DELHI PUBLIC SCHOOL, PALI

CLASS: X
SUBJECT: MATHEMATICS

ANNUAL CURRICULUM PLAN SESSION 2019-20

Month	Chapters	Theme / Sub Theme	Learning Objectives		Activities and Resources	Expected Learning Outcomes	Assessment
			Subject Specific (Content Based)	Behavioural (Application Based)			
April April	6	Real numbers	Students will be able to find 1. LCM and HCF of the pair of numbers and to verify the formula 2. HCF using Euclid's division lemma, 3. Relation between HCF and LCM 4. Euclid's division algorithm and fundamental theorem of arithmetic 5. Irrational numbers and its decimal expansion.	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	1. Activity on Euclid's division Lemma and their HCF 2. Activity on H.C.F and L.C.M N.C.E.R.T	Students would be able to find :- 1. LCM and HCF of the pair of numbers and to verify the formula 2. HCF using Euclid's division lemma. 3. Relation between HCF and LCM 4. Euclid's division algorithm and fundamental theorem of arithmetic. 5. Irrational numbers and its decimal expansion. 6. Through the problems on HCF and LCM they will develop logical thinking and decision making skills. 7. Through decimal expansion of real numbers they will learn to visualize and predict the behavior of the number.	Assessment will be done on the basis of decided Rubrics.
May		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	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	Consider the given algebraic expression, $4x^3 + 3x^2 - 5x - 6$ then write various terms of	Students would be able 1. To tell the possible number of zeroes for a given polynomial. 2. To find zeros of linear, quadratic and cubic polynomial algebraically. 3. To understand and verify the relationship	Assessment will be done on the basis of decided Rubrics

	10		3. To understand and verify the relationship between Zeroes and coefficients of a polynomial 4. To understand the geometrical meaning of zeroes and to read zeroes of a polynomial from given graph. 5. To find the polynomial when zeroes are known 6. To divide a polynomial of higher order by a polynomial of equal or lower order. 7. To express the division of two polynomials using division algorithm. 8. To find the remaining zeroes of the given polynomial	will change its direction	polynomial. N.C.E.R.T	between Zeroes and coefficients of a polynomial 4. To understand the geometrical meaning of zeroes and to read zeroes of a polynomial from given graph. 5. To find the polynomial when zeroes are known. 6. To divide a polynomial of higher order by a polynomial of equal or lower order. 7. To express the division of two polynomials using division algorithm. 8. To find the remaining zeroes of the given polynomial 9. To learn in physics to measure of acceleration or to express energy and to understand projectile motion. 10. To understand where the curve will change its direction	
May	9	Pair of Linear equations in two variables	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.	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	To obtain the conditions for consistency or inconsistency of given pairs of linear equations in two variables by graphical method. N.C.E.R.T	Students would be able to 1. Generate linear equation from word problem. 2. Verify that given system of linear equation consistent or inconsistent s 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. 6. Understand that If two unknown quantities	Assessment will be done on the basis of decided Rubrics.

				distance and financial budget.		are to be evaluated then we necessarily need to have two conditions/ criteria related to them. 7. They can formulate the pair of equations in two variables and consequently solve them.For example situations based on Measurements, angles of polygon, Cost of articles, Profit loss, discount , speed distance, time and work, height and distance and financial budget.	
July	10	Quadratic Equations	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	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).	School swimming pool dimension will be given and various questions will be asked. N.C.E.R.T	Students would 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 7. Practice of topics of quadratic equation helps students to think logically. 8. Student can calculate average speed of a moving object (cycle, motorboat) without speedometer 9. Quadratic equations are often the first problems student encounter that has multiple solutions (one or none)	Assessment will be done on the basis of decided Rubrics.

Jul y	11	Arith metic Progr ession	Students will be able to 1 Understand the concepts of given pattern as sequence 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.	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.	1. From given pattern find A.P. 2. To construct A.P. from given parameter. 3. Question on daily life 4. Sum of n natural number 5. Sum of n odd natural number. N.C.E.R.T	Students would be able to: 1 Understand the concepts of given pattern as sequence 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. 8 Represent situations from daily life by using progressions.	
August	16	Simila r Trian gles	Students will be able to, 1. Define Similarity and its Criteria. 2. Differentiate between congruency and similarity. 3. State and prove Basic Proportionality theorem. 4. State and prove Pythagoras theorem and its converse 5. State and prove Area Theorem 6. Solve question based on the application of the above mentioned theorem.	Students will be able to 1. Visualize and apply Reasoning. 2. Develop decision making and different approaches for solving problem	1. Figures to explain the difference between congruency and similarity. 2. Justification of similar triangle. 3. Verification of BPT N.C.E.R.T	Students would be able to: 1. Define Similarity and its Criteria 2. Differentiate between congruency and similarity. State and prove Basic Proportionality theorem 3. State and prove Pythagoras theorem and its converse 4. State and prove Area Theorem 5. Solve question based on the application of the above mentioned theorem. 6. Develop Reasoning, Visualizing & Decision making (Activity) 7. Appreciate different approaches of solving problem.	Assessment will be done on the basis of decided Rubrics.

August	6	Coordinate Geometry	To enable the students to understand and apply: 1. Concept of Cartesian geometry 2. Distance between two points 3. Section formula 4. Area of triangle 5. Area of quadrilateral	Students will attain following 1. Rational thinking 2. Logical Thinking 3. Appreciate different approach for plane geometry	Activity on finding distance from town A to town B N.C.E.R.T	Students would be able to learn: 1. Concept of Cartesian geometry 2. Distance between two points 3. Section formula 4. Area of triangle 5. Area of quadrilateral 6. Rational thinking 7. Logical Thinking 8. Appreciate different approach for plane geometry	Assessment will be done on the basis of decided Rubrics.
September	12	Introduction to Trigonometry	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°) 3. Trigonometric Identities 4. Applications of Trigonometric Identities	Students will attain 1. Application of trigonometric ratios in a right triangle. 2. Use of trigonometric identities to prove other trigonometric identities	To verify T ratio for a particular angle in different triangle. N.C.E.R.T	Students would be able 1. Understand the concept of trigonometry 2. Understand and apply trigonometric ratios of some specific angles 3. To apply trigonometric ratios of complementary angles and trigonometric identities	On the basis of decided Rubrics.
September	8	Height and Distance	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	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) .	1.student will make a clinometers 2.To find height of object using Clinometers. N.C.E.R.T	Students would be able to learn / define / apply 1. Line of sight 2. Angle of elevation 3. Angle of depression 4.To analyze and visualize the given situation 5. To draw the appropriate diagram 6. To apply T – Ratios from the diagram 7.To calculate the heights/distances ofhe given objects 8.To decide (measure accurately) the angles by using clinometers 9. Team sprit & Estimation	On the basis of decided Rubrics.
		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 for proof of further theorems in	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	1. Relation between line and circle for different cases 2. Number of	Students would be able to, 1. Define Meaning of circle and various terms such as chord, diameter, centre, circumference, segment and sector etc, Apply chord properties for proof of further	Assessment will be done on the basis of decided Rubrics.

October	10		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.	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	tangents to two circles in different categories 3. To verify for lengths of tangents to a circle. N.C.E.R.T.	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. 9. After getting the concept of tangents student will think critically the application of these properties in their day to day life like 10. In determining the best position a soccer player should be when parallel to the sidelines, to score a goal. 11. Rotation of wheels on road. 12. In building infrastructure roads sidewalls pipe runs it is very important to know where a point of tangent begins and the curve ends. 13. Tangent to a curve is used for finding instantaneous velocity in physics	
October	5	Const ructio ns	Students will be able to, 1. Divide a line in the given ratio. 2. Construct similar triangle with respect to the given ratio. 3. Construct a tangent to a point on the circle. 4. Construct tangents to a circle from external point at a given distance.	Student will be able to 1. Achieve desired goal by systematic approach. 2. Develop their creativity as well as imagination skills 3. Learn to do work with accuracy and precision. 4. Acquire the skill of drawing figure	Construction of similar triangles & tangents to a circle under different cases. N.C.E.R.T	Students would be able to, 1. Divide a line in the given ratio. 2. Construct similar triangle with respect to the given ratio. 3. Construct a tangent to a point on the circle. 4. Construct tangents to a circle from external point at a given distance. 5. Achieve desired goal by systematic approach.	Assessment will be done on the basis of decided Rubrics.

						6. Develop their creativity as well as imagination skills 7. Learn to do work with accuracy and precision. 8. Acquire the skill of drawing figure.	
November	9	Area 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. 4. Understand and apply the formula for finding area of a segment. 5. Find the areas of combination of plane figures.	Students will be able to, The concept studied in day to day life situation like: - Slice a circular pizza base, cakes etc.	Derivation of area of circle. N.C.E.R.T	Students would 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. 4. Understand and apply the formula for finding area of a segment. 5. Find the areas of combination of plane figures. 6. The concept studied in day to day life situation like: - Slice a circular pizza base, cakes etc	On the basis of decided Rubrics.
November	22	Surface Area and Volume	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. 7. Define the concept of the frustum of a cone. 8. Calculate the surface area and volume of a	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	To find SA and volumes of a model prepared by students. N.C.E.R.T	Students would 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. 7. Define the concept of the frustum of a cone. 8. Calculate the surface area and volume of a	Assessment will be done on the basis of decided Rubrics.

			frustum of a cone. 9. Solve some problems related to daily life situations involving surface areas and volumes of combination of solids. 10. Write the proper units as per requirement of the question.			frustum of a cone. 9. Solve some problems related to daily life situations involving surface areas and volumes of above solid figures. 10. Apply the proper units as per requirement of the question. 11. Use concrete models to derive formula for finding surface area and volume of 3-D shapes. 12. In engineering volume and area are very important without volume we can't figure out density or capacity 13. Prevents themselves from being cheated like if they were able to calculate paint required length of carpet to cover the floor pre hand.	
December	6	Probability	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	After completion of the topic students will be able to use and apply concept in day to 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 cricket match .For example, the toss of a coin between the captains to decide which team would bat/ball first.	Explanation of probability by using pack of cards. N.C.E.R.T	Students would 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. 3. After completion of the topic students will be able to use and apply concept in day to day life situations like: 4. Probability is used in various occupations such as healthcare insurance, Insurance companies uses this to decide on financial policies 5. It is widely used in the study of Mathematics, Statistics, Gambling, Physical sciences, Biological sciences, advertising, farming and weather forecasting. 6. Role of probability in cricket match .For example, the toss of a coin between the captains to decide which team would bat/ball first.	Assessment will be done on the basis of decided Rubrics.
		Statistics	Students will be able to: 1. Calculate the mean, median and mode of	Teacher may give some scenarios to the students and ask them which	Finding mean, mode and median	Students would be able to, 1. Calculate the mean, median and mode of	Assessment will be done

January	14		ungrouped 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. 4. Find the median of ungrouped data with odd number of observation. 5. Find the median of ungrouped data with even number of observation. 6. Find the median of grouped data. 7. Represent cumulative frequency distribution as an OGIVE. 8. Find median with the help of OGIVE	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 mode) 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)	of heights and weights of student of the class. N.C.E.R.T	ungrouped 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. 4. Find the median of ungrouped data with odd number of observation. 5. Find the median of ungrouped data with even number of observation. 6. Find the median of grouped data. 7. Represent cumulative frequency distribution as an OGIVE 8. Find median with the help of OGIVE 9. Practical use of mean,median and mode.	on the basis of decided Rubrics.
January - February		REVISION for Board Examination					