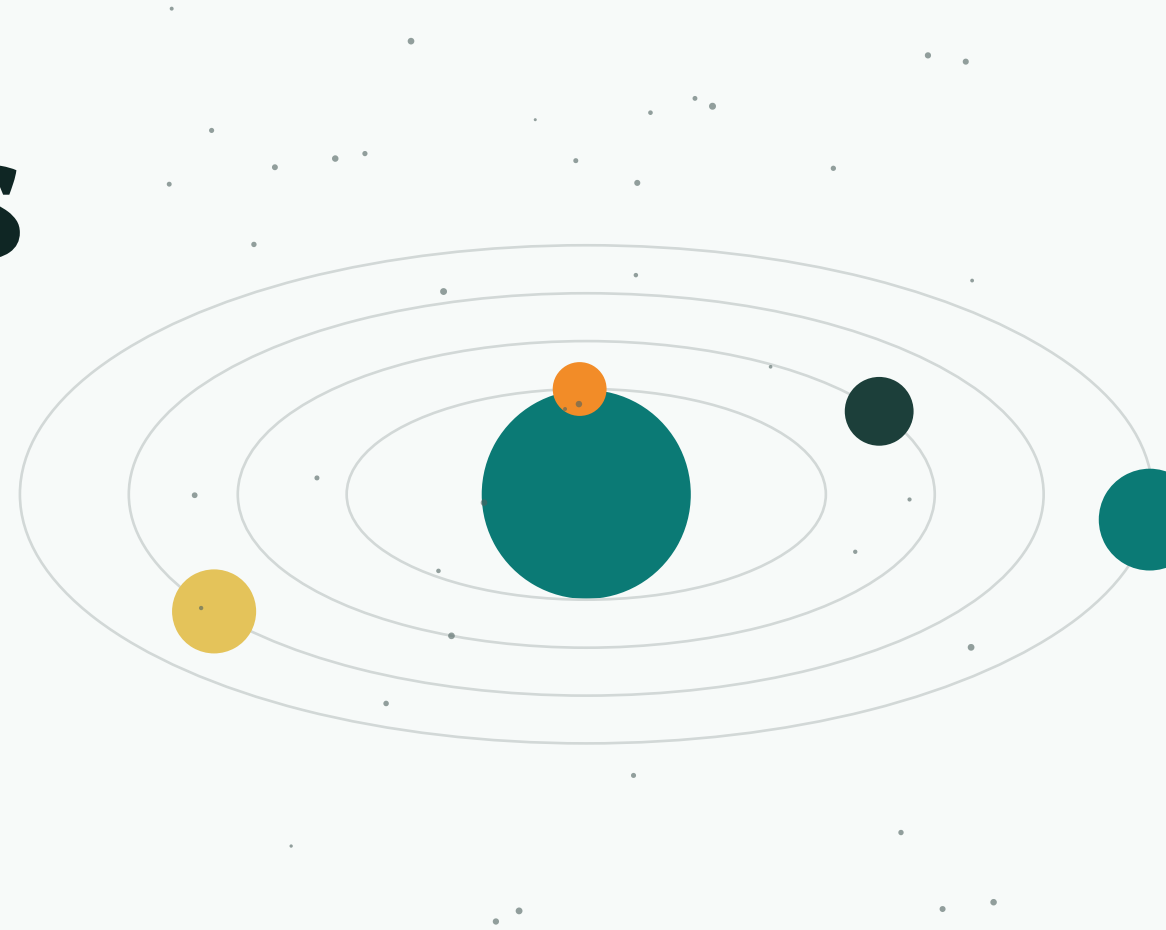


PHYSICS PROJECT

Newton's Laws of Motion



Force, mass and motion explained

PRESENTED BY

Student Name

SUBJECT

Physics

CLASS / YEAR

Class XI

Agenda

01

Introduction

02

Concepts

03

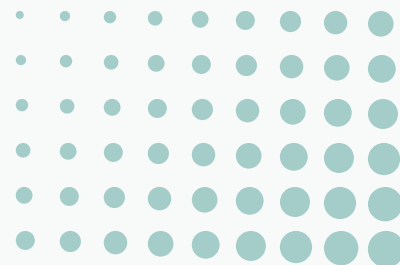
Experiment

04

Applications

05

Summary



SECTION 01

INTRODUCTION

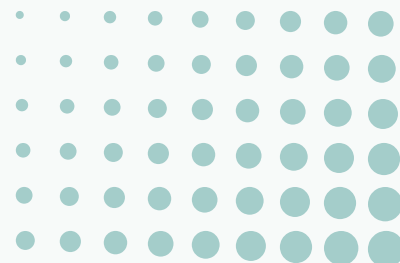
What is Newton's laws?



Diagram

Newton's three laws describe how objects move when forces act on them.

They explain everything from a rolling ball to rockets and planets, and they form the foundation of classical mechanics.



SECTION 02

CONCEPTS

Key concepts

01

First law

Objects keep their state of motion unless a force acts.

02

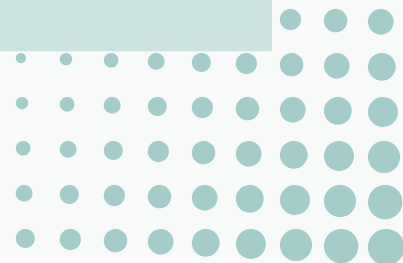
Second law

Force equals mass times acceleration ($F = ma$).

03

Third law

Every action has an equal and opposite reaction.



Solving a force problem



Draw

Free-body diagram



Resolve

Split forces into components



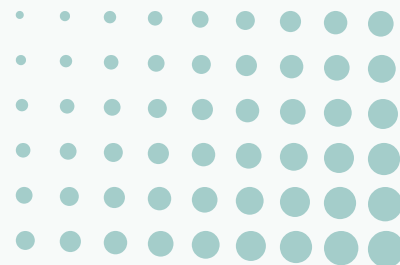
Apply

Use $F = ma$ on each axis



Solve

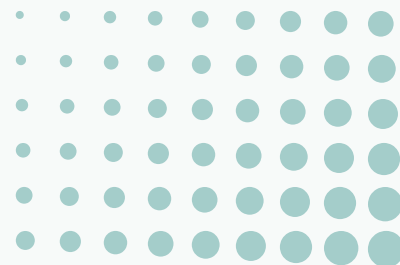
Find acceleration or force



Everyday examples

Situation	Law	Why
Seatbelts	First	Body keeps moving when the car stops
Pushing a trolley	Second	More force, more acceleration
Rocket launch	Third	Gas pushed down, rocket pushed up

Reference values for illustration.



SECTION 03

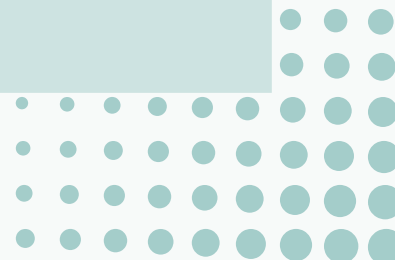
EXPERIMENT

Experiment

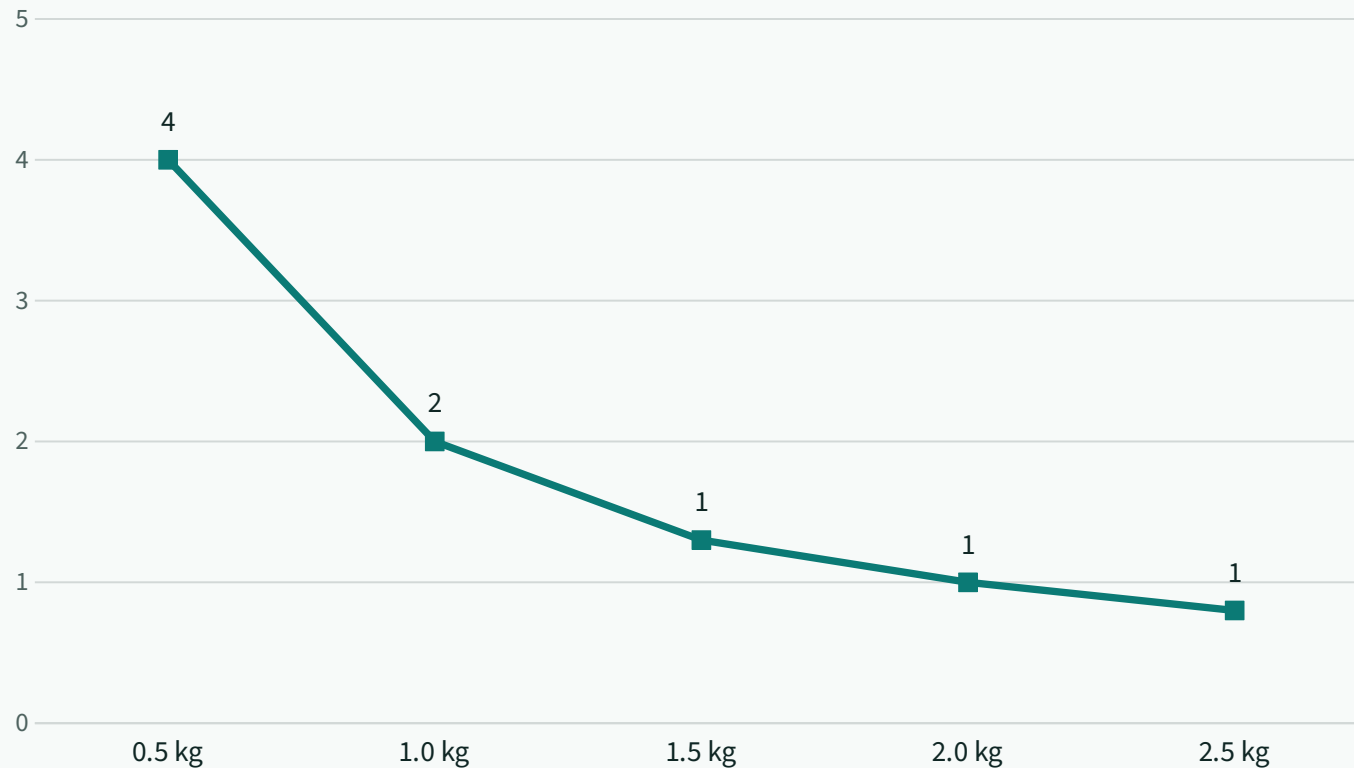
- Roll a trolley down a ramp with a fixed force
- Add masses to the trolley step by step
- Time the trolley over a fixed distance
- Calculate acceleration for each mass

SAFETY

Keep the ramp stable and stand clear of moving trolleys.

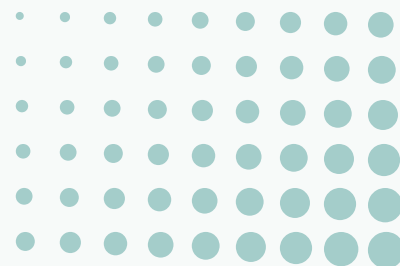


Acceleration vs mass



With the same force, acceleration falls as mass rises (sample data).

Sample data for illustration — replace with your own figures.



Real-world applications



Image 1

Vehicles

Brakes, airbags and seatbelts



Image 2

Sports

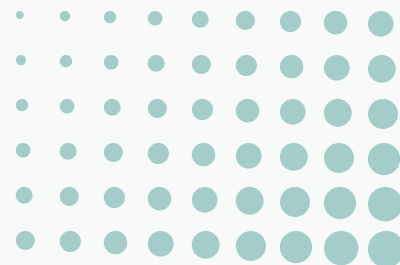
Kicking, throwing and running



Image 3

Space

Rockets and satellites



SECTION 04

SUMMARY

Quick facts

$$\mathbf{F = ma}$$

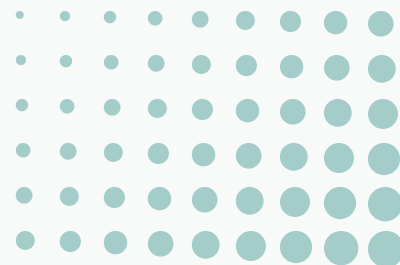
second law in one line

1 N

force to accelerate 1 kg at 1
 m/s^2

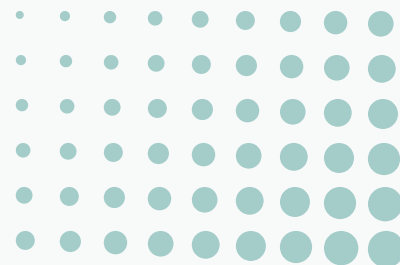
1687

year the laws were published



Summary

- Objects resist changes in motion
- Force causes acceleration ($F = ma$)
- Forces come in action–reaction pairs
- The laws explain motion all around us



Thank you

Questions?

Student Name • Physics