Class 10 Mathematics Syllabus 2024 – 2025

Unit Number	Name	Detailed Topics
Unit 1	**Number Systems**	Fundamental Theorem of Arithmetic - statements after reviewing work done earlier and after illustrating and motivating through examples. Decimal representation of rational numbers in terms of terminating/non-terminating recurring decimals.
Unit 2	**Algebra**	
1.	**Polynomials**	Zeros of a polynomial. Relationship between zeroes and coefficients of quadratic polynomials only.
2.	**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 and by elimination. Simple situational problems. Simple problems on equations reducible to linear equations.
3.	**Quadratic Equations**	A quadratic equation in standard form is $ax^2+bx+c=0, (a\neq0)$. Factorization and the quadratic formula are used to solve quadratic equations (only real roots). The relationship between the discriminant and the nature of the roots. To be included are quadratic equation-based situational situations relating to daily activities.
4.	**Arithmetic Progressions**	The reason you want to learn about Arithmetic Progression? The nth term and the sum of the first n terms of A.P. are deduced and used to solve difficulties in everyday life.
Unit 3	**Coordinate Geometry**	LINES (In two-dimensions) **Review:** Concepts of coordinate geometry, graphs of linear equations. Distance formula. Section formula (internal division)
Unit 4	**Geometry**	
1.	**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.
		6. (Motivate) If a perpendicular is drawn from the vertex of the right angle of a right triangle to the hypotenuse, the triangles on each side of the perpendicular are similar to the whole triangle and to each other.
		7. (Motivate) The ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.
		8. (Prove) In a right triangle, the square on the hypotenuse is equal to the sum of the squares on the other two sides.
		9. (Motivate) In a triangle, if the square on one side is equal to sum of the squares on the other two sides, the angle opposite to the first side is a right angle.
2.	**Circles**	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.
Unit 5	**Trigonometry**	
1.	**Introduction To Trigonometry**	Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined). Values of the trigonometric ratios of 30°, 45° and 60°. Relationships between the ratios.
2.	**Trigonometric Identities**	Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given
3.	**HEIGHTS AND DISTANCES: Angle of elevation, Angle of Depression.**	Simple height and distance problems. There should be no more than two right triangles in a problem. Elevation/depression angles should be no more than 30°, 45°, and 60°.
Unit 6	**Mensuration**	
1.	**Areas Related To Circles**	Motivate the area of a circle; area of sectors and segments of a circle. Problems based on areas and perimeter/circumference of the above said plane figures. (In calculating the area of a segment of a circle, problems should be restricted to the central angle of 60° and 90° only. Plane figures involving triangles, simple quadrilaterals and circles should be taken.)
2.	**SURFACE AREAS AND VOLUMES**	Surface areas and volumes of any two of the following combinations: cubes, cuboids, spheres, hemispheres, and right circular cylinders/cones.

Unit 7	Statistics & Probability	
1.	Statistics	Mean, Median and Mode of grouped data (bimodal situation to be excluded).
2.	Probability	Classical definition of probability. Simple problems on finding the probability of an event.