School Connect Online

SCO INTERNATIONAL OLYMPIAD

CLASS 11 SYLLABUS

SCO International Maths Olympiad

A comprehensive syllabus guide for students, teachers, schools, and parents

Designed from Class 11 syllabus pathways and aligned with SCO's platform flow for guided preparation, practice, reporting, and future-ready academic growth.

- age-fit guidance for high-school learners preparing for college-level mathematics
- chapter-wise learning outcomes across algebra, geometry, calculus, statistics, probability and reasoning
- preparation roadmap, assessment blueprint and classroom implementation ideas for olympiad readiness

Sets	Functions	Algebra	Geometry
Calculus	Stats	Probability	

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SCO International Maths Olympiad - Class 11 Official Syllabus

This syllabus is designed to help students, teachers, schools and parents understand the Class 11 Maths Olympiad learning pathway at a glance. It supports analytical thinking, multi-step problem solving, proof readiness and application of mathematical ideas in unfamiliar problems.

Class	Subject	Exam Type	Focus
11	Mathematics	Objective Olympiad	Concept + Reasoning

Chapter-wise Syllabus with Learning Outcomes

No.	Chapter	Small Chapter Note	Learning Outcome
1	**Sets**	Develop understanding of set notation, representations, intervals, Venn diagrams, union, intersection, difference and complement.	Identify set relationships, solve practical problems using Venn diagrams, and apply set operations in counting and probability.
2	**Relations and Functions**	Study ordered pairs, Cartesian products, domain, co-domain, range and the concept of function as a special relation.	Represent functions graphically and algebraically, determine domain/range, and evaluate composite expressions.
3	**Trigonometric Functions**	Develop trigonometric functions using angle measure, unit-circle ideas, identities and graphs.	Convert between radians and degrees, use identities, and solve standard trigonometric expressions.
4	**Principle of Mathematical Induction**	Learn proof by induction as a formal method for statements involving positive integers.	Write base case, induction hypothesis and induction step for algebraic and divisibility statements.
5	**Complex Numbers and Quadratic Equations**	Introduce complex numbers, Argand plane, modulus, algebra of complex numbers and quadratic solutions.	Solve quadratics in the real/complex system and interpret complex numbers geometrically.
6	**Linear Inequalities**	Study algebraic and graphical solutions of linear inequalities in one and two variables.	Solve inequalities correctly, represent intervals and identify feasible regions.
7	**Permutations and Combinations**	Use the fundamental principle of counting, factorial notation, permutations and combinations.	Distinguish arrangement from selection and solve multi-step counting problems.
8	**Binomials**	Explore binomial theorem, Pascal triangle, general terms, middle terms and independent terms.	Expand binomial expressions and identify selected coefficients efficiently.

9	**Sequences and Series**	Study arithmetic and geometric progressions, means, finite/infinite sums and related patterns.	Find nth terms, sums and apply series ideas in growth and pattern problems.
10	**Straight Lines**	Learn slopes, angles between lines, equation forms and point-to-line distance.	Build equations of lines and solve coordinate-geometry problems accurately.
11	**Conic Sections**	Study circle, parabola, ellipse and hyperbola in standard forms with key properties.	Recognise conic equations, find parameters and interpret geometric meaning.
12	**Introduction to Three Dimensional Geometry**	Introduce axes, planes, coordinates and distance in 3D space.	Locate points in three dimensions and compute distances using coordinate formulae.
13	**Limits and Derivatives**	Build intuitive limits, standard limits, derivative as rate of change and tangent slope.	Evaluate basic limits and compute derivatives of standard algebraic/trigonometric functions.
14	**Mathematical Reasonings**	Study statements, connectives, implications, converse and contrapositive reasoning.	Form valid logical arguments and analyse mathematical statements.
15	**Statistics**	Study measures of dispersion such as range, mean deviation, variance and standard deviation.	Interpret variability and compare data sets using appropriate dispersion measures.
16	**Probability**	Understand random experiments, events, mutually exclusive/exhaustive events and axiomatic probability.	Calculate probabilities using set operations, complements and simple event combinations.
17	**Basic Mathematics**	Strengthen algebraic manipulation, approximation, significant figures and prerequisite skills.	Use foundational skills confidently to support olympiad-level problem solving.

Exam Concept and Pedagogical Focus

Algebra and Pre-Calculus

Students build fluency in functions, equations, inequalities, sequences, binomial reasoning and proof structures. The goal is not only to apply formulas but also to select the right method under exam pressure.

Geometry and Trigonometry

Students connect graphs, coordinates, conics and trigonometric identities with visual and analytic reasoning. Problems may require interpreting equations, diagrams, distances, slopes and angle relationships.

Calculus Readiness

Limits and derivatives introduce students to rate of change, tangent slope and foundational calculus thinking. Questions are designed to strengthen conceptual readiness for senior secondary and higher education mathematics.

Statistics and Probability

Students learn to quantify uncertainty, interpret data dispersion and apply event logic. This supports decision-making, data analysis and future STEM learning.

Recommended Preparation Roadmap

Preparation Stage	What Students Should Do
Foundation Review	Revise definitions, formulas, graphs and notation for every chapter.
Concept Practice	Solve basic and medium problems before attempting multi-step olympiad questions.
Reasoning Practice	Use short proofs, counterexamples, Venn diagrams, coordinate sketches and estimation checks.
Timed Mock Practice	Attempt full-length papers with no calculator and review errors chapter-wise.
Performance Review	Track accuracy, speed, skipped questions and repeated mistakes after each mock test.

Assessment Blueprint for Schools

The olympiad paper can combine direct concept recall, application-based questions, reasoning/assertion style items, case-based coordinate geometry or probability questions, and achievers-level multi-step problems. Schools can use this syllabus to plan weekly concept revision, practice sheets, short quizzes, and mock-test analysis.