

SCO INTERNATIONAL MATHS OLYMPIAD

CLASS 10 SYLLABUS

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

Designed from Class 10 mathematics syllabus pathways and aligned with SCO's platform flow for guided preparation, practice, reporting, and future-ready academic growth.

- exam-ready chapter map for Class 10 learners globally
- clear learning outcomes for school and home preparation
- balanced focus on conceptual fluency, problem solving, reasoning, and application

Maths	Algebra	Geometry	Trigonometry	Statistics
Mensuration	Reasoning	Case Study	Achievers	Practice

SCO International Maths Olympiad - Class 10 Syllabus

This syllabus document is designed for students, teachers, schools, and parents. It gives a quick but meaningful view of each chapter, the learning outcomes, and the preparation direction expected for an international olympiad-style assessment.

Exam Orientation

Area	Learning Focus	Olympiad Relevance	Expected Competency
Algebra	Real numbers, polynomials, equations, AP	Builds symbolic reasoning and structured problem solving	Manipulate expressions, solve equations, and justify methods
Geometry	Triangles, circles, constructions, coordinate geometry	Develops spatial reasoning and proof-readiness	Use diagrams, theorems, and coordinate formulas
Trigonometry	Ratios, identities, heights and distances	Connects mathematics with measurement and modelling	Choose correct ratio, form equation, solve context
Mensuration	Area, volume, surface area, composite solids	Strengthens applied quantitative reasoning	Model solid and plane figures accurately
Statistics & Probability	Data summaries, central tendency, probability	Builds interpretation and decision-making skills	Read data, calculate, compare, and infer

Chapter-wise Syllabus Notes and Learning Outcomes

1 Real Numbers

Chapter note: Use the Fundamental Theorem of Arithmetic, HCF-LCM relationships, decimal expansions, and irrationality arguments to reason about number systems.

Learning outcome: Students identify number properties, use prime factorization for HCF/LCM, and explain irrationality using logical arguments.

2 Polynomials

Chapter note: Interpret zeros of polynomials, connect coefficients with roots, and use factorization and graphical reasoning in algebraic contexts.

Learning outcome: Students find zeros, factor polynomials, and connect roots with coefficients in problem-solving contexts.

3 Pair of Linear Equations in Two Variables

Chapter note: Solve pairs of equations using substitution, elimination, and graphical interpretation, including consistency and real-life modelling.

Learning outcome: Students form and solve simultaneous equations and interpret unique, no-solution, and infinitely-many-solution cases.

4 Quadratic Equations

Chapter note: Solve quadratic equations by factorization, completing the square, and formula methods; interpret roots and discriminant.

Learning outcome: Students select an appropriate method to solve quadratics and analyse nature of roots using the discriminant.

5 Arithmetic Progressions

Chapter note: Use n -th term and sum formulas to solve pattern, savings, distance, and sequence-based problems.

Learning outcome: Students detect sequence patterns, compute terms and sums, and solve real-life progression problems.

6 Triangles

Chapter note: Apply similarity, proportionality, Pythagoras theorem, medians, and area reasoning in geometric problems.

Learning outcome: Students apply similarity, congruence, Pythagoras theorem, and proportional reasoning with accurate diagrams.

7 Coordinate Geometry

Chapter note: Use distance, section, midpoint, slope, centroid, and area formulas to solve geometry on the Cartesian plane.

Learning outcome: Students calculate distance, section, slope, centroid, and area using coordinate methods.

8 Introduction to Trigonometry

Chapter note: Understand trigonometric ratios, identities, complementary angles, and values for standard angles.

Learning outcome: Students use trigonometric ratios and identities for standard angles and right-triangle modelling.

9 Some Applications of Trigonometry

Chapter note: Model height and distance situations using angles of elevation/depression and right-triangle trigonometry.

Learning outcome: Students solve heights-and-distances questions using angle of elevation/depression and correct triangle setup.

10 Circles

Chapter note: Apply tangent-radius relationship, equal tangents, chord properties, and cyclic reasoning.

Learning outcome: Students apply tangent and chord properties with theorem-based reasoning.

11 Constructions

Chapter note: Understand geometric construction logic and apply it to division of line segments, tangents, and similar figures.

Learning outcome: Students understand the logic behind geometric construction and its mathematical validity.

12 Areas Related to Circles

Chapter note: Calculate areas and perimeters of circles, sectors, segments, and combined plane figures.

Learning outcome: Students calculate sectors, segments, and combined circular regions accurately.

13 Surface Areas and Volumes

Chapter note: Solve problems involving cubes, cuboids, cylinders, cones, spheres, frustums, and combinations of solids.

Learning outcome: Students solve volume and surface area problems involving solids and conversions of solids.

14 Statistics

Chapter note: Analyse data using mean, median, mode, cumulative frequency, quartiles, and graphical representations.

Learning outcome: Students compute and interpret mean, median, mode, frequency distributions, and graphs.

15 Probability

Chapter note: Use classical probability, complement rule, simple events, and compound selection reasoning.

Learning outcome: Students calculate simple probabilities and use complement/addition reasoning in familiar contexts.

Suggested Assessment Blueprint

Section	Question Focus	Suggested Questions	Skills Tested	Difficulty Band
General Mathematics	Core syllabus application	25-30	Accuracy, concept recall, multi-step calculation	Easy to Moderate
Reason/Assertion	Mathematical reasoning and statement validation	10-12	Proof awareness, theorem logic, conceptual clarity	Moderate
Case Study	Context-rich applied problems	5-8	Modelling, interpretation, selection of method	Moderate to High
Achievers	Advanced challenge items	5-10	Olympiad strategy, creative reasoning, precision	High

Preparation Roadmap for Students, Teachers, Schools, and Parents

For Students: Build formula fluency, solve mixed-topic questions weekly, maintain an error notebook, and practise explaining each solution step clearly.

For Teachers: Use concept checks before formula drilling, encourage diagram-based reasoning, and include reason/assertion questions to strengthen proof-readiness.

For Schools: Use chapter-wise practice, mock papers, and performance analytics to support differentiated mathematics preparation.

For Parents: Encourage steady practice, confidence-building, and revision through short daily mathematics sessions instead of last-minute preparation.