CBSE Class 11 Maths Updated Syllabus

CBSE Class 11 Maths Syllabus Course Structure

The table below shows the course structure and marks distribution in the updated Maths Class 11 Syllabus.

Unit	No. of Periods	Marks
Sets and Functions	60	23
Algebra	50	25
Coordinate Geometry	50	12
Calculus	40	8
Statistics and Probability	40	12
Total	240	80
Internal Assessment		20

Quick Overview of Maths Class 11 Syllabus

The Class 11 Maths Syllabus provides interesting chapters and topics. It starts with the basics of mathematics and later into complex concepts. Check out the description below for a breakdown of what you'll be learning in each unit.

Unit-I: Sets and Functions

1. **Sets**

Sets and their representations, Empty sets, Finite and Infinite sets, Equal sets, Subsets, and Subsets of a set of real numbers especially intervals (with notations). Universal set. Venn

diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement.

2. **Relations & 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 (upto R x R x R).Definition of relation, pictorial diagrams, domain, co-domain, and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain, and range of a function. Real valued functions, domain, and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic, and greatest integer functions, with their graphs. Sum, difference, product, and quotients of functions.

3. **Trigonometric Functions**

Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. The truth of the identity sin2x + cos2x = 1, for all x. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing sin (x±y) and cos (x±y) in terms of sinx, siny, cosx & cosy and their simple applications. Deducing identities like the following:

Unit-II: Algebra

1. **Complex Numbers and Quadratic Equations**

Need for complex numbers, especially -1 to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane.

2. **Linear Inequalities**

Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line.

3. **Permutations and Combinations**

Fundamental principle of counting. Factorial n. Permutations and combinations, derivation of Formulae for nr and nCr and their connections, simple applications.

4. Binomial Theorem

Historical perspective, statement, and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications.

5. Sequence and Series

Sequence and Series. Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., the sum of n terms of a G.P., infinite G.P., and its sum, geometric mean (G.M.), the relation between A.M. and G.M.

Unit-III: Coordinate Geometry

1. Straight Lines

Brief recall of two-dimensional geometry from earlier classes. The slope of a line and the angle between two lines. Various forms of equations of a line: parallel to the axis, point-slope form, slope-intercept form, two-point form, intercept form, and Distance of a point from a line.

2. Conic Sections

Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line, and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse, and hyperbola. Standard equation of a circle.

3. Introduction To Three-Dimensional Geometry

Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points.

Unit-IV: Calculus

1. **Limits and Derivatives**

Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential, and logarithmic functions. The definition of derivative relates to the slope of the tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.

Unit-V Statistics and Probability

1. **Statistics**

Measures of Dispersion: Range, Mean deviation, variance, and standard deviation of ungrouped/grouped data.

2. **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.

CBSE Maths Class 11 Syllabus - Question Paper Design

The Central Board of Secondary Education (CBSE) has released the question paper design for the upcoming academic year Maths exam for Class 11. This breakdown outlines the format and types of questions you can expect for the test.

CBSE Maths Class 11 Syllabus - Question Paper Design		
Typology of Questions	**Total Marks**	**% Weightage**
Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. **Understanding:** Demonstrate understanding of facts and ideas by organising, comparing, translating, interpreting, giving descriptions, and stating main ideas.	44	55
Applying: Solve problems in new situations by applying acquired knowledge, facts, techniques, and rules in a different way.	20	25
Analysing: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalisations. **Evaluating:** Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. **Creating:** Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	16	20
TOTAL	80	100

Internal Assessment

Internal Assessment	
Component	**Marks**
Periodic Tests (Best 2 out of 3)	10
Mathematics Activities	10
Total	20

Conduct of Periodic Tests:

Periodic Test is a Pen and Paper assessment which is to be conducted by the respective subject teacher. The format of the periodic tests must have question items with a balanced mix, such as very short answer (VSA), short answer (SA), and long answer (LA) to effectively assess the knowledge, understanding, application, skills, analysis, evaluation and synthesis. Depending on the nature of the subject, the subject teacher will have the liberty of incorporating any other types of questions too.

The modalities of the PT are as follows:

a) Mode: The periodic test is to be taken in the form of a pen-paper test.

b) Schedule: In the entire Academic Year, three Periodic Tests in each subject may be conducted as follows:

Periodic Test	
Test	**Tentative Month**
Pre Mid-term (PT-I)	July-August
Mid-Term (PT-II)	November
Post Mid-Term (PT-III)	December-January

Assessment of Activity Work:

Throughout the year any 10 activities shall be performed by the student from the activities given in the NCERT Laboratory Manual for the respective class XI which is available on the link for NCERT official record of the same may be kept by the student.

A year-end test on the activity may be conducted The weightage is as under:

- The activities performed by the student throughout the year and record keeping: 5 marks
- Assessment of the activity performed during the year-end test: 3 marks
- Viva-voce: 2 marks

Prescribed Books:

1) Mathematics Textbook for Class XI, NCERT Publications

2) Mathematics Exemplar Problem for Class XI, Published by NCERT

3) Mathematics Lab Manual Class XI, published by NCERT