School Connect Online

SCO INTERNATIONAL PHYSICS OLYMPIAD

OFFICIAL SYLLABUS

SCO International Physics Olympiad | Class 8

A structured, academic and PDF-ready syllabus guide for schools, teachers, parents, and students preparing for the SCO International Physics Olympiad.

- chapter-wise learning outcomes for Class 8 global learners
- practical activities, examples, and exam-ready skill progression
- conceptual clarity with Olympiad reasoning and real-life application
- supports school, teacher, parent, and student preparation planning

Force	Friction	Sound	Electricity
Phenomena	Light	Astronomy	Practice

GRADE 8 | Official Syllabus | SCO IPhO

School Connect Online - SCO International Olympiad

Syllabus Overview

This syllabus focuses on Grade 8 physics concepts with Olympiad-level application. It builds conceptual accuracy, reasoning, diagram interpretation, experimental thinking, and everyday science awareness.

Exam Name	SCO International Physics Olympiad
Grade/Class	Class 8
Recommended Paper Pattern	50 MCQs | 60 minutes | 60 marks | no negative marking
Question Types	Concept-based MCQs, calculation MCQs, assertion-reason, case study, achievers section
Recommended PDF Font Sizes	H2: 16 pt | H3: 12.5-13 pt | Body: 10.5-11 pt | Table text: 8.3-9 pt

Chapter-wise Syllabus

Chapter 1: Force and Pressure

Core Topics	Types of forces; contact and non-contact forces; effects of force; pressure on solids, liquids, and gases; atmospheric pressure; Pascal's principle applications.
Learning Outcomes	Students explain how force changes motion/shape, calculate simple pressure, relate area and pressure, and interpret liquid/gas pressure in daily life.
Activities / Enquiry Tasks	Observe pressure using pins, erasers, broad straps, and water-column demonstrations; draw force arrows and pressure diagrams.

Chapter 2: Friction

Core Topics	Causes of friction; static/sliding/rolling friction; factors affecting friction; advantages and disadvantages; increasing and reducing friction; lubrication and ball bearings.
Learning Outcomes	Students compare friction in different surfaces, justify why friction is useful, and solve simple friction-force reasoning questions.
Activities / Enquiry Tasks	Compare smooth and rough surfaces; test rolling vs sliding; study tyre treads and sports shoe grip.

Chapter 3: Sound

Core Topics	Production of sound; vibration; amplitude, frequency, pitch, loudness; propagation in solids/liquids/gases; echo; human hearing and noise control.
Learning Outcomes	Students connect vibration with sound, distinguish pitch and loudness, calculate basic echo/wavelength questions, and suggest noise-control methods.

Activities / Enquiry Tasks	Use tuning fork/rubber band activities; estimate echo distance; identify amplitude and wavelength on wave diagrams.

Chapter 4: Chemical Effects of Electric Current

Core Topics	Conductors and insulators in liquids; electrolytes; electrodes; electrolysis; electroplating; safety with wet hands and liquids.
Learning Outcomes	Students identify conducting liquids, explain electroplating, interpret electrode connections, and infer chemical change from bubbles/deposits.
Activities / Enquiry Tasks	Build a simple conductivity tester; compare salt, sugar, lemon, and distilled water; demonstrate safe copper electroplating models.

Chapter 5: Some Natural Phenomena

Core Topics	Charging by rubbing; interaction of charges; lightning; lightning safety; lightning conductor; earthquakes and safety practices.
Learning Outcomes	Students explain electrostatic charging, connect lightning with electric discharge, and choose safe actions during storms and earthquakes.
Activities / Enquiry Tasks	Comb-and-paper charging activity; simple electroscope model; safety poster on lightning and earthquakes.

Chapter 6: Light

Core Topics	Reflection; laws of reflection; plane mirror images; lateral inversion; multiple images; kaleidoscope/periscope; refraction and dispersion basics; eye care and useful optical devices.
Learning Outcomes	Students apply the law of reflection, calculate image numbers for mirror angles, explain lateral inversion, and interpret simple ray diagrams.
Activities / Enquiry Tasks	Draw incident/reflected rays; build a periscope/kaleidoscope; observe pencil-bending in water and prism colour splitting.

Chapter 7: Stars and the Solar System

Core Topics	Stars and constellations; planets and satellites; Sun, Moon, phases of Moon; rotation and revolution; day/night and seasons; basic space observation.
Learning Outcomes	Students distinguish stars, planets, satellites, asteroids, and constellations; explain day/night, year, and Moon phases using relative positions.
Activities / Enquiry Tasks	Create Sun-Earth-Moon models; observe Moon phases over a month; prepare a constellation chart.

Olympiad Skill Progression

Skill Area	Expected Student Performance
Concept Recall	Definitions, units, examples, identification of phenomena.
Application	Daily-life pressure/friction/sound/electricity/light/astronomy scenarios.
Reasoning	Assertion-reason, cause-effect, best explanation, misconception checks.
Numerical Thinking	Basic pressure, force, echo distance, wavelength/frequency, mirror-image calculations.
Diagram Interpretation	Hydraulic press, sound wave, electroplating cell, mirror rays, Sun-Earth-Moon models.
Case Study	Short passages combining two or more ideas from the syllabus.

Recommended Preparation Roadmap

Week 1	Force and Pressure + Friction: learn formulas, draw force arrows, solve pressure and friction scenarios.
Week 2	Sound + Chemical Effects of Electric Current: practice wave terms, echo questions, conductivity/electroplating reasoning.
Week 3	Natural Phenomena + Light: complete charging, lightning safety, reflection, multiple images, and simple refraction tasks.
Week 4	Stars and Solar System + Mixed Practice: revise day/night, Moon phases, planets, and attempt mock papers with explanations.

Assessment Blueprint

Chapter Area	Suggested Weightage	Question Focus
Force and Pressure	8-10 questions	Concept, pressure calculation, real-life application
Friction	6-8 questions	Comparative reasoning and practical examples
Sound	6-8 questions	Vibration, pitch/loudness, echo, wave basics
Chemical Effects of Electric Current	6-7 questions	Conductivity, electrodes, electroplating, safety
Some Natural Phenomena	5-6 questions	Charging, lightning, earthquake safety
Light	8-10 questions	Reflection, mirrors, images, ray diagrams
Stars and Solar System	5-6 questions	Moon phases, day/night, stars/planets

Teacher and Parent Guidance

- Use demonstrations first, then MCQs, so learners understand the idea before attempting tricky options.
- Ask learners to explain why each wrong option is wrong; this improves Olympiad reasoning.
- Keep a formula and units sheet for pressure, force, echo distance, wavelength, and mirror-image questions.
- Use diagrams in revision: a ray diagram, sound wave, electroplating cell, hydraulic press, and Sun-Earth-Moon model.
- Encourage students to connect physics to safety, technology, environment, transport, sports, and astronomy.