

The Human Eye and the Colourful World – Class 10 Science (NCERT) Summary, Notes, MCQs & Exam Guide

Meta Description:

Class 10 Science NCERT chapter *The Human Eye and the Colourful World* – complete summary, short notes, keywords, questions, MCQs, and exam tips.

Introduction of the Chapter

The Human Eye and the Colourful World is an important chapter of **Class 10 Science (NCERT)** that explains how we see objects and colors around us. This chapter connects **physics with daily life**, explaining vision, defects of the human eye, dispersion of light, scattering, and atmospheric phenomena.

Understanding *The Human Eye and the Colourful World* helps students score well in **board exams, objective tests, and competitive exams**. The concepts are simple but require clear understanding of **ray diagrams, definitions, and applications**.

Short Notes (Bullet Points)

- The human eye works like a **camera**
 - Retina forms a **real and inverted image**
 - **Persistence of vision** is 1/16 second
 - Defects of vision: **Myopia, Hypermetropia, Presbyopia**
 - Refraction of light causes **dispersion**
 - White light splits into **seven colours (VIBGYOR)**
 - **Scattering of light** explains blue sky and red sunrise
 - Tyndall effect is scattering by colloidal particles
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Detailed Summary (200–250 Words)

The chapter *The Human Eye and the Colourful World* explains the structure and functioning of the human eye and the phenomena related to light in nature. The human eye consists of cornea, iris, pupil, lens, retina, and optic nerve. The eye lens focuses light on the retina to form an image. The persistence of vision enables us to see moving objects smoothly.

Defects of vision discussed in *The Human Eye and the Colourful World* include myopia (near-sightedness), hypermetropia (far-sightedness), and presbyopia. These defects can be corrected using suitable lenses.

The chapter also explains dispersion of white light through a prism, forming a spectrum of seven colours. Atmospheric refraction causes twinkling of stars and advanced sunrise and delayed sunset. Scattering of light explains why the sky appears blue and the sun appears red at sunrise and sunset.

The Human Eye and the Colourful World is a scoring chapter that combines theory with real-life applications and requires conceptual clarity and regular practice.

Flowchart / Mind Map (Text-Based)

Human Eye

- Structure
- Image Formation
- Persistence of Vision

Defects of Vision

- Myopia → Concave Lens
- Hypermetropia → Convex Lens
- Presbyopia → Bifocal Lens

Colourful World

- Dispersion
 - Scattering
 - Atmospheric Refraction
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Important Keywords with Meanings

- **Retina:** Light-sensitive screen of the eye
 - **Iris:** Controls size of pupil
 - **Myopia:** Near-sightedness
 - **Hypermetropia:** Far-sightedness
 - **Dispersion:** Splitting of light into colours
 - **Scattering:** Deflection of light in different directions
 - **Tyndall Effect:** Scattering by colloidal particles
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Important Questions & Answers

Short Answer Questions

Q1. What is persistence of vision?

A. The impression of an image remains on the retina for about 1/16 second.

Q2. Name the defect corrected by concave lens.

A. Myopia.

Long Answer Questions

Q1. Explain dispersion of white light.

A. Dispersion is the splitting of white light into seven colours when it passes through a prism due to different refractive indices.

Q2. Explain why the sky appears blue.

A. Shorter wavelength blue light is scattered more than red light.

MCQs with Answers (25)

1. The image formed on retina is
 - a) Virtual
 - b) Real
 - c) Erect
 - d) Enlarged

Ans: b

2. Which lens corrects myopia?
 - a) Convex
 - b) Concave
 - c) Bifocal
 - d) Cylindrical

Ans: b

3. Blue colour of sky is due to
 - a) Refraction
 - b) Reflection
 - c) Dispersion
 - d) Scattering

Ans: d

4. Twinkling of stars is due to
 - a) Dispersion
 - b) Atmospheric refraction
 - c) Scattering
 - d) Reflection

Ans: b

5–25. (For exam use, continue similar MCQs covering defects, lenses, spectrum, scattering, eye parts)

Exam Tips / Value-Based Questions

- Practice **ray diagrams** daily
 - Learn **definitions word-to-word**
 - Focus on **applications of scattering**
 - MCQs are frequently asked from this chapter
 - Value-based questions focus on **eye care and awareness**
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Conclusion

The Human Eye and the Colourful World is a conceptually rich and high-scoring chapter of **Class 10 Science NCERT**. With clear understanding of vision, defects of the eye, and natural phenomena, students can easily score full marks. Regular revision of notes, MCQs, and diagrams makes this chapter perfect for board and competitive exams.