

## The Human Eye

The human eye, in many respects, is similar to a camera. The **cornea** and **lens** combine to focus the image on a thin, curved layer of light sensitive cells called the **retina**. These cells respond to the various intensities and colours of the light that falls on them, and they send electric signals along the **optic nerve** to the brain. The image on the retina is inverted and reversed, but the brain straightens this out and you 'see' the image the right way up.

The image is focused on the retina by the lens. The lens is flexible and its focal length can be altered by the pressure of the ring shaped **ciliary muscles** surrounding it. The lens is thinner at the middle when the ciliary muscles are relaxed and thicker when they are contracted:

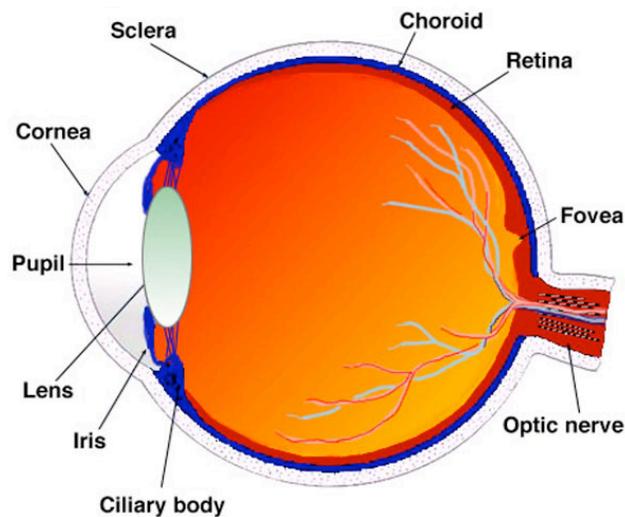
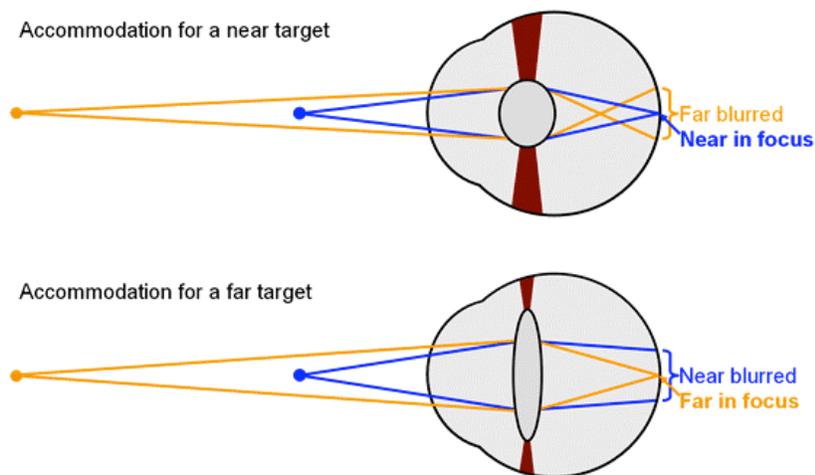


Fig. 6. Vertical sagittal section of the adult human eye.



The process of changing the shape of the lens to make it possible to see nearby and faraway objects clearly is called **accommodation**. Accommodation occurs almost instantaneously, but the human eye can only focus on one object at a time. For example, when your eye focuses on the print on this page, objects across the room are out of focus.

In front of the lens is a doughnut shaped ring called the **iris diaphragm**, or, simply the iris. The hole (aperture) in the center is known as the **pupil**. The size of the pupil is controlled by the iris, governing the amount of light entering the eye.

The eyeball itself is made up of a tough white wall called the **sclerotic**. Its front portion is transparent and forms the cornea. The shape of the eye is maintained by the pressure of colourless, transparent fluids in the eye. The liquid between the cornea and the lens is a water-like substance, the **aqueous humour**. The remainder of the eye is filled with a clear jellylike substance, the **vitreous humour**.

1. Create a Structure/function chart for the parts of a human eye.
2. Describe accommodation.

#### References:

1. Gross Anatomy of the Eye. Jan 2003. <<http://webvision.med.utah.edu/anatomy.html>>
2. SAP Design Guild. <<http://www.sapdesignguild.org/editions/edition9/images/accomodation.png>>