



# General Topic: Physics Fundamentals (Motion, Forces, Energy, Electricity)

## Lesson Overview:

Physics fundamentals explore how objects move, the forces acting on them, the nature of energy, and the behavior of electric charges. Understanding these concepts forms the foundation for engineering, technology, and scientific innovation.

## Key Concepts and Subtopics:

1. **Motion** – Speed, velocity, and acceleration describe how objects move over time.
2. **Forces** – Pushes or pulls (e.g., gravity, friction) that affect motion.
3. **Energy** – Forms of energy (kinetic, potential, thermal, etc.) and energy conservation.
4. **Electricity** – Electric current, voltage, resistance, and Ohm's Law.

## Real-Life Example:

When you ride a bicycle downhill, gravity accelerates you, friction from brakes slows you down, and the moving chain converts muscular energy into motion. Your bike's lights may even run on a small generator converting motion into electricity.

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## Remember This!

- *Physics is everywhere—from the way you walk to how your gadgets work. Knowing the fundamentals helps explain and improve the world around us.*
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# General Topic: Applications of Physics in Daily Life

## Lesson Overview:

Physics is not just for laboratories—it's present in transportation, communication, energy production, and countless everyday tools and technologies.

## Key Concepts and Subtopics:

1. **Transportation** – Newton's laws in cars, airplanes, and trains.
2. **Communication** – Electromagnetic waves in radios, phones, and Wi-Fi.
3. **Home Appliances** – Physics behind refrigerators, microwaves, and washing machines.



4. **Renewable Energy** – Solar panels converting sunlight into electricity; wind turbines turning motion into power.



Reference: <https://www.inspirecleanenergy.com/blog/clean-energy-101/types-of-renewable-energy-sources>



### **Real-Life Example:**

A mobile phone uses physics principles in its battery (chemical to electrical energy), speakers (electrical to sound energy), and touchscreen (capacitive sensing).

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### ***Remember This!***

- *Every piece of technology you use works because of physics—understanding it lets you use and even create better tools.*