BHARTIYA VIDYA MANDIR SENIOR SECONDARY SCHOOL SECTOR-39, CHANDIGARH ROAD, LUDHIANA
SYLLABUS OF CLASS X

BOOK: NCERT	**SUBJECT – MATHEMATICS**		**SESSION - 2025-26**

Month	Unit/Chapter/Topic	Learning Objectives	Resources/Art-integarted pedagogy tools used	E-Resources	Learning Outcomes/ Skills learnt by students
APRIL	**REAL NUMBERS** Fundamental Theorem of Arithmetic - statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of irrationality of $\sqrt{2}, \sqrt{5}$ etc.	Students will be able to find 1. LCM and HCF of the pair of numbers and to verify the formula 2. Relation between HCF and LCM 3. Irrational numbers and its decimal expansion.	Lecture and Inductive method	http://epathshala.nic.in/QR/?id=1062CH01	Students will be able to: 1. Through the problems on HCF and LCM they will develop logical thinking and decision making skills. 2. Through decimal expansion of real numbers they will learn to visualize and predict the behavior of the number
	POLYNOMIALS Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials.	Students will be able 1. To tell the possible number of zeroes for a given polynomial. 2. To understand and verify the relationship between Zeroes and coefficients of a Polynomial. 3. To understand the geometrical meaning of zeroes and to read zeroes of a polynomial from given graph. 4. To find the polynomial when zeroes are known	Analytic and Lecture Method	http://epathshala.nic.in/QR/?id=1062CH02	Students will be able 1. .In physics to measure of acceleration or to express energy and to understand projectile motion. 2. To understand where the curve will change its direction.
	STATISTICS Mean, median and mode of grouped data (bimodal situation to be avoided).	Students will be able to: 1. Calculate the mean, median and mode of grouped data 2. Calculate the mean of the grouped data using direct method, assumed mean method and step deviation method. 3. Calculate the mode of grouped data.	Inductive and Deductive Method	http://epathshala.nic.in/QR/?id=1062CH14	Teacher may give some scenarios to the students and ask them which measure of central tendency (mean or mode) should be used in each scenario like: 1. Calculate the average performance of your class on the basis of CGPA scored last year (application of mean) 2. Calculate the range in which most of the students CGPA lie or CGPA which is scored by maximum number of the students (application of mode)
	PROBABILITY				After completion of the topicstudents will be able to use and apply concept in day to

MAY	Classical definition of probability. Simple problems on finding the probability of an event.	Students will be able to: 1. Calculate the probability of an event 2. Describe the terms equally likely outcomes, elementary event, complement of an event, sure event and impossible event	Problem Solving and Discovery Method	http://epathshala.nic.in/QR/?id=1062CH15	day life situations like: 1. Probability is used in various occupations such as healthcare insurance, Insurance companies uses this to decide on financial policies 2. It is widely used in the study of Mathematics, Statistics, Gambling, Physical sciences,Biological sciences, advertising, farming and weather forecasting. 3. Role of probability in cricketmatch . For example, the toss of a coin between the captains to decide which team would bat/ball first.
	PAIR OF LINEAR EQUATIONS IN TWO VARIABLES Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency. Algebraic conditions for number of solutions. Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination. Simple situational problems.	Students will be able 1. Generate linear equation from word problem. 2. Verify that given system of linear equation consistent or inconsistent 3. Understand the concept of pair of linear equations and it's reducible form (simultaneous equation). 4. Form equations and solve them graphically and algebraically. 5. Plot the lines representing the linear equations of given system on same plane	Lecture and Project Method	http://epathshala.nic.in/QR/?id=1062CH03	Students will attain 1. If two unknown quantities are to be evaluated then we necessarily need to have two conditions/criteria related to them 2. .They can formulate the pair of equations in two variables and consequently solve them. 3. for example situations based on Measurements, angles of polygon, Cost of articles, Profit loss, discount speed distance, time and work, height and distance etc.
JUNE	**SUMMER VACATIONS**				
	QUADRATIC EQUATIONS Standard form of a quadratic equation $ax^2 + bx + c = 0$, $(a \neq 0)$. Solutions of quadratic equations (only real roots) by factorization, and by using quadratic formula. Relationship between discriminant and nature of roots. Situational problems based on quadratic equations related to day to day activities to be incorporated	Students will be able to: 1. Define quadratic equation. 2. Give/ Check the Standard Form of a Quadratic Equation 3. Understand and apply the concept of quadratic equation in daily life. 4. Represent a given situation in the form of quadratic equation 5. Find the roots of a quadratic equation by factorization 6. Find the nature of roots or the solution of a quadratic equation using the quadratic formula	Lecture and Problem solving Method	http://epathshala.nic.in/QR/?id=1062CH04	Students will be able to: 1. Practice of topics of quadratic equation helps students to think logically. 2. Student can calculate average speed of a moving object (cycle,motorboat) without speedometer 3. Quadratic equations are often the first problems student encounter that has multiple solutions (one or none).
JULY	**ARITHMETIC PROGRESSIONS**	Students will be able to 1 Understand the concepts of given pattern as sequence			

	Motivation for studying Arithmetic Progression Derivation of the nth term and sum of the first n terms of A.P. and their application in solving daily life problems.	2 Identify if a given series of numbers form an arithmetic progression or AP 3 Find the first term and the common difference of a given AP. 4 Understand the general term of an A.P 5 Write the specified term of an A.P. when a, n and d are known 6 Derive the formula for the sum of the first n terms of an AP 7 Apply the formula to find the sum of the first n terms of an AP.	Deductive and Heuristic Method	http://epathshala.nic.in/QR/?id=1062CH05	Students will be able to 1. Visualize and create various patterns. 2. Calculate the amount he'll receive on a particular sum after n number of years. They will develop estimation.
AUGUST	**INTRODUCTION TO TRIGONOMETRY** Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined); motivate the ratios whichever are defined at 0o and 90°. Values of the trigonometric ratios of 30° , 45° and 60° . Relationships between the ratios. Proof and applications of the identity sin2A + cos2A = 1. Only simple identities to be given.	To enable the students to understand and apply. 1. T-Ratios 2. Values of T-Ratios for some specific angles (0, 30,45,60,90 degrees) 3. Trigonometric Identities 4. Applications of Trigonometric Identities	Analytic and Problem solving Method	http://epathshala.nic.in/QR/?id=1062CH08	Students will attain 1. Application of trigonometric ratios in a right triangle. 2. Use of trigonometric identities to prove other trigonometric identities
	APPLICATIONS OF TRIGONOMETRY : HEIGHTS AND DISTANCES Simple problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation / depression should be only 30°, 45°, and 60°.	To enable the students to understand and apply 1. Line of sight 2. Angle of elevation 3. Angle of depression 4. Heights and distances of objects using T –Ratios	Analytic and Problem solving Method	http://epathshala.nic.in/QR/?id=1062CH09	Student will be able to visualize the situation. 1. To calculate the heights and the lengths of objects (Like – Tree, Pole, Water tank, building etc.) 2. Team spirit (By using clinometers Activity
	COORDINATE GEOMETRY Review: Concepts of coordinate geometry, graphs of linear equations. Distance formula. Section formula (internal division).	To enable the students to understand and apply: 1. Concept of Cartesian geometry 2. Distance between two points 3. Section formula	Synthetic and Problem solving Method	http://epathshala.nic.in/QR/?id=1062CH07	Students will attain following 1. Rational thinking 2. Logical Thinking 3. Appreciate different approach for plane geometry
	CIRCLES	Students will be able to : 1. Meaning of circle and various terms such as chord, diameter, centre, circumference, segment, sector etc. Apply chord properties			Students will be able to, 1. After getting the concept of tangents student will think critically the application of these properties in their day to day life

Month	Topic/Content	Learning Objectives	Teaching Method	Resources	Life Skills/Application
SEPTEMBER	Tangent to a circle at, point of contact 1. (Prove) The tangent at any point of a circle is perpendicular to the radius through the point of contact. 2. (Prove) The lengths of tangents drawn from an external point to a circle are equal.	segment, sector etc, Apply chord properties for proof of further theorems in circles. 2. Define a tangent and recognize that a tangent is perpendicular to the radius of the circle at the point of tangency. 3. Explain there is only one tangent at a point of the circle. 4. Define the point of contact of tangent 5. Understand and Prove that two tangent to a circle from a common point outside the circle are equal. 6. Prove that the line joining the external points to the centre of the circle bisect the angle between the tangents. 7. Explore properties of tangent and how they differ from secant. 8. Conceptualize that tangent to a circle is a special case of the secant, when the two end points of its corresponding chord coincides	Lecture and Analytic Method	http://epathshala.nic.in/QR/?id=1062CH10	of these properties in their day to day life like 2. In determining the best position a soccer player should be when parallel to the sidelines, to score a goal. 3. Rotation of wheels on road. 4. In building infrastructure roads sidewalls pipe runs it is very important to know where a point of tangent begins and the curve ends. 5. Tangent to a curve is used for finding instantaneous velocity in physics
OCTOBER	**TRIANGLES** Definitions, examples, counter examples of similar triangles. 1. (Prove) If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio. 2. (Motivate) If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side. 3. (Motivate) If in two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar. 4. (Motivate) If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar. 5. (Motivate) If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, the two triangles are similar.	Students will be able to, 1. Define Similarity and its Criteria. 2. Differentiate between congruency and similarity. 3. State and prove Basic Proportionality theorem/ THALES theorem. 4.Solve question based on the application of the above mentioned theorem.	Lecture and Analytic Method	http://epathshala.nic.in/QR/?id=1062CH06	Students will be able to 1. Visualize and apply Reasoning. 2. Develop decision making and different approaches for solving problem
	AREAS RELATED TO CIRCLES	Students will be able to, 1. Find the perimeter and area of a circle. 2. Find the length of an arc of a sector. 3. Understand and apply the formula for finding area of a sector.			

OCTOBER	Area of sectors and segments of a circle. Problems based on areas and perimeter / circumference of the above said plane figures. (In calculating area of segment of a circle, problems should be restricted to central angle of 60°, 90° and 120° only.	finding area of a sector. 4. Understand and apply the formula for finding area of a segment. 5. Find the areas of combination of plane figures.	Lecture and Heuristic Method	http://epathshala.nic.in/QR/?id=1062CH12	Students will be able to, The concept studied in day to day life situation like: - Slice a circular pizza base, cakes etc
NOVEMBER	**SURFACE AREAS AND VOLUMES** Surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders/cones	Students will be able to: 1. Learn the concepts of surface areas and volumes of solid shapes. 2. Identify situations where there is a need of finding surface area and where there is a need of finding volume of a solid figure. 3. Find the surface areas of cuboids, cubes, cylinders, cones spheres and hemispheres, using their respective formulae. 4. Find the volumes of cuboids, cubes, cylinders, cones, spheres and hemispheres using their respective formulae. 5. Find the surface area and volume of the combination of solids. 6. Explain that when a solid is converted to another solid or multiple solids, either of the same or different shapes, the surface area changes but the volume remains constant.	Lecture and Heuristic Method	http://epathshala.nic.in/QR/?id=1062CH13	Students will be able to: 1. To use concrete models to derive formula for finding perimeter, area, surface area and volume of 2-D and 3-D shapes. 2. In engineering volume and area are very important without volume we can't figure out density or capacity 3. Student prevents themselves from being cheated like if they were able to calculate paint required, length of carpet to cover the floor, milkmen etc