

Physics Literacy for Kids Curriculum

Level 1: Conceptual Physics

Target Audience: Beginners, Ages 7-10 (Flexible)

Objective:

To build a strong foundation in understanding basic physics concepts without relying on advanced mathematics. The emphasis is on developing intuition, critical thinking, and qualitative reasoning.

Curriculum Overview:

1. Trimester 1 (September - December): Newtonian Mechanics

- Understanding Motion: Motion maps, motion graphs, Position, Velocity, and Acceleration.
- One and two-dimensional projectile motion
- Newton's Laws of Motion
- Forces and Free Body Diagrams
- Energy: Kinetic and Potential
- Momentum and Conservation Laws
- Centripetal force

2. Trimester 2 (December - February): Waves and Optics

- Introduction to Waves: Sound and Light
- Properties of Waves: Wavelength, Frequency, and Amplitude
- Reflection, Refraction, and Diffraction
- Lenses, Mirrors, and Image Formation
- Applications of Optics: Cameras, Glasses, and Telescopes

3. Trimester 3 (March - May): Modern Physics and Quantum Mechanics

- Introduction to Quantum Mechanics: What is the Quantum World?
- Wave-Particle Duality
- The Photoelectric Effect and Blackbody Radiation
- Uncertainty Principle and Superposition
- Quantum Entanglement: A Fascinating Connection

Schedule:

- Classes meet once a week for 45 minutes.
- Recordings are provided after each class.
- Homework and extra video resources are included to support self-paced learning.
- Self-assessments are given very often.
- Engaging quizzes and games like Kahoot are used for understanding checks.