

CBSE Class 10 Science Notes Chapter 11: In the class 10 Science chapter, The Human Eye and the Colourful World, students examine how these ideas relate to the human eye using their knowledge of light and some of its properties from the other chapters. Several optical phenomena are also studied by the students. This chapter also looks at the nature of rainbows and how they form, how white light splits, and why the sky is blue.

CBSE Class 10 Science Notes Chapter 11 Overview

This chapter focuses on the functioning of the human eye and how they assist us in our daily lives. Students must make the most of this time to examine the material thoroughly.

These key questions will assist students in improving their revisions and reevaluating the majority of the chapter's content. Students must understand the key questions that are likely to appear in the exams.

CBSE Class 10 Science Notes Chapter 11

The human eye is the most important sense organ since it allows us to perceive the vibrant, lovely world around us. The average diameter of the spherical eye is 2.3 centimetres. The cornea, iris, pupil, lens, ciliary muscles, retina, nerve cells, optic nerve, yellow spot, aqueous and vitreous humour, and suspensory ligament are all parts of the internal structure of the eye.

The retina is a light-sensitive screen on which an image is formed by the lens system of the human eye. The thin membrane of the eye that allows light to enter is called the cornea. The cornea's outer surface is where the majority of light refraction takes place. Behind the cornea lies a black, muscled diaphragm called the Iris that regulates pupil size.

The part of the eye called the pupil manages and regulates the quantity of light that enters the eye. When exposed to light, the light-sensitive cells are activated and produce electrical signals. The optic nerves carry these messages to the brain. After analysing these signals, the brain analyses the data to enable us to perceive objects as they are.

Defects of a Human Eye

There are a few common eye problems that affect everyone, and they have multiple causes. The adjustments can make these situations better. Among the flaws are:

Another name for myopia is short-sightedness. When compared to distant objects, an individual with this eye impairment can only perceive objects up close with clarity. A concave lens can be used to treat this issue.

Another name for hypermetropia is farsightedness. When contrasted to nearby items, a person with this eye impairment can only see distant objects. A convex lens can be used to rectify this issue.

Presbyopia is an age-related disease brought on by ciliary muscle weakness, lens hardening, and decreased lens flexibility. A person with this impairment is frequently unable to read or write and has trouble focusing on close items.

Cataract: This age-related disorder is brought on by the lens's transparency being lost as a result of lens protein degradation. It can be fixed by swapping out the old lens for a synthetic one. Usually, it causes foggy lenses and fuzzy vision.

Dispersion of White Light by a Glass Prism

The incident white light is divided into a band of seven hues using a prism. A light beam's spectrum is the range of colours that make up the beam. The sunshine spectrum was originally obtained via glass prism, thanks to the invention of Isaac Newton. When light passes through a prism, different colours of light bend at different angles to the incident beam. The violet light bends the greatest, and the red light the least. As a result, the rays of each colour have individual origins and become separated.

Atmospheric Refraction

Atmospheric refraction is the term used to describe how the Earth's atmosphere bends light. Light beams are bent as they travel through the various optical densities of the Earth's atmosphere, leading to atmospheric refraction.

Twinkling of Stars

Starlight is refracted by the atmosphere, giving the appearance of stars flashing. Before reaching Earth, starlight travels through the atmosphere and experiences constant refraction. The amount of starlight entering the eye flickers and the star's apparent position varies slightly as the light rays from the star continue on their route.

Scattering of Light

A light beam strikes the particles that are present in a medium when it passes through it. This phenomenon causes some light rays to be absorbed and others to be scattered in different directions. The size and wavelength of the particles affect the intensity of the dispersed light rays.

[wp-faq-schema title="CBSE Class 10 Science Notes Chapter 11 FAQs" accordion=1]