Espalier Heritage School

Academic Year 2025 - 2026

Annual Curriculum Pedagogy Assessment Plan

Class - IX

SUBJECT : MATHS

MONTHS: APRIL & MAY

CHAPTER / TOPIC	LEARNING OBJECTIVE		ACTIVITIES & RESOURCES	EXPECTED LEARNING OUTCOMES	ASSESSMENTS
	KNOWLEDGE BASED	APPLICATION BASED			
Chapter-1 Number System • Introduction to Number Systems • Irrational Numbers • Real Numbers and Their Decimal Expansions • Operations on Real Numbers • Laws of Exponents for Real Numbers	• Express a given number as p/q to determine its rationality. • Transform a non-terminating decimal into the fraction p/q format to ascertain its rationality.	• Compute and identify additional rational numbers between any two given rational numbers, demonstrating that there exists an infinite set of rational numbers within any given pair. • Modify the denominator of a given expression containing a square root to rationalize it, resulting in an equivalent expression with a rational denominator. • Extend the laws of exponents to simplify a given expression.	**Activity:** • Create a spiral using square roots. **Resources:** • NCERT textbook of Mathematics • Extra Reference Book	**Logical Skills** • Write the rational numbers between given two rational numbers. • Represent different rational and irrational numbers on the number line. • Rationalize the denominator of the given real number. • Solve the problems with exponents and radicals.	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)

Chapter-3 Co-ordinate Geometry • Introduction to Coordinate Geometry • Cartesian Plane • Plotting a Point in the Plane if its coordinates are given.	• Plot a point on the Cartesian plane to identify the quadrant in which the point is located. • Analyse a provided set of coordinates to make observations about its placement.	• Apply concepts of coordinate geometry in order to simplify given word problems.	**Activity:** • To obtain the mirror images of the given geometrical figure with respect to the x-axis and y-axis on a graph paper. **Resources:** • NCERT textbook of Mathematics • Extra Reference Book	**Strategic thinking skills** • Develops strategies from understanding of coordinate geometry in order to locate points in a Cartesian plane.	• **Problem Solving** (M. C.Q, Class Quiz) • Notebook • Class Test • **HOTS** (Case study)
Chapter-6 Lines and Angles • Basic Terms and Definitions • Intersecting Lines and Non-Intersecting • Lines • Pairs of Angles • Lines Parallel to the Same Line	• Define segment, ray, collinear points, non-collinear points, acute angle, right angle, obtuse angle, straight angle, reflex angle, complementary angles, and supplementary angles to facilitate their identification within a given diagram. • Mark angles formed by the intersection of two lines to recognize vertically opposite pairs, adjacent angles, linear pairs, and pairs of angles that are complementary or supplementary.	• Determine the values of unknown angles formed by a transversal in a given figure to deduce the parallelism of lines. • Establish the connection between angles formed when a triangle is positioned between two parallel lines, demonstrating that the exterior angle of a triangle is equivalent to the sum of its two opposite interior angles.	**Activity:** • Verify that if a side of a triangle is produced the exterior angle so formed is equal to the sum of the two interior opposite angles. **Resources:** • NCERT textbook of Mathematics • Extra Reference Book.	Students will be able to understand: • The different types of angles with their diagram • Linear Pair of Angles, Supplementary Angles, Complementary Angles and Adjacent Angles. • Different types of lines • Concept of parallel lines and transversal.	• **Problem Solving** (M. C.Q, Class Quiz) • Notebook • Class Test • **HOTS** (Case study)

Chapter -7 Triangles • Congruence of Triangles • Criteria for Congruence of Triangles • Some Properties of a Triangle	• Examine the angles and sides of the provided figures to demonstrate their congruence or lack of congruence. • Illustrate the criteria for triangle congruence, including ASA, SAS, SSS, and RHS, through diagrams to establish relationships between given angles, sides, and triangles in a given figure.	• Apply the congruence criteria for a triangle with two equal sides to establish the equality of the angles opposite those sides. • Implement this principle in given figure to find the measurement of an angle	**Resources:** • E - Modules • NCERT textbook of Mathematics • Extra Reference Book	• Students acquire knowledge and critical understanding particularly by the way of motivation and visualization. • They develop higher order thinking skills by identifying Axioms of congruency of triangles for various figures.	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)
Chapter-10 Heron's Formula • Area of a Triangle by Heron's formula • Application of Heron's Formula in finding Areas of Quadrilateral.	• Determine the area of a provided triangle and articulate the constraints or limitations associated with the standard formula.	• Apply Heron's formula in order to calculate the area of a Triangle. • Decompose a provided polygon into triangles to determine the total area of the polygon as the sum of the areas of those individual triangles.	**Activity:** • Verify the area of triangles using heron's formula. **Resources:** • NCERT textbook of Mathematics • Extra Reference Book	**HOTS** • Applies appropriate formulae in order to find areas of all types of triangles.	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)

MONTHS: JULY & AUGUST					
CHAPTER / TOPIC	**LEARNING OBJECTIVE**		**ACTIVITIES & RESOURCES**	**EXPECTED LEARNING OUTCOMES**	**ASSESSMENTS**
	KNOWLEDGE BASED	**APPLICATION BASED**			
Chapter-2 Polynomials • Introduction to Polynomials • Polynomials in One Variable • Zeros of a Polynomial • Factorization of Polynomials • Algebraic Identities	• Define and articulate the concept of polynomials, recognizing terms, coefficients, and degrees. • Evaluate the polynomial p(x) at the provided values for the variable 'x' to determine if the given value is a root of the polynomial.	• Factor a given polynomial using both the splitting middle-term method and the factor theorem to compare the outcomes of the two methods. • Apply polynomial expressions to solve problems in everyday scenarios, such as calculating areas, volumes, or rates of change.	**Resources** • E - Modules • NCERT textbook of Mathematics • Extra Reference Book	**Analytical and Problem-Solving Skills** • Distinguish and categorize polynomials within algebraic expressions to apply suitable algebraic identities for their factorization.	• **Problem Solving** (M. C.Q, Class Quiz) • Notebook • Class Test • **HOTS** (Case study)
Chapter-4 Linear Equation in Two Variables • Linear Equations • Solutions of Linear Equations • Applications of Linear Equations	• Examine a provided linear equation and compare it to the standard form ax + by + c = 0 to deduce the values of a, b, and c.	• Apply principles of linear equations in order to formulate and solve for a variety of problems in real life situations.	**Activity:** • Students will create real world problems based on linear equations. **Resources:** • NCERT textbook of Mathematics • Extra Reference Book.	**Students will be able to:** • Construct linear equations representing real-life situations, translating verbal descriptions into mathematical expressions.	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)
Chapter -12 Statistics • Frequency Table • Bar Graph, Histogram • Frequency Polygon	• Read a given bar graph/ histograms in order to infer a variety of information from it. • Read the given data in order to create a frequency polygon for given data sets	• Analyses data by representing it in different forms like bar graph, histogram and frequency polygon.	**Resources:** • E - Modules • NCERT textbook of Mathematics • Extra Reference Book	• Presentation/Analytical skills • Represents given data in different forms like, tabular form, bar graph, histogram Frequency polygon in order to analyse given data	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)

Chapter – 5 Introduction to Euclid's Geometry • Introduction • Euclid's Definitions, Axioms and Postulates	• Reproduce Euclid's axioms in your own words in order to give examples for each.	• Apply Euclid's postulates in order to prove basic geometrical concepts about lines, points, planes, shapes etc.	**Resources:** • E – Modules • NCERT textbook of Mathematics • Extra Reference Book	• **HOTS** • Applies axiomatic approach to geometrical concepts in order to solve problems using them.	• **Problem Solving** (M. C.Q, Class Quiz) • Notebook • Class Test • **HOTS** (Case study)

MONTHS: SEPTEMBER & OCTOBER					
CHAPTER / TOPIC	**LEARNING OBJECTIVE**		**ACTIVITIES & RESOURCES**	**EXPECTED LEARNING OUTCOMES**	**ASSESSMENTS**
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Chapter – 8 Quadrilaterals • Properties of a Parallelogram • The Mid-Point Theorem	• Enumerate the characteristics of quadrilaterals to categorize real-world objects into various types of four-sided figures. • List the properties of parallelogram to ascertain if a given quadrilateral exhibits the properties associated with parallelogram.	• Apply the property of the sum of angles in a quadrilateral to find the measure of the unknown angle. • Prove the midpoint theorem of triangles using concepts of congruency and transversal angles in order to extend the application to Quadrilaterals.	**Activity:** • To Verify Mid-Point Theorem for a triangle. **Resources:** • NCERT textbook of Mathematics • Extra Reference Book	• **HOTS** • Apply an axiomatic approach to deduce proofs for mathematical statements, particularly those related to quadrilaterals, for problem-solving purposes.	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)
Chapter – 11 Surface Areas and Volumes • Surface Area of a Right Circular Cone • Surface Area of a Sphere • Volume of a Right Circular Cone • Volume of a Sphere	• Visualize a right circular cone in 2-D in order to calculate the surface area (curved and total) • Visualize a sphere in 2-D in order to calculate the surface area (curved and total)	• Calculate the surface area (curved and total) of the given shape to determine the cost of painting/covering the given surface. • Calculate the volume of the given shape in order to infer the quantity of any substance it can hold	**Activity:** Students will be able to relate and apply the formula to real-world objects. **Resources:** • NCERT textbook of Mathematics • Extra Reference Book	• Problem Solving Skills • Derives formulas for surface areas and volumes of different solid objects like cones, spheres and hemispheres in order to apply them to objects found in the surroundings.	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)

MONTHS: NOVEMBER & DECEMBER					
CHAPTER / TOPIC	**LEARNING OBJECTIVE**		**ACTIVITIES & RESOURCES**	**EXPECTED LEARNING OUTCOMES**	**ASSESSMENTS**
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Chapter – 9 Circles • Angle subtended by a chord of a point. • Perpendicular from the Centre to a chord • Equal chords and their distances from the centre • Angle subtended by an arc of a circle. • Cyclic Quadrilaterals	• Define radius, chord, diameter, segment (major and minor), arc (major and minor), interior or exterior of a circle in order to illustrate and label them on a given circle. • List the properties of parallelogram in order to identify if a given quadrilateral, is a Parallelogram.	• Apply theorems regarding angle subtended by a chord in a circle in order to find the measure of an angle in the given figure. • Apply the property of perpendicular from the Centre to the chord in order to solve for the missing values (lengths and angles) in a given figure. • Interpret and apply theorems on the angles subtended by arcs of a circle in order to solve for unknown values in given examples. • Apply the relation between angles of a cyclic quadrilateral in order to solve for the value of a given angle	**Activity:** To show that angle subtended by an arc of a circle at the Centre is twice the angle subtended by it at any point on the remaining part of the circle. **Resources:** • E – Modules • NCERT textbook of Mathematics • Extra Reference Book	• **HOTS** • Applies axiomatic approach and derives proofs of mathematical statements particularly related to circles in order to solve problems using them.	• **Problem Solving** (M. C.Q, Class Quiz) • Word Problems • Notebook • Class Test • **HOTS** (Case study)