School Connect Online

SCO INTERNATIONAL CHEMISTRY OLYMPIAD

RULES & REGULATIONS GUIDE

Class 8 to Class 12 syllabus pathways, exam guidance, and global chemistry olympiad readiness framework

Built from Class 8-12 Chemistry syllabus pathways and benchmarked against global Chemistry Olympiad expectations for conceptual depth, experimental reasoning, safety awareness, and scientific problem solving.

- age-appropriate progression from foundation chemistry to advanced physical, inorganic, organic, analytical, and environmental chemistry
- IChO-inspired pedagogy through higher-order reasoning, data interpretation, SI-unit discipline, and scientific communication
- secure online assessment rules for students, schools, teachers, and parents with transparent result and award guidance

Class 8	Class 9	Class 10	Class 11	Class 12
Safety	Exam Conduct	Proctored Mode	Awards	Preparation Roadmap

Document Contents

Use this guide as a publication-ready school and student information document for the SCO International Chemistry Olympiad.

Area	SCO Chemistry Olympiad Standard
Audience	Students of Class 8, Class 9, Class 10, Class 11, and Class 12; schools, teachers, coordinators, and parents.
Mode	Secure online Olympiad assessment with concept-based, application-based, numerical, data-interpretation, and case-based chemistry questions.
Global orientation	Benchmarked to international chemistry olympiad habits: deep conceptual clarity, experimental reasoning, SI units, safety awareness, and evidence-based problem solving.
Important distinction	SCO International Chemistry Olympiad is an SCO programme. IChO is referenced only as a global benchmark for pedagogy, examination depth, safety thinking, and chemistry-competition standards.
Public date format	Use DD MMM YYYY for single dates, for example 15 Jan 2027. Use DD MMM YYYY - DD MMM YYYY for date ranges, for example 15 Jan 2027 - 16 Feb 2027.
Publication policy	The final exam duration, question count, total marks, result date, and award rules must be published before each cycle and should match the student admit card/portal notice.

1. Purpose and Global Benchmark

The SCO International Chemistry Olympiad is designed to help learners move beyond memorisation and develop chemistry as a way of thinking: observing substances, explaining transformations, using evidence, interpreting data, and solving unfamiliar problems with scientific discipline.

The guide benchmarks the programme against global Chemistry Olympiad expectations, especially the structure and spirit of international chemistry competitions: strong theory, experimental reasoning, safety awareness, clear marking, SI-unit discipline, and high-quality problem design. Because SCO is a fully online global Olympiad, practical chemistry is assessed through experimental design, observation interpretation, data handling, reaction reasoning, safety judgement, and virtual/diagram-based problem contexts rather than wet-lab performance.

Global alignment statement

SCO Chemistry Olympiad questions should connect school chemistry with higher-order chemistry thinking: calculation, mechanism, structure-property reasoning, data interpretation, laboratory safety, environmental responsibility, and real-world applications. This supports students preparing for national curricula, future STEM pathways, and advanced Olympiad-style learning.

Core objectives

- Build chemistry foundations from materials, fuels, reactions, acids-bases, metals, non-metals, carbon chemistry, and periodicity.
- Progress Class 11 and Class 12 learners into physical chemistry, inorganic chemistry, organic chemistry, electrochemistry, kinetics, coordination chemistry, biomolecules, polymers, and chemistry in everyday life.
- Promote scientific reasoning through graph/table interpretation, balanced equations, stoichiometry, reaction pathways, evidence-based conclusions, and safe chemistry decisions.
- Support schools with a globally readable framework that is suitable for PDF publication, parent communication, teacher planning, and student preparation.

2. SCO Chemistry Olympiad Learning Framework

The learning framework is built around four levels of progression. Each level should be visible in the question paper, preparation content, practice assignments, and post-exam performance report.

Progression Level	Expected Learning Behaviour
Level 1: Concept Clarity	Definitions, laws, properties, formulae, equations, basic classifications, and safe lab vocabulary.
Level 2: Application	Applying concepts to household materials, fuels, reactions, pH, metals, non-metals, environmental issues, and everyday chemistry.
Level 3: Analytical Reasoning	Numerical chemistry, mole concept, periodic trends, thermodynamics, equilibrium, redox, electrochemistry, kinetics, spectroscopy-style interpretation, and data-based questions.
Level 4: Advanced Olympiad Thinking	Unfamiliar contexts, multi-step mechanisms, structure-property links, experimental planning, error analysis, green chemistry, and cross-topic synthesis.

Pedagogy principles

- Question blocks should test reasoning, not only direct recall. Students should be required to explain why an option is correct or incorrect during practice review.
- Each grade should contain a balance of direct concept questions, application questions, calculation/data questions, and higher-order caselets.
- Chemistry should be linked to sustainability, safe handling of substances, responsible use of resources, and real-world scientific decision-making.
- Students should be encouraged to solve past practice papers, review explanations, and maintain a chemistry error-log of formula, concept, calculation, and interpretation mistakes.

3. Grade-wise Syllabus and Learning Outcomes

The following syllabus is structured for Classes 8 to 12. It should be used for public communication, teacher planning, content creation, practice assignments, and final question-paper mapping.

Class 8

Chapter No.	Chapter Title	Key Learning Outcomes
1	Synthetic Fibres and Plastics	Polymer formation, properties, uses, and environmental impact.
2	Materials: Metals and Non-Metals	Physical and chemical characteristics, extraction ideas, uses, and simple reactivity comparison.
3	Coal and Petroleum	Composition, refining processes, fossil-fuel significance, conservation, and pollution concerns.
4	Combustion and Flame	Types of combustion, flame structure, fuels, fire safety, and responsible energy use.

Class 9

Chapter No.	Chapter Title	Key Learning Outcomes
1	Matter in Our Surroundings	States of matter, particle model, properties, interconversion, and classification.
2	Is Matter Around Us Pure?	Mixtures, compounds, solutions, suspensions, colloids, and separation techniques.
3	Atoms and Molecules	Law of conservation of mass, chemical formulae, molecular mass, and mole-concept foundations.
4	Structure of the Atom	Subatomic particles, isotopes, valency, and atomic models.

Class 10

Chapter No.	Chapter Title	Key Learning Outcomes
1	Chemical Reactions and Equations	Types of reactions, balancing methods, reaction conditions, oxidation-reduction basics.
2	Acids, Bases and Salts	Indicators, pH scale, neutralisation, salt formation, and everyday applications.
3	Metals and Non-Metals	Reactivity series, extraction principles, corrosion, prevention, and ionic compound behaviour.
4	Carbon and Its Compounds	Hydrocarbons, homologous series, functional groups, isomerism, and basic nomenclature.
5	Periodic Classification of Elements	Modern periodic table, trends, atomic properties, valency, and periodicity.
6	Sources of Energy	Renewable and non-renewable sources, chemical energy in fuels, efficiency, and environmental trade-offs.

Class 11

Chapter No.	Chapter Title	Key Learning Outcomes
1	Some Basic Concepts of Chemistry	Mole concept, molar mass, empirical/molecular formulae, stoichiometry, limiting reagent.
2	Structure of Atom	Quantum numbers, orbitals, electronic configuration, atomic spectra, and energy levels.
3	Classification of Elements and Periodicity	Periodic trends, groups, families, atomic/ionic radii, ionisation enthalpy, electronegativity.

Chapter No.	Chapter Title	Key Learning Outcomes
4	Chemical Bonding	Ionic, covalent, coordinate bonding, VSEPR theory, hybridisation, molecular geometry.
5	States of Matter	Gas laws, kinetic molecular theory, real gases, liquefaction, intermolecular forces.
6	Thermodynamics	First and second laws, enthalpy, entropy, Gibbs energy, spontaneity.
7	Equilibrium	Chemical and ionic equilibria, equilibrium constant, Le Chatelier principle, pH, buffers.
8	Redox Reactions	Oxidation numbers, balancing redox reactions, oxidising/reducing agents, electrochemical ideas.
9	Hydrogen	Preparation, properties, uses, isotopes, hydrides, water, hydrogen peroxide.
10	The s-Block Elements	Group 1 and 2 properties, reactions, compounds, biological roles.
11	The p-Block Elements	Group 13 to 18 trends, oxides, halides, anomalous behaviour.
12	Organic Chemistry: Basic Principles and Techniques	Purification methods, qualitative analysis, inductive/resonance effects, reaction mechanisms.
13	Hydrocarbons	Alkanes, alkenes, alkynes, aromatic compounds, reactions and mechanisms.
14	Environmental Chemistry	Air/water/soil pollutants, greenhouse effect, ozone depletion, green chemistry, waste management.

Class 12

Chapter No.	Chapter Title	Key Learning Outcomes
1	The Solid State	Crystal lattices, unit cells, packing efficiency, defects, magnetic and electrical properties.
2	Solutions	Concentration units, colligative properties, abnormal molar mass, osmosis.
3	Electrochemistry	Electrode potentials, Nernst equation, cell voltage, electrolysis, conductance, applications.
4	Chemical Kinetics	Rate laws, order/molecularity, activation energy, Arrhenius equation, catalysts.
5	Surface Chemistry	Adsorption, catalysis, colloids, emulsions, heterogeneous catalysis.
6	General Principles and Processes of Isolation of Elements	Ores, concentration, reduction, refining, thermodynamic/electrochemical principles.
7	The p-Block Elements	Detailed group 13 to 18 chemistry, compounds, trends, anomalous behaviour.
8	The d and f Block	Transition metals, lanthanoids, actinoids, variable oxidation states, coordination basics.
9	Coordination Compounds	Nomenclature, isomerism, bonding theories, stability, applications.
10	Haloalkanes and Haloarenes	Nucleophilic substitution, elimination, stereochemical aspects, environmental concerns.
11	Alcohols, Phenols and Ethers	Preparation, physical/chemical properties, acidity, reactions, uses.
12	Aldehydes, Ketones and Carboxylic Acids	Carbonyl chemistry, nucleophilic addition, oxidation-reduction, named reactions, mechanisms.
13	Amines	Classification, basicity, preparation, reactions, diazonium salts.

Chapter No.	Chapter Title	Key Learning Outcomes
14	Biomolecules	Carbohydrates, proteins, lipids, nucleic acids, enzymes, vitamins.
15	Polymers	Types, polymerisation techniques, structure-property relationships, applications.
16	Chemistry in Everyday Life	Drugs, food additives, cleansing agents, household chemicals, responsible use.

4. Exam Format, Date Format, and Assessment Standard

The SCO International Chemistry Olympiad should remain consistent, transparent, and publication-ready across grades, schools, countries, and cycles. The same information format must be used on the website, admit cards, school circulars, student portal, and downloadable PDF guides.

4.1 Public date and schedule format

- Single date: 15 Jan 2027.
- Date range: 15 Jan 2027 - 16 Feb 2027.
- Time format: 10:00 AM - 11:00 AM IST, or 10:00 AM - 11:00 AM Local Time when the exam is announced by country/school time zone.
- Every public notice should show the exam cycle, grade/class, subject, exam window, result-publication window, and support contact clearly.

4.2 Standard chemistry exam structure

Exam Area	SCO Standard
Question style	Single-correct MCQs, assertion-reason, numerical reasoning, data/table/graph interpretation, experimental observation, case-based chemistry, and higher-order application questions.
Class 8-10 focus	Foundation concepts, everyday chemistry, material science, reactions, periodicity, energy, environmental responsibility, and safe chemistry decisions.
Class 11-12 focus	Advanced physical, organic, inorganic, analytical, environmental, and applied chemistry with multi-step reasoning and calculation.
Practical-equivalent online assessment	No wet-lab submission is required in the online exam. Practical thinking is tested through experimental design, apparatus diagrams, observation analysis, error reasoning, safety, titration/qualitative logic, and data interpretation.
Marking scheme	Total marks, question count, duration, negative marking, and section weights must be declared before each exam cycle. The published admit-card/portal format is the final student-facing authority.
Language and clarity	Questions must use clear English, SI units, standard chemical symbols, unambiguous diagrams, and grade-appropriate vocabulary. Any non-standard equation or special data must be given in the question stem.

IChO-inspired benchmark for online SCO use

Global Chemistry Olympiad standards value both theoretical depth and experimental reasoning. SCO adapts this for an online global school audience by assessing laboratory thinking through safe, diagram-based, data-based, and observation-based chemistry tasks.

4.3 Question-quality rules

- Every question must map to a class, chapter, skill, difficulty level, and learning outcome.
- Distractors must be scientifically plausible and must reveal a common misconception, calculation error, or conceptual gap.
- Numerical questions must provide all required constants and data unless the value is a grade-appropriate standard fact.
- Chemical equations must be balanced where the task requires reaction completion or stoichiometry.
- Graphs, tables, reaction schemes, and apparatus diagrams should be readable on desktop, tablet, and mobile screens.
- The answer key and explanation must be checked separately from the question-writing process before publication.

5. Rules and Regulations for Students and Schools

These rules are written for public use and should be communicated to students before the exam. Schools may add internal instructions, but they should not contradict SCO exam integrity, online proctoring, identity, or result-publication rules.

Rule Area	Publication-ready Regulation
Eligibility	Students must register under the correct class/grade and must appear for the exam using the official SCO login or school-approved access route.
Identity and account use	Each student must use only the assigned login credentials. Sharing credentials, impersonation, or attempting the exam on behalf of another student is prohibited.
Exam slot	Students must appear only within the published exam window or school-approved slot. Late entry, missed exams, or rescheduling are governed by the official cycle policy.
Device readiness	A stable device, browser, internet connection, camera/microphone permission when required, and adequate battery/power backup are the student/school responsibility.
Permitted materials	Only items explicitly allowed in the exam notice may be used. For chemistry, rough paper, writing instrument, non-programmable calculator, periodic table, or formula sheet may be allowed only if stated in the official instructions.
Not permitted	Mobile phones, smart watches, chat tools, screen-sharing tools, external websites, AI tools, messaging apps, unauthorised notes, copied material, and assistance from others are prohibited during the live exam unless specifically allowed.
Question confidentiality	Questions, screenshots, answer keys, explanations, and live exam content must not be copied, photographed, recorded, shared, sold, uploaded, or circulated.
Student conduct	Students must attempt the paper independently, remain in the exam environment, follow proctoring prompts, and avoid suspicious behaviour such as repeated tab switching or leaving the camera frame when proctoring is active.
School responsibility	Schools should ensure student briefing, exam-device readiness, invigilation support where applicable, and fair access for registered learners.
Parent/guardian responsibility	Parents should support a quiet environment, avoid assisting with answers, and ensure the student follows integrity rules.
Result processing	Results may be processed after scoring, integrity checks, duplicate-attempt review, and award-policy validation. Final published results are the official record.
Disputes and corrections	Any result-related query must be raised within the announced query window with student ID, exam name, grade, and evidence. SCO may correct verified technical or administrative errors.

5.1 Accessibility and fair participation

- Students requiring reasonable support should communicate through the school or official support process before the exam window, not after the result publication.
- Where accommodation is approved, it must preserve exam integrity and should not give an academic advantage over other participants.
- If a student faces a genuine technical issue, the case should be reviewed using login time, attempt status, answer logs, proctoring signals, and support-ticket evidence.

6. Academic Integrity, Online Proctoring, and Safety Ethics

6.1 Online proctoring and integrity review

The SCO International Chemistry Olympiad is fully online. Therefore, exam credibility depends on clear rules, secure login, time-bound attempts, proctoring signals, and post-exam integrity review. Proctoring should be explained to students as a fairness measure, not as a punishment-first process.

- The student should be visible and available for identity/integrity checks if proctoring is enabled for the exam.
- The student should not change tabs, use external help, speak to others, leave the exam environment, or use another device for searching answers.
- Repeated suspicious events may lead to review, warning band, penalty, result withholding, disqualification, or certificate restriction as per the published policy.
- Raw proctoring data should not be shown publicly. Student-facing communication should show simple violation category, timestamp/evidence summary, and penalty explanation where applicable.
- SCO should maintain audit records for fairness, appeal handling, and internal quality control.

6.2 Chemistry safety and ethics

Although the SCO exam is online, chemistry safety knowledge is an important learning outcome. Students should understand laboratory symbols, safe handling, responsible disposal, fire safety, and the environmental impact of chemicals and fuels.

Safety/Ethics Area	Expected Standard
Safety awareness	Questions may test hazard symbols, corrosive/flammable/toxic labels, eye protection, gloves, safe heating, safe dilution, and responsible handling.
No unsafe practical work	Students must not perform any home experiment as part of the online exam unless an official, school-supervised, safety-approved activity is separately announced.
Environmental responsibility	Students should understand pollution, waste management, plastic impact, green chemistry, fuel conservation, and safe disposal principles.
Scientific ethics	Students must report data honestly in practice tasks and should understand that fabricating observations or manipulating results violates scientific values.

7. Results, Awards, Certificates, and Publication Policy

SCO result publication should be transparent, consistent, and suitable for an online international Olympiad. The final rank/award/certificate should depend on the official score, class/grade category, cycle, published award rules, and integrity-review status.

7.1 Result preparation standard

1. Validate the student attempt, exam mapping, class/grade, subject, cycle, and submitted answers.

2. Compute marks according to the published marking scheme and answer key.

3. Apply integrity-review status and any published penalty, disqualification, or result-hold policy.

4. Generate class/subject/cycle-wise ranks and awards according to the official SCO award rules.

5. Publish scorecard, certificate, and award information only after official result approval.

7.2 Award and certificate communication

Policy Area	Recommended Publication Rule
Medal/award labels	Use clear award names, rank/percentage basis, and grade/subject/cycle category. Avoid ambiguous claims that cannot be verified in the result database.
Certificates	Certificates should show student name, school/organisation, subject, grade, cycle/year, award/participation status, certificate code, issue date, and verification URL/QR when available.
Cash awards	If cash-award policy applies, publish eligibility, school/institution-only applicability, tie policy, and any conditions before result declaration.
Online-only fulfilment	Where SCO operates as an online Olympiad, digital certificates/recognition can be the official fulfilment method. Physical dispatch should not be promised unless separately announced.
Correction window	A result query window should be announced. After closure and verification, results should be treated as final unless an official administrative correction is required.

Important result-integrity note

A student may be academically strong but may still face result review if online proctoring or exam-log evidence shows policy violations. This protects honest participants and strengthens the credibility of SCO results globally.

8. Preparation Roadmap and Stakeholder Benefits

8.1 Preparation roadmap

Preparation Stage	Student Action
Step 1: Chapter mastery	Complete the grade-wise chapters, definitions, laws, formulae, reaction patterns, and textbook examples.
Step 2: Concept-to-application practice	Apply each chapter to daily-life chemistry, environmental issues, industrial applications, and unfamiliar examples.
Step 3: Numerical and data practice	Practise mole calculations, balancing, pH, stoichiometry, electrochemistry, kinetics, graphs, and table interpretation at the appropriate grade level.
Step 4: Experimental reasoning	Practise apparatus diagrams, observation-based questions, titration logic, qualitative analysis, safety symbols, and error analysis.
Step 5: Mock tests and review	Attempt timed practice tests, review explanations, maintain an error notebook, and improve speed, accuracy, and reasoning quality.

8.2 Benefits for students, schools, teachers, and parents

Stakeholder	Benefit
Students	Develop chemistry confidence, advanced reasoning, scientific communication, numeracy, curiosity, and readiness for future STEM learning.
Schools	Gain a structured chemistry enrichment pathway, international-style benchmarking, achievement recognition, and reportable academic outcomes.
Teachers	Receive a clear syllabus-to-skill map for class preparation, assignment planning, remediation, and higher-order problem discussion.
Parents	Understand the child's chemistry strengths, gaps, preparation direction, and learning progression across grades.

Stakeholder	Benefit
Global learning community	Encourages responsible science, sustainability awareness, safe chemistry attitudes, and cross-cultural academic participation through online access.

9. Recommended Font Sizes for PDF Publication

The following sizes are used in this Word file and are recommended for PDF conversion and website download. They balance readability, professional density, and mobile/desktop viewing.

Document Element	Recommended Size	Publication Note
Cover main title	30-32 pt	Large brand impact; keep to two lines when possible.
Cover subtitle / guide title	18-20 pt	Magenta guide label; should be short and high-contrast.
H2 / major section heading	16 pt	Use consistently for all main document sections.
H3 / subsection heading	12.5-13 pt	Use consistently for subsections under each H2.
Normal body text	10.5-11 pt	Recommended for PDF readability without making the document too long.
Table text	8.6-9.2 pt	Use 8.6 pt only for dense syllabus tables; use 9 pt or above where space allows.
Captions / source notes	8-8.5 pt	For source notes and document-control notes only.

PDF export recommendation

Before uploading to the website, export the Word file to PDF, open the PDF at 100% zoom, and check cover alignment, table breaks, heading consistency, footer visibility, and hyperlink/source readability.

10. Global Benchmarking Sources

The SCO guide uses public global Chemistry Olympiad information only as a benchmark for academic quality and exam philosophy. It does not claim affiliation with any external Olympiad organisation.

Source	How it informed this SCO guide
International Chemistry Olympiad Regulations, IChO 2026 Organising Committee	Used for benchmarking: preparation problems, syllabus expectations, competition task standards, safety rules, SI-unit discipline, theory/practical structure, and marking proportions.
American Chemical Society - About the International Chemistry Olympiad	Used for benchmarking: IChO purpose, secondary-school level, international participation, and five-hour practical plus five-hour theoretical examination model.
IChO 2026 About Page	Used for benchmarking: global reach, mission, theoretical/practical format, collaboration, and student problem-solving emphasis.
Homi Bhabha Centre for Science Education - Syllabus for IChO	Used for benchmarking: senior-secondary chemistry depth and high-difficulty, non-conventional national/international Olympiad-style problems.

Document-control note: Final SCO exam dates, award policy, cash-award tie policy, result publication rules, and proctoring penalties must always follow the latest SCO official circular, website page, and student portal notice for the relevant cycle.