

CLASS 11

PHYSICS

REVISION NOTES

Class 11 Physics Physical World – Quick Revision Notes (Legacy Chapter, Removed from 2026-27 Syllabus)

Need full answers or more practice? See the Class 11 Physics Chapter 1 Solutions and Class 11 Physics Chapter 1 Extra Questions. These Class 11 Physics Physical World notes are ideal for quick revision just before exams.

Contents

Related NCERT Content for Physical World

Class 11 Physics Physical World – Solutions and Important Questions

Note: NCERT has replaced this chapter in the current 2026-27 syllabus. If you're looking for the current curriculum, see [Chapter 1: Units and Measurements — Quick Revision Notes](#). This page is kept as a reference for the previous (pre-2023 rationalization) syllabus.

What Is Physics?

Physics = study of nature, aiming to describe it via a minimum number of fundamental laws/concepts.

Two approaches: **unification** (common laws for diverse phenomena) and **reduction** (explaining a whole via its constituent parts).

Scope of Physics

Macroscopic physics: large-scale phenomena — mechanics, thermodynamics, electromagnetism, optics.

Microscopic physics: atomic/subatomic/nuclear structure — quantum mechanics.

Branches of Physics (Classical)

Mechanics (Galileo, Newton) — motion of bodies under forces.

Electrodynamics (Faraday, Maxwell) — electric/magnetic phenomena.

Optics (Huygens, Newton, Young, Maxwell) — phenomena of light.

Thermodynamics — heat, work, temperature, entropy.

Branches of Physics (Modern)

Quantum mechanics — atoms, nuclei, elementary particles.

Theory of relativity — very high speeds, gravity and spacetime.

Physics, Technology, Society

Steam engine ← thermodynamics; Electric generator ← Faraday's induction; Rocket propulsion ← Newton's laws; Airplane ← Bernoulli's principle; Nuclear reactor ← controlled fission; Laser ← stimulated emission; Optical fibres ← total internal reflection; Electron microscope ← wave nature of electrons; Photocell ← photoelectric effect; Sonar ← ultrasonic reflection.

Key Scientists (Selected)

Archimedes (buoyancy), Galileo (inertia), Newton (gravitation, laws of motion), Faraday (EM induction), Maxwell (EM theory), Röntgen (X-rays), J.J. Thomson (electron), Rutherford (nuclear atom), Bohr (quantum atomic model), Einstein (photoelectric effect, relativity), Chadwick (neutron), Heisenberg (uncertainty principle), Yukawa (meson theory).

Indian contributions: C.V. Raman (Raman Effect), S.N. Bose (Bose-Einstein statistics), S. Chandrasekhar (Chandrasekhar limit), Homi Bhabha (cosmic ray cascade process).

Fundamental Forces of Nature

Four fundamental forces: **Gravitational, Electromagnetic, Strong Nuclear, Weak Nuclear.**

Gravitational: weakest, always attractive, infinite range, acts between all masses.

Weak nuclear: very short range, governs beta decay.

Electromagnetic: acts between charges, infinite range, attractive or repulsive.

Strong nuclear: strongest, extremely short range, binds nucleons.

Relative strength (strongest to weakest): Strong > Electromagnetic > Weak > Gravitational.

Approximate relative strengths (Strong=1): Electromagnetic $\approx 10^{-2}$; Weak $\approx 10^{-13}$; Gravitational $\approx 10^{-39}$.

Unification of Forces

Electricity + Magnetism $\rightarrow$ Electromagnetic force.

Electromagnetic + Weak $\rightarrow$ Electroweak force.

Electroweak + Strong (proposed) $\rightarrow$ Grand Unified Theory (unconfirmed).

All four forces (proposed) $\rightarrow$ Theory of Everything (open research goal).

Conservation Laws and Symmetry

Energy conservation $\leftrightarrow$ time-translation symmetry.

Linear momentum conservation $\leftrightarrow$ space-translation symmetry.

Angular momentum conservation $\leftrightarrow$ rotational symmetry.

Nature of Physical Laws

Scientific method: observation $\rightarrow$ hypothesis $\rightarrow$ mathematical model $\rightarrow$ prediction $\rightarrow$ experimental

verification/falsification.

A theory that fails testing must be revised or discarded (falsifiability principle).

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[NCERT Solutions for Physical World](#)

[Extra Questions \(HOTS\) for Physical World](#)

[Class 11 Physics Formulas Handbook](#)

[Class 11 Physics NCERT Book \(Download PDF\)](#)

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