BRAINIACS OLYMPIAD

PHYSICS SYLLABUS

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BRAINIACS OLYMPIAD 2026
PHYSICS SYLLABUS (GRADES 7–8)

- **Measurement** – SI units, common instruments (ruler, stopwatch), basic units
- **Motion** – Speed, average speed, distance-time graphs
- **Forces** – Types of forces (contact, gravity), effects of force
- **Energy** – Kinetic & potential energy, energy forms
- **Pressure** – Pressure = force/area, simple examples
- **Heat & Temperature** – Temperature vs. heat, thermometers
- **Waves** – Sound, water waves, reflection
- **Light** – Reflection, refraction, mirrors & lenses
- **Electricity** – Simple circuits, conductors & insulators
- **Magnetism** – Magnets, magnetic materials
- **Electromagnetism** – Simple electromagnets
- **Modern Physics** – Basic atomic model, electrons/protons/neutrons
- **Mechanics** – Levers, pulleys

This is the end of the syllabus for Grades 7–8
Get ready to explore the World of the Brainiacs!
All examinations questions will be based on the materials listed above.

BRAINIACS OLYMPIAD 2026
PHYSICS SYLLABUS (GRADES 9–10)

- **Measurement** – Micrometer screw gauge, % error, derived units
- **Motion** – Velocity, acceleration, velocity-time graphs
- **Forces** – Newton's Laws, mass vs. weight, friction
- **Energy** – Work, power, energy conservation, efficiency
- **Pressure –** Pressure in liquids and gases, atmospheric pressure
- **Heat & Temperature –** Heat capacity, specific heat, thermal expansion
- **Waves** – Transverse & longitudinal waves, wave speed
- **Light** – Critical angle, total internal reflection, image formation
- **Electricity** – Ohm's law, series & parallel circuits, resistance
- **Magnetism** – Electromagnets, magnetic fields of current
- **Electromagnetism** – Motor effect, applications of electromagnets
- **Modern Physics** – Isotopes, radioactivity basics
- **Mechanics** – Turning moments, center of mass, stability

This is the end of the syllabus for Grades 9–10
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BRAINIACS OLYMPIAD 2026
PHYSICS SYLLABUS (GRADES 11–12)

- **Measurement** – Uncertainty, significant figures, absolute/relative error
- **Motion** – Kinematic equations, free fall, motion in 2D (projectiles)
- **Forces** – Momentum, impulse, conservation of momentum, forces in 2D
- **Energy** – Energy transformations, mechanical energy, energy in systems
- **Pressure** – Pressure-depth formula, Pascal's principle, hydraulic systems
- **Heat & Temperature** – First law of thermodynamics, thermal processes (isochoric, isobaric, isothermal, adiabatic)
- **Waves** – Superposition, interference, diffraction, Doppler effect
- **Light** – Lens formula, ray diagrams, optical instruments
- **Electricity** – Kirchhoff's laws, internal resistance, power and energy in circuits
- **Magnetism** – Electromagnetic induction, Faraday's law, Lenz's law
- **Electromagnetism** – AC/DC generators, transformers, EM waves
- **Modern Physics** – Nuclear reactions, half-life, photoelectric effect, energy levels
- **Mechanics** – Rotational motion, torque, angular momentum

This is the end of the syllabus for Grades 11–12
Get ready to explore the World of the Brainiacs!
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