Subject : Math
Grade : IX
Year : 2019-20

Year Planner **Text book used: NCERT Mathematics Textbook**

Month & No. of Teaching Days	Units	Sub- Units	Objectives	Activities Planned	Assessment / Recap
March/ April (16)	**Ch 1 : Number System**	• Rational numbers & Irrational numbers, • Real Numbers.	✓ To represent rational numbers and irrational numbers on the number line. ✓ To verify the operations on irrational numbers. ✓ To use laws of exponents on Real numbers.	➢ To construct square root spiral and find square root of a number.	**Worksheet-1**
June (16)	**Ch 2: Polynomials** **Ch 5 : Introduction to Euclid's Geometry**	• Polynomials in one variable • Zero of a polynomial • Remainder theorem • Factor theorem • Algebraic Identities • Euclid's definitions, Axioms & Postulates. • Equivalent version of Euclid's fifth postulate.	✓ To find factors and zeros of a polynomial using remainder and factor theorem. ✓ To use algebraic identities to factorize a polynomial. ✓ To know the facts on points, lines & surface. ✓ To know the postulates on parallel lines. ✓ To understand "Play fair Axiom".	✓ To verify the identity: $(a + b)^3 = a^3+b^3+3ab^2+3a^2b$ ✓ To prove that an equilateral triangle can be constructed on any line segment.	**Worksheet-2** **Worksheet-3** **Slip Test-1**
	Ch6: Lines and Angles.	• Basic terms & definitions • Intersecting Lines & non-intersecting Lines. • Pairs of angles.	✓ To know the types of angles. ✓ To know the properties of parallel lines. ✓ To verify the sum of interior angles of a triangle is 180 degrees.	✓ To verify equality of alternate and corresponding angles in case of parallel lines intersected by a transversal.	**Slip Test-2**

Month & No. of Teaching Days	Units	Sub- Units	Objectives	Activities Planned	Assessment / Recap
		• Angles made by parallel lines & transversal • Angle Sum property of a triangle. • Exterior angle property of a triangle.	✓ To know exterior angle of a triangle is greater than either of its interior angles.		
July (24)	**Ch 3: Co-ordinate Geometry** **Ch 12: Heron's Formula** **Ch 7: Triangles**	• Cartesian System, plotting a Point in the Plane if its co-ordinates are given. • Area of triangle by Heron's Formula. Application of Heron's formula in finding areas of quadrilaterals. • Criteria for Congruence of Triangles, Properties of Triangles, Inequalities property in a Triangle	✓ To plot the points in the Cartesian plane. ✓ Apply Heron's Formula efficiently. ✓ To apply congruence rules: SSS, SAS, ASA and RHS and prove congruency of triangles. ✓ To understand the inequality property of a Δ.	Plotting points on a graph sheet ➢ Comparing two triangles using their Properties	**Portfolio 1** **Worksheet-4** **Worksheet-5** **PT-1** **Chapters:1,2,6** **Slip Test-3**
Aug (22)	**Ch 4 Linear Equations in Two variables.**	• Solution of a Linear Equation, Graph a linear Equation in two Variables. Equations of lines parallel to the x-axis and y-axis.	✓ To graph a linear equation. ✓ To identify equation of line parallel to x- axis and y-axis.		**Worksheet-6** **Worksheet-7** **Slip Test-4** **MA 1**

Month & No. of Teaching Days	Units	Sub- Units	Objectives	Activities Planned	Assessment / Recap
	Ch 8 Quadrilaterals	• Types of quadrilateral and angle sum property of a quadrilateral. • Properties of parallelogram - statements and proofs. • Mid- Point Theorem.	✓ To observe the types of quadrilaterals. ✓ To identify the properties of parallelograms and prove them. ✓ To identify conditions for a quadrilateral to be a Parallelogram. ✓ To state and prove the Mid-point Theorem.	➢ To show that the figure obtained by joining the mid points of the consecutive sides of a quadrilateral is a parallelogram.	
September(7)	**Revision**	------	-------	----------	**RevisionWorksheet-1** **Half-Yearly Exam/ PT-2** **Chapters:1,2,3,4,5,6,7,12**
October (17)	**Ch 10 Circles**	• Circles and related terms. • Angle subtended by a chord at a point on a circle. • Properties of perpendicular from the center of the circle to the chord. • Angles subtended by an arc of a circle. • Cyclic Quadrilateral.	✓ To verify equal chords of a circle subtend equal angles at the centre. ✓ To prove perpendicular from the centre bisects the chord. ✓ To understand one and only one circle can be drawn through three given points. ✓ To verify the relation between equal chords and their distances from center. ✓ To verify facts on cyclic quadrilaterals.		**Worksheet -8** **Slip Test-5**
	Ch 11 Constructions	• Basic constructions • Some constructions of Triangles.	✓ To bisect a given angle and draw perpendicular bisector of a given line.	➢ To construct a triangle in which two base angles are given and perimeter is given.	**Portfolio 2(LA)**

Month & No. of Teaching Days	Units	Sub- Units	Objectives	Activities Planned	Assessment / Recap
			✓ To construct a triangle when base length, base angle and sum or difference of other two sides is given. Also when perimeter is given.		
Nov (24)	**Ch 9 Areas of Parallelograms and triangles.**	• Figures on the same base and between the same parallels • Parallelograms on the same base and between the same parallels. • Triangles on the same base and between the same parallels.	✓ To prove Parallelograms on the same base and between the same parallels are equal in area. ✓ To verify the Triangles on the same base and between the same parallels are equal in area. ✓ To prove median of a Triangle divides it into two triangles of equal area.		**Worksheet-9** **Worksheet-10** **Slip Test-6**
	Ch 13 Surface area and Volume.	• Surface Area of a cuboid, cube, right circular cylinder. Right circular cone and sphere. • Volume of a Cuboid, Cylinder, Right circular cone, Sphere and hemisphere.	✓ To calculate the surface area of cuboid, cube, cylinder, cone and sphere using the formulae efficiently. ✓ To find the volume of the given solid shape.	➢ To compare the volume of a cone with that of a cylinder.	**MA 2**
Dec (20)	**Contd…… of Ch. 13 Surface Area and Volume** **Ch 14 Statistics**	• Collection and Presentation of data. • Graphical Representation of data.	✓ To represent data in the form a frequency table.	Collect the marks of subject Maths & calculate	**Worksheet-11**

Month & No. of Teaching Days	**Units**	**Sub- Units**	**Objectives**	**Activities Planned**	**Assessment / Recap**
		• Measures of Central tendency.	✓ To represent data graphically as bar graph, Histogram and Frequency Polygon. To calculate Mean, Median and mode for the given data	the Mean & Mode. Also represent graphically	
Jan (20)	**Ch15 Probability**	• Probability – an experimental approach.	✓ To identify and calculate the probability of different events	Create own practical problem and predict its probability.	**Worksheet - 12** **PT-3** **Chapters 10,11,13.** **RevisionWorksheet-2**
Feb	ANNUAL EXAM	REVISION			**ANNUAL EXAM**