
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>To enable the students with the concept of theoretical probability of different events.</li> </ul>			
<b>Expected Learning Outcomes</b>	The students will be able to - <ul style="list-style-type: none"> <li>define an event, identify type of events, perform experiment and obtain all possible outcomes of the experiment.</li> <li>obtain data and process the data.,find experimental/ empirical probability from the collected data.</li> <li>find uses of probability in day to day life situations.</li> </ul>			
<b>Teaching Aid / Resources</b>	<ul style="list-style-type: none"> <li>Smart Class module ,Use of coins, dice, playing cards.</li> </ul>			
<b>Assessment/ Lab Activity</b>	<ul style="list-style-type: none"> <li>Practical Exam, To reinforce the concept of Probability through an activity.</li> </ul>			