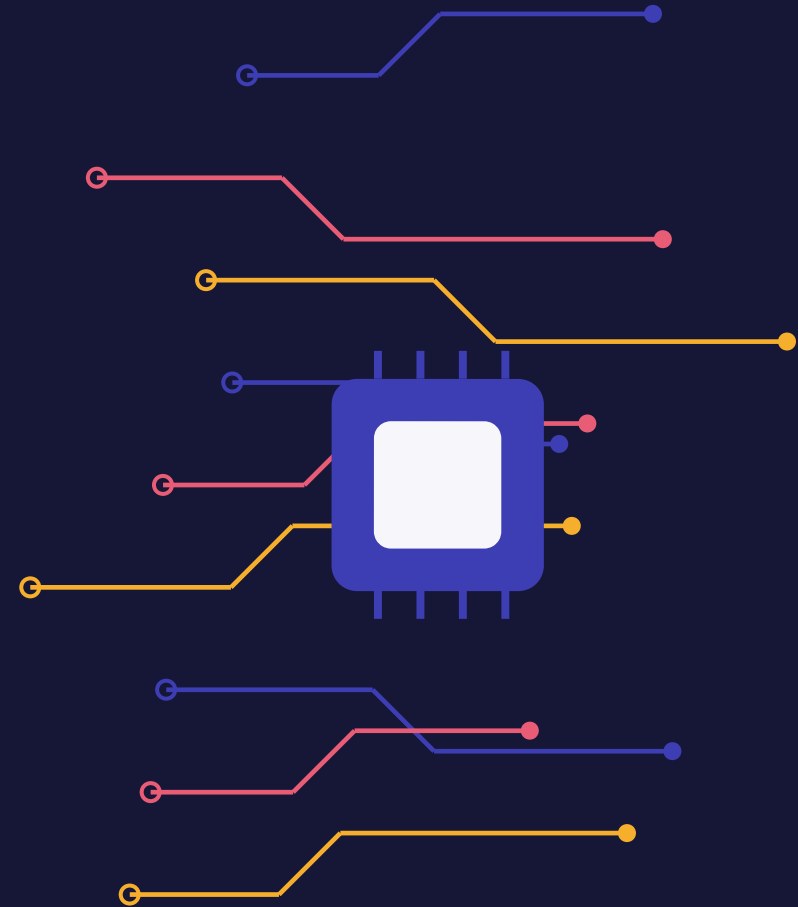


PHYSICS PROJECT

Electricity and Circuits

Current, voltage and resistance made simple

Student Name · Physics · Class XI



Agenda

01 Introduction

02 Concepts

03 Experiment

04 Applications

05 Summary



Image

01

INTRODUCTION

What is electric circuits?



Diagram

Electricity is the flow of electric charge through a conductor, usually as moving electrons in a wire.

A circuit is a closed path for current. Voltage pushes charge, resistance opposes it, and Ohm's law links them: $V = I \times R$.

02

CONCEPTS

Key concepts

1

Current (I)

Flow of charge, measured in amperes.

2

Voltage (V)

Electric push, measured in volts.

3

Resistance (R)

Opposition to current, in ohms.

Building a simple circuit

1

Cell

Source of voltage

2

Wire

Path for current

3

Switch

Opens or closes the path

4

Bulb

Glows when current flows

Series vs parallel

Feature	Series	Parallel
Current	Same everywhere	Splits in branches
If one bulb fails	All go off	Others stay on
Used in	Decorative lights	House wiring

Reference values for illustration.

03

EXPERIMENT

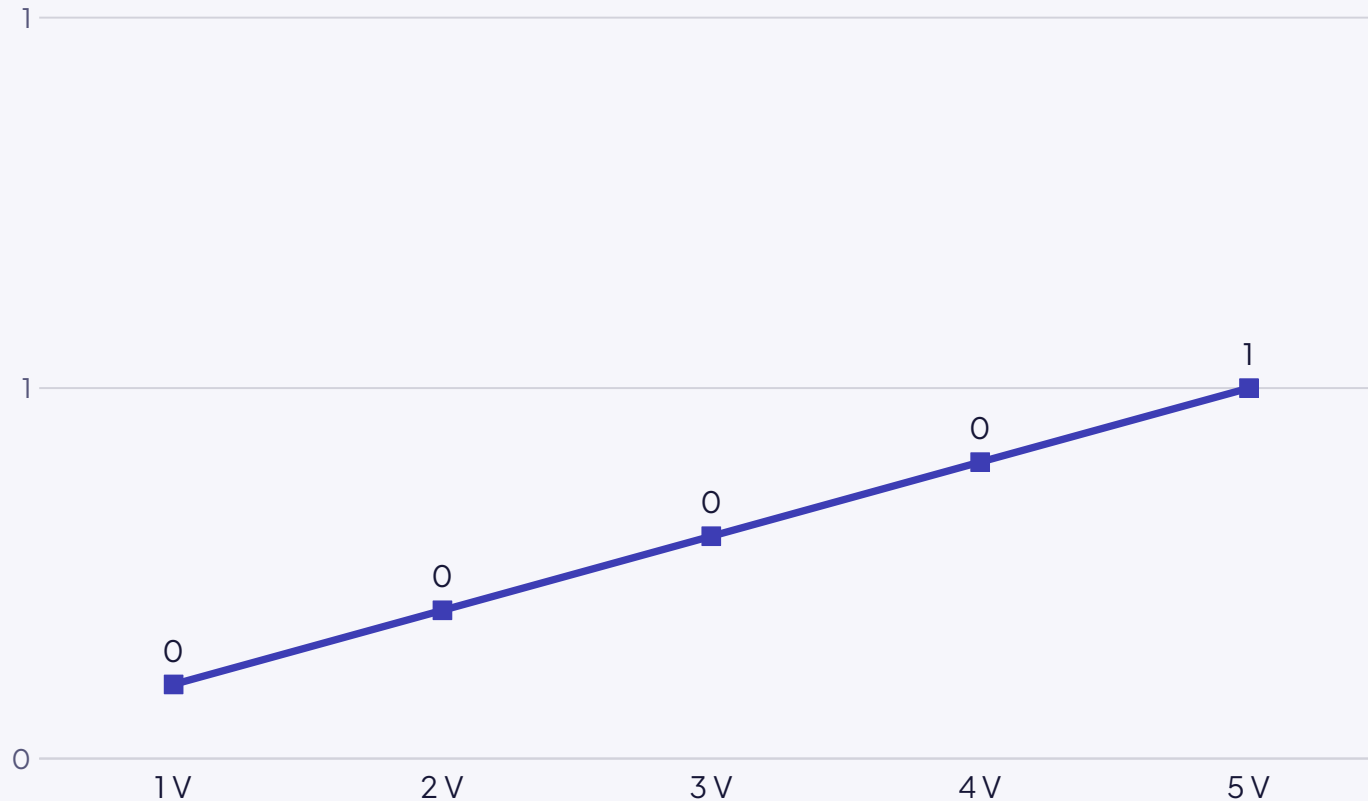
Experiment

- Connect a cell, switch and bulb with wires
- Close the switch and observe
- Add a second bulb in series, then in parallel
- Compare brightness

SAFETY

Use low-voltage cells only; never touch mains wiring.

Current vs voltage (Ohm's law)



For a $10\ \Omega$ resistor (sample data).

Sample data for illustration — replace with your own figures.

Real-world applications



Image 1

Homes

Lighting and appliances



Image 2

Electronics

Phones and computers



Image 3

Transport

Electric vehicles

04

SUMMARY

Quick facts

$$V = IR$$

Ohm's law

$$1\text{ A}$$

= 1 coulomb per second

$$230\text{ V}$$

household supply in India

Summary

- Current needs a closed path
- Voltage drives current
- Resistance limits current
- Series and parallel behave differently

Thank you

Questions?

Student Name · Physics

