The human eye, it is the most valuable and sensitive sense organ which help us to see the beauty and the colorful world around us. It is similar to a camera. We all have been gifted with two eyes which gives a wider field of view.

Structure of a Human Eye

The eye is spherical in shape and has a diameter of 2.3 cm on an average. The internal structure of the eye includes- cornea, iris, pupil, lens, ciliary muscles, retina, nerve cells, optic nerve, and yellow spot, aqueous and vitreous humor, and suspensory ligament.

Defects of a Human Eye

There are few common eye disorders seen in all individuals and are caused by several factors. These conditions can be improved by the corrections. The defects include:

Myopia – This is also called as the short-sightedness. A person with this eye defect can only see the nearby objects clearly compared to distant objects. This condition can be corrected using a concave lens.

Hypermetropia – This is also called as the farsightedness. A person with this eye defect can only see the distant objects clearly compared to near objects. This condition can be corrected using a convex lens.

Presbyopia – This is an age-related condition caused due to the weakening of ciliary muscles, hardening of the lens, and reduced lens flexibility. A person with this defect usually finds difficulties to focus on nearby objects unable to read or write.

Cataract – This is an age-related condition caused due to the loss of transparency of the lens by erosion of lens proteins. It usually results in blurry vision, cloudy lenses and can be corrected by replacing the old lens with an artificial lens.

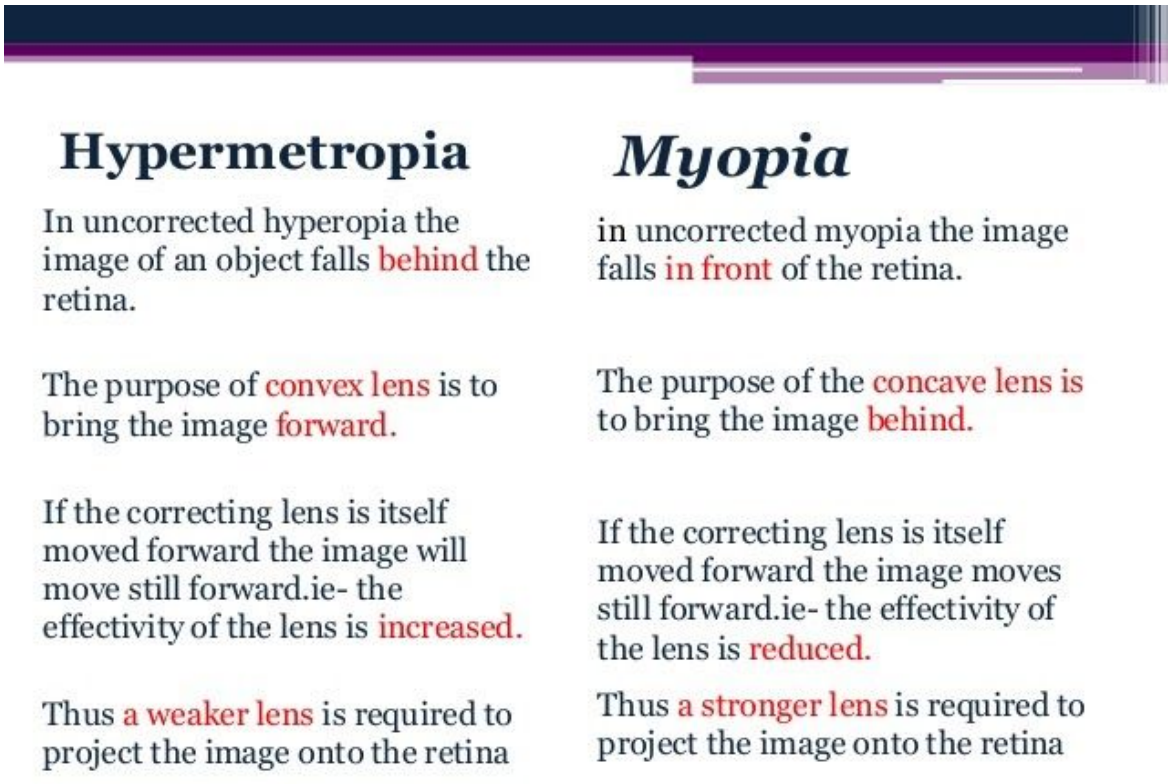
Tyndall effect

The Tyndall effect is the scattering of light as a light beam passes through a colloid. The individual suspension particles scatter and reflect light, making the beam visible. The Tyndall effect was first described by 19th-century physicist John Tyndall.

The amount of scattering depends on the frequency of the light and density of the particles. As with Rayleigh scattering, blue light is scattered more strongly than red light by the Tyndall effect. Another way to look at it is that longer wavelength light is transmitted, while shorter-wavelength light is reflected by scattering.

The size of the particles is what distinguishes a colloid from a true solution. For a mixture to be a colloid, the particles must be in the range of 1-1000 nanometers in diameter.

- What is Myopia and Hypermetropia



Questions

- Explain in detail about Newton's prism experiment ?
- Explain why do stars twinkle and why the planets do not twinkle ?
- Explain the structure and function of a human eye with a neat labelled diagram ?