School Connect Online

CLASS

9

IPhO - SCO

SCO INTERNATIONAL OLYMPIAD

Class 9 syllabus guide and learning pathway for global students

SCO INTERNATIONAL PHYSICS OLYMPIAD

Official Syllabus | Class 9

Motion	Force and Laws of Motion	Gravitation
Work and Energy	Sound	Scientific Reasoning

Syllabus Overview

The SCO International Physics Olympiad Class 9 syllabus develops conceptual understanding, quantitative problem solving, experimental thinking and real-world application across mechanics, gravitation, energy and sound. The learning pathway is suitable for school enrichment, Olympiad preparation and foundational preparation for higher secondary physics.

Chapter-wise Syllabus

No.	Chapter	Core Scope	Assessment Focus
1	**Motion**	Distance, displacement, speed, velocity, acceleration, graphs of motion, uniform and non-uniform motion, basic circular motion awareness.	MCQ, data interpretation, formula use, graph/diagram reasoning
2	**Force and Law of Motion**	Balanced and unbalanced forces, inertia, Newton's laws, momentum, impulse, action-reaction, daily-life applications.	MCQ, data interpretation, formula use, graph/diagram reasoning
3	**Gravitation**	Universal gravitation, gravity, free fall, mass and weight, acceleration due to gravity, basic orbital reasoning.	MCQ, data interpretation, formula use, graph/diagram reasoning
4	**Work and Energy**	Work, positive/negative/zero work, kinetic energy, potential energy, conservation of energy, power and efficiency.	MCQ, data interpretation, formula use, graph/diagram reasoning
5	**Sound**	Nature and propagation of sound, longitudinal waves, amplitude, frequency, wavelength, speed, reflection, echo, ultrasound, SONAR and hearing range.	MCQ, data interpretation, formula use, graph/diagram reasoning

Enhanced International Learning Outcomes

Conceptual clarity: Explain motion, force, gravity, energy and sound using precise scientific language and daily-life examples.

Numerical accuracy: Apply formulae such as $v = u + at$, $s = ut + 1/2\ at^2$, $F = ma$, $p = mv$, $W = Fs$, $KE = 1/2\ mv^2$, $PE = mgh$, $P = W/t$ and $v = f\lambda$.

Graph and data literacy: Read distance-time and velocity-time graphs; interpret slopes, areas and changes in physical quantities.

Scientific reasoning: Connect laws of motion, momentum, energy conservation, echo and sound reflection to practical situations.

Olympiad application: Solve multi-step MCQs, assertion-reason items, case-study problems and achiever-level questions without calculator dependence.

Recommended Exam Blueprint

Section	Questions	Focus
General Questions	30	Core concepts, formula use, direct application and diagram-based MCQs.
Assertion-Reason	10	Scientific reasoning and relation between statement and explanation.
Case Study	5	Short real-world situations with data interpretation.
Achievers Section	5	Higher-order, multi-step Olympiad reasoning.

Preparation Roadmap

1. Revise definitions and units before formula practice.
2. Solve graph-based questions for Motion before moving to numerical applications.
3. Practice Newton's laws with real-life examples such as braking, catching, recoil and seat belts.
4. Connect Work and Energy with real machines, ramps, stairs, sports and energy efficiency.
5. Use sound-wave diagrams to revise frequency, wavelength, amplitude, echo and ultrasound applications.