



# NCERT Class 10 Physics

## Complete Formula Sheet

Chapter-wise formulas strictly based on NCERT syllabus

For Board Exam Revision

Class: 10

Subject: Physics

Syllabus: NCERT (CBSE-aligned)

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(An education platform for Classes 6-12)

## How to Use This Formula Sheet

This formula sheet is designed to help Class 10 students revise quickly before tests and board exams. It should be used after studying the NCERT chapters, not as a replacement for textbook learning.

Students are advised to revise formulas daily for 10–15 minutes. Short and regular revision helps improve memory and reduces exam-time stress. Reading formulas aloud once also helps in better recall.

Before applying any formula, always check and convert values into SI units. Many marks are lost due to unit mistakes, even when the formula is correct.

In the exam, students should write the formula first, then substitute values step by step. This shows clear thinking and helps in getting step marks.

Note for Parents:

This formula sheet is meant only for revision. Clear understanding of concepts should come from NCERT textbooks and classroom learning.

## Light: Reflection & Refraction (Chapter 1)

### 1. Mirror Formula

Formula:

$$1 / f = 1 / v + 1 / u$$

Symbols:

f = focal length of mirror

v = image distance

u = object distance

SI Unit:

metre (m)

## 2. Magnification (Spherical Mirror)

Formula:

$$m = h_i / h_o = - v / u$$

Symbols:

m = magnification

$h_i$  = height of image

$h_o$  = height of object

v = image distance

u = object distance

SI Unit:

No unit (unitless)

## 3. Magnification (Lens)

Formula:

$$m = h_i / h_o = v / u$$

Symbols:

m = magnification

$h_i$  = height of image

$h_o$  = height of object

v = image distance

u = object distance

SI Unit:

No unit (unitless)

## 4. Refractive Index

Formula:

n = speed of light in air / speed of light in medium

Symbols:

n = refractive index

SI Unit:

No unit (unitless)

## 5. Power of Lens

Formula:

$$P = 1 / f$$

Symbols:

P = power of lens

f = focal length (in metres)

SI Unit:

diopetre (D)

# The Human Eye & the Colourful World (Chapter 2)

## 1. Power of Lens

Formula:

$$P = 1 / f$$

Symbols:

P = power of lens

f = focal length (in metres)

SI Unit:

diopetre (D)

## 2. Relation Between Focal Length and Power

Formula:

$$f = 1 / P$$

Symbols:

f = focal length (in metres)

P = power of lens

SI Unit:

f → metre (m)

Note (keep small in PDF):

This is a concept-based chapter with very few numerical questions. Focus more on understanding than memorising formulas.

# Electricity (Chapter 3)

## 1. Ohm's Law

Formula:

$$V = I \times R$$

Symbols:

V = potential difference

I = electric current

R = resistance

SI Units:

V → volt (V)

I → ampere (A)

R → ohm ( $\Omega$ )

## 2. Resistance Relation

Formula:

$$R = \rho L / A$$

Symbols:

R = resistance

$\rho$  = resistivity of material

L = length of conductor

A = area of cross-section

SI Units:

R → ohm ( $\Omega$ )

$\rho$  → ohm metre ( $\Omega$  m)

L → metre (m)

A → metre<sup>2</sup> (m<sup>2</sup>)

## Electric Power (Important – Group Together)

### (a) Electric Power

Formula:

$$P = V \times I$$

### (b) Power in terms of Current

Formula:

$$P = I^2 \times R$$

### (c) Power in terms of Voltage

Formula:

$$P = V^2 / R$$

Symbols (for all power formulas):

P = electric power

V = potential difference

I = electric current

R = resistance

SI Unit:

watt (W)

### 3. Electrical Energy Consumed

Formula:

$$E = P \times t$$

Symbols:

E = electrical energy

P = power

t = time

SI Units:

E → joule (J) or kilowatt hour (kWh)

t → second (s) or hour (h)

Revision Note (small text):

Convert all values into SI units before using any formula.

## Magnetic Effects of Electric Current (Chapter 4)

### 1. Magnetic Force on a Current-Carrying Conductor

Relation:

$$F \propto I \times L \times B$$

Symbols:

F = magnetic force

I = current

L = length of conductor

B = magnetic field strength

SI Unit of Force:

newton (N)

### 2. Fleming's Left Hand Rule

Statement:

If the thumb, forefinger, and middle finger of the left hand are held mutually perpendicular, then the forefinger shows the direction of magnetic field, the middle finger shows the direction of current, and the thumb shows the direction of force.

Used for:  
Electric motor

### 3. Fleming's Right Hand Rule

Statement:

If the thumb, forefinger, and middle finger of the right hand are held mutually perpendicular, then the forefinger shows the direction of magnetic field, the thumb shows the direction of motion of conductor, and the middle finger shows the direction of induced current.

Used for:  
Electric generator

Below is Page 7 content, written in a simple, exam-ready, copy-paste format for your PDF. Clean, short, and exactly what Class 10 students need before exams.

## Sources of Energy + SI Units (Chapter 5)

### 1. Efficiency of a Device

Formula:

Efficiency = (useful output energy / input energy) × 100

Symbols:

Useful output energy = energy obtained

Input energy = energy supplied

SI Unit:

Percentage (%)

## Common SI Units Used in Class 10 Physics

### Length, Mass, Time

Length → metre (m)

Mass → kilogram (kg)

Time → second (s)

### Electric Quantities

Electric current → ampere (A)

Voltage → volt (V)

Resistance → ohm ( $\Omega$ )

### Power and Energy

Power → watt (W)

Energy → joule (J)

Commercial unit of energy → kilowatt hour (kWh)

End Note:

Revise units before every numerical.