

# 1 Introduction to Newton's Laws of Motion

Physics is the study of matter, energy, and the interactions between them. In this lesson, we'll explore **Newton's Laws of Motion**.

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## 1.2 Newton's First Law

An object at rest stays at rest and an object in motion stays in motion unless acted upon by an external force.

- Also known as the **Law of Inertia**.
  - Example: A book on a table remains at rest unless pushed.
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## 1.3 Newton's Second Law

Newton's Second Law relates force, mass, and acceleration:

$$F = m \cdot a$$

Where: -  $F$  = Force (Newtons) -  $m$  = Mass (kg) -  $a$  = Acceleration ( $m/s^2$ )

**Example Calculation:**