BCM SCHOOL

A Sr. Sec School Affiliated to CBSE,New Delhi

Annual Academic Calendar

Class : IX **Subject : Maths** **Session 2020-2021**

BOOK : NCERT MATHEMATICS -10

MONTH	CHAPTER(TOPIC & SUBTOPICS)	LEARNING OUTCOME	RESOURCE	ACTIVITIES
APRIL	**UNIT – 1 Number System** 1. Review of representation of natural numbers, integers, rational numbers on the number line. Rational numbers as recurring/ terminating decimals. Operations on real numbers. 2. Examples of non-recurring/non-terminating decimals. Existence of non-rational numbers (irrational numbers) such as √2, √3 and their representation on the number line. 3. Rationalization (with precise meaning) of real numbers of the type $\frac{1}{\sqrt{a}+\sqrt{b}}$ and $\frac{1}{a+b\sqrt{x}}$ (and their combinations) where x and y are natural number and a and b are integers. 4. Recall of laws of exponents with integral powers. Rational exponents with positive real bases (to be done by particular cases, allowing learner to arrive at the general laws.	Students will learn representation of real numbers on number line and rationalization of real numbers.	National Digital Library of India(NDLI) Link: http://ndl.iitkgp.ac.in Diksha App Link to CBSE website: www.cbseacademic.nic.in	Represent square root spiral on number line. Link will be provided.
May	**UNIT – 2 Polynomial** Definition of a polynomial in one variable, with examples and counter examples. Coefficients of a polynomial, terms of a polynomial and zero polynomial. Degree of a polynomial. Constant, linear, quadratic and cubic polynomials. Monomials, binomials, trinomials. Factors and multiples. Zeros of a polynomial. Factorization of ax2 + bx + c, a ≠ 0 where a, b and c are real	Students will learn basic terms of polynomials and factorization of polynomials using algebraic identities.	National Digital Library of India(NDLI) Link: http://ndl.iitkgp.ac.in Diksha App Link to CBSE website: www.cbseacademic.nic.in	Geometric representation of algebraic expression of $(a + b+ c)^2 = a^2+ b^2 +c^2 +2ab + 2bc +2ca$ Link will be provided.

	numbers, and of cubic polynomials using the Factor Theorem. Recall of algebraic expressions and identities. Verification of identities: $(x+y+z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$ $(x \pm y)^3 = x^3 \pm y^3 \pm 3xy(x \pm y)$ $X^3 \pm y^3 = (x \pm y)(x^2 \mp xy + y^2)$ and their use in factorization of polynomials. **UNIT – 3 Co-ordinate Geometry** The cartesian plane, coordinates of a point, names and terms associated with the coordinate plane, notations , plotting points in the plane. **UNIT - 4 Linear equations in two variables** Recall of linear equation in one variable. Introduction to the equation in two variables. Focus on linear equations of the type ax + by +c =0. Explain that a linear equation in two variables has infinitely many solutions and justify their being written as ordered pair of real numbers, plotting them and showing that they lie on a line. Graph of linear equation in two variables. Examples, problems from real life with algebraic and graphical solutions being done simultaneously.	Students will learn plotting of points in the plane and graph of linear equation in two variables.		Mind map Activity To find the hidden figure by plotting and joining the various points with given co-ordinates in a plane. Link will be provided. To obtain a linear equation and draw a graph which represents the linear equation. Link will be provided.
JUNE	SUMMER **VACATION**			
JULY	**UNIT – 14 Statistics** Introduction to statistics : Collection of data , presentation of data – tabular form , ungrouped / grouped , bar graphs **UNIT -15 PROBABILITY**	Students will learn tally marks, Bar graph, Histogram	National Digital Library of India(NDLI) Link: http://ndl.iitkgp.ac.in	

	History, Repeated experiments and observed frequency approach to probability. Focus is on empirical probability.(A large amount of time to be devoted to groupand to individual activities to motivate the concept , the experiments to be drawn from real life situations and from examples used in the chapter on statistics) **UNIT – 6 Lines and Angles** 1. (Motivate) If a ray stands on a line , then the sum of the two adjacent angles so formed is 180^0 and the converse 2.(Prove) If two lines intersect, vertically opposite angles are equal. 3.(Motivate) Result on corresponding angles , alternate angles , interior angles when transversal intersects two parallel lines. 4. (Motivate) Lines which are parallel to a given line are parallel. 5.(Prove) The sum of the angles of a triangle is 180^0 6. (Motivate) If a side of triangle is produced, the exterior angle so formed is equal to sum of the two interior opposite angles.		Diksha App Link to CBSE website: www.cbseacademic.nic.in	Verify that the sum of angles in a triangle is 180°. Link will be provided.
August	**UNIT -7 TRIANGLES** **1.** (Motivate) Two triangles are congruent if any two sides and the included angle of one triangle is equal to any two sides and the included angle of the other triangle.(SAS Congruence) 2.(Motivate) Two triangles are congruent if the three sides one triangle are equal to three sides of the other triangle. (SSS Congruence) 3.(Motivate) Two right triangles are congruent if the hypotenuse and a side	Students will learn different types of congruence rules.	National Digital Library of India(NDLI) Link: http://ndl.iitkgp.ac.in Diksha App Link to CBSE website: www.cbseacademic.nic.in	To verify that the sum of any two sides of a triangle is always greater than the third side and difference of any two sides. Link will be provided. Crossword Puzzle.

	of one triangle are equal (respectively) to the hypotenuse and a side of the other triangle. (RHS Congruence) 4. (Prove) The angles opposite to equal sides of a triangle are equal. 5. (Motivate) The sides opposite to equal angles of a triangle are equal. **UNIT - 8 QUADRILATERALS** 1. (Prove) The diagonal divides a parallelogram into two congruent triangles. 2. (Motivate) In a parallelogram opposite sides are equal, and conversely. 3. (Motivate) In a parallelogram opposite angles are equal, and conversely. 4. (Motivate) A quadrilateral is a parallelogram if a pair of its opposite sides is parallel and equal. 5. (Motivate) In a parallelogram, the diagonals bisect each other and conversely. 6. (Motivate) In a triangle, the line segment joining the mid points of any two sides is parallel to the third side and in half of it and (motivate) its converse.	Students will learn different types of quadrilaterals and use of mid point theorem.		To show that the area of a parallelogram is product of its base & altitude using cutting & pasting method. Link will be provided.
September	**Revision and Half yearly examination**			
October	**UNIT – 10 Circles** Through examples, arrive at definition of circle and related concepts-radius, circumference, diameter, chord, arc, secant, sector, segment, subtended angle. 1. (Prove) Equal chords of a circle subtend equal angles at the center and (motivate) its converse. 2. (Motivate) The perpendicular from the center of a circle to a chord bisects the chord and conversely, the line drawn through the	Students will learn different parts of circle.	National Digital Library of India(NDLI) Link: http://ndl.iitkgp.ac.in Diksha App Link to CBSE website: www.cbseacademic.nic.in	To Verify angle subtended by an arc of the circle at the center of circle is double the angle subtended by same arc in the remaining part of the circle. Link will be provided.

	center of a circle to bisect a chord is perpendicular to the chord. 3. (Motivate) Equal chords of a circle (or of congruent circles) are equidistant from the center (or their respective centers) and conversely. 4. (Prove) The angle subtended by an arc at the center is double the angle subtended by it at any point on the remaining part of the circle. 5. (Motivate) Angles in the same segment of a circle are equal. 6. (Motivate) The sum of either of the pair of the opposite angles of a cyclic quadrilateral is 180° and its converse. **Unit – 11 Constructions** 1. Construction of bisectors of line segments and angles of measure 60°, 90°, 45° etc., equilateral triangles. 2. Construction of a triangle given its base, sum/difference of the other two sides and one base angle.			To verify that the area of triangles on the same base and between the same parallel lines are equal. Link will be provided. To find the following with the use of paper cutting & folding. a) mid-pt of a line segment. b) ⊥ bisector of a line segment. c) ⊥ to a line from a point given outside it. Link will be provided.
November	**UNIT – 12 Heron's formula** Area of a triangle using Heron's formula (without proof) **UNIT – 13 Surface area and Volume** Surface areas and volumes of cubes, cuboids, spheres (including hemispheres) and right circular cylinders/cones.	Students will learn use of heron's formula and to find area and volume of cube, cuboid, sphere, cylinder and cone.	National Digital Library of India(NDLI) Link: http://ndl.iitkgp.ac.in Diksha App Link to CBSE website: www.cbseacademic.nic.in	
December And January	**Revision of whole Syllabus**			

DECUCTED PORTION

CHAPTER	TOPICS REMOVED
UNIT I-NUMBER SYSTEMS	
REAL NUMBERS	• Representation of terminating / non-terminating recurring decimals on the number line through successive magnification. • Explaining that every real number is represented by a unique point on the number line and conversely, viz. every point on the number line represents a unique real number. • Definition of nth root of a real number.
UNIT II-ALGEBRA	
POLYNOMIALS	• Motivate and State the Remainder Theorem with examples. Statement and proof of the Factor Theorem. • $x^3+y^3+z^3-3xyz$
LINEAR EQUATIONS IN TWO VARIABLES	• Examples, problems on Ratio and Proportion
UNIT III-COORDINATE GEOMETRY	
COORDINATE GEOMETRY	No deletion
UNIT IV-GEOMETRY	
INTRODUCTION TO EUCLID'S GEOMETRY	Delete the Chapter
LINES AND ANGLES	No deletion
TRIANGLES	• Proof of the theorem deleted- Two triangles are congruent if anytwo angles and the included side of one triangle is equal to any two angles and the included side of the other triangle (ASA Congruence). • Topic Deleted-Triangle inequalities and relation between 'angle and facing side' inequalities in triangles
QUADRILATERALS	No deletion
AREA	Delete the Chapter
CIRCLES	• There is one and only one circle passing through three given non-collinear points. • If a line segment joining two points subtends equal angle at twoother points lying on the same side of the line containing the segment, the four points lie on a circle.
CONSTRUCTIONS	• Construction of a triangle of given perimeter and base angles
UNIT V-MENSURATION	
AREAS	• Application of Heron's Formula in finding the area of aquadrilateral.
SURFACE AREAS AND VOLUMES	No deletion
UNIT VI-STATISTICS & PROBABILITY	
STATISTICS	• Histograms (with varying base lengths), • Frequency polygons. • Mean, median and mode of ungrouped data.
PROBABILITY	No deletion