The Camford International School

ANNUAL LESSON PLAN 2023-2024

GRADE : 11   **SUBJECT : MATHEMATICS(041)**

MONTH	CHAPTER NO. AND NAME	DETAIL CONCEPTS TO BE COVERED
APRIL	1.Sets	Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of a set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and Intersection of sets.
	2.Relations and Functions	Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself (R x R only).
	3.Trigonometric Functions	Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another.

MAY	2.Relations and Functions	Identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. domain and range of these functions, constant, Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions,
	3.Trigonometric Functions	Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin2x + \cos2x = 1$, for all x. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs..

JUNE	3.Trigonometric Functions	Expressing sin (x±y) and cos (x±y) in terms of sinx, siny, cosx & cosy and their simple applications. Identities related to sin2x, cos2x, tan2 x, sin3x, cos3x and tan3x.
	5.Complex Numbers	Need for complex numbers, especially$\sqrt{-1}$, to be motivated by inability to solve some of the quardratic equations. Algebraic properties of complex numbers. Argand plane. Statement of Fundamental Theorem of Algebra, solution of quadratic equations (with real coefficients) in the complex number system.
	6. Linear Inequalities	Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Graphical method of finding a solution of system of linear inequalities in two variables
	7.Permutations and Combinations	Fundamental principle of counting. Factorial n. (n!)Permutations and combinations, formula for nPr and nCr, simple applications.
	9.Sequences and Series	Sequence and Series. Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P.,

JULY	8.Binomial Theorem	Historical perspective, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications.
	9.Sequences and Series	Sum of n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M.
	10.Straight lines	Brief recall of two dimensional geometry from earlier classes. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point -slope form, slope-intercept form, two-point form, intercept form and normal form.
	11.Conic sections	Sections of a cone: circles, ellipse, parabola, hyperbola. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.
AUGUST	11.Conic sections	Standard equations and simple properties of parabola, ellipse and hyperbola.
	10.Straight lines	General equation of a line. Distance of a point from a line.
	13.Limits	Limits Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic function

SEPTEMBER	13. Derivatives	Derivative introduced as rate of change both as that of distance function and geometrically. Definition of Derivative, relate it to scope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.
	12. 3D Geometry	Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points.
OCTOBER	15.Probability	Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events
	14. Statistics	Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data.