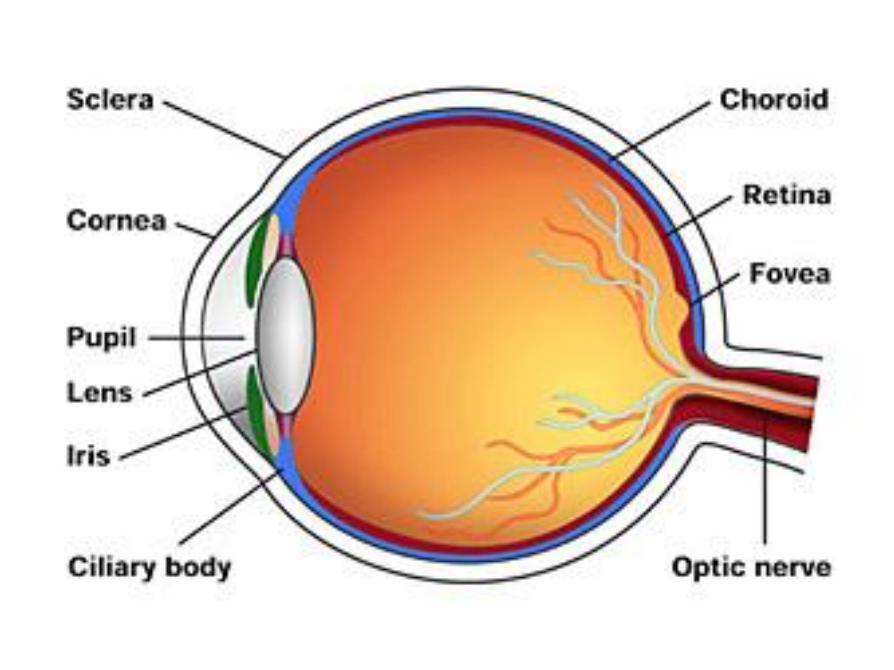
NOTES on 18.4 Seeing Light

Chapter 18 Light

The Human Eye

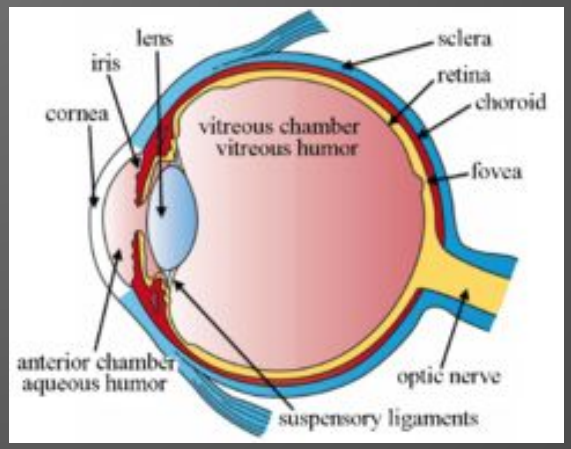
Light enters the eye through the CORNEA. This transparent front surface protects the eye and acts like a lens to help focus light rays.

The PUPIL is an opening through which light is regulated as it enters the inside of the eye.



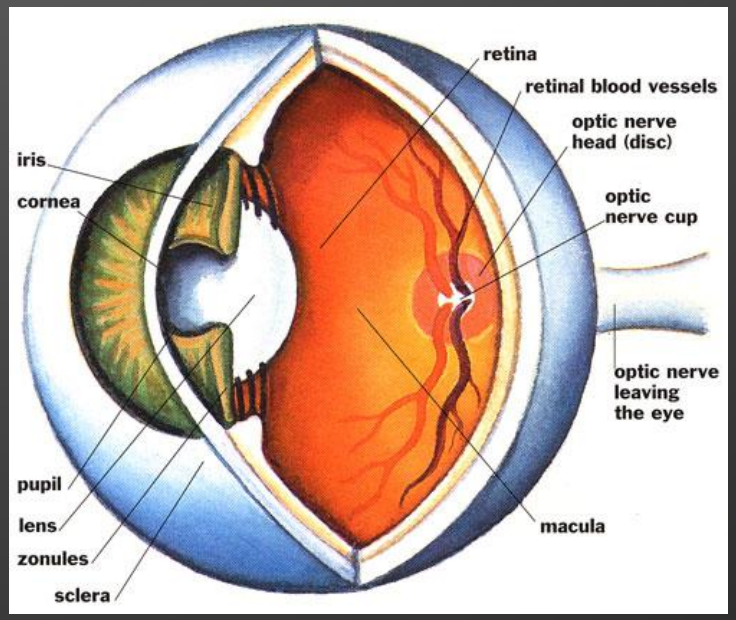
The IRIS is a ring of muscle that contracts and expands to change the size of the pupil. This gives the eye its color.

The light then passes through the LENS which is convex in shape. Ciliary muscles hold it in place. When looking at a distant object, the muscles relax and the lens becomes thinner and longer. When focusing on nearby object, the muscles contract, making the lens shorter and fatter.



After the cornea and lens refract light, an upside- down image is formed on the RETINA. This layer of cells that lines the inside of the eye acts like a movie screen.

The light-sensitive cells of the retina are called RODS and CONES.



RODS respond to small amounts of light. These allow you to see in dim light.

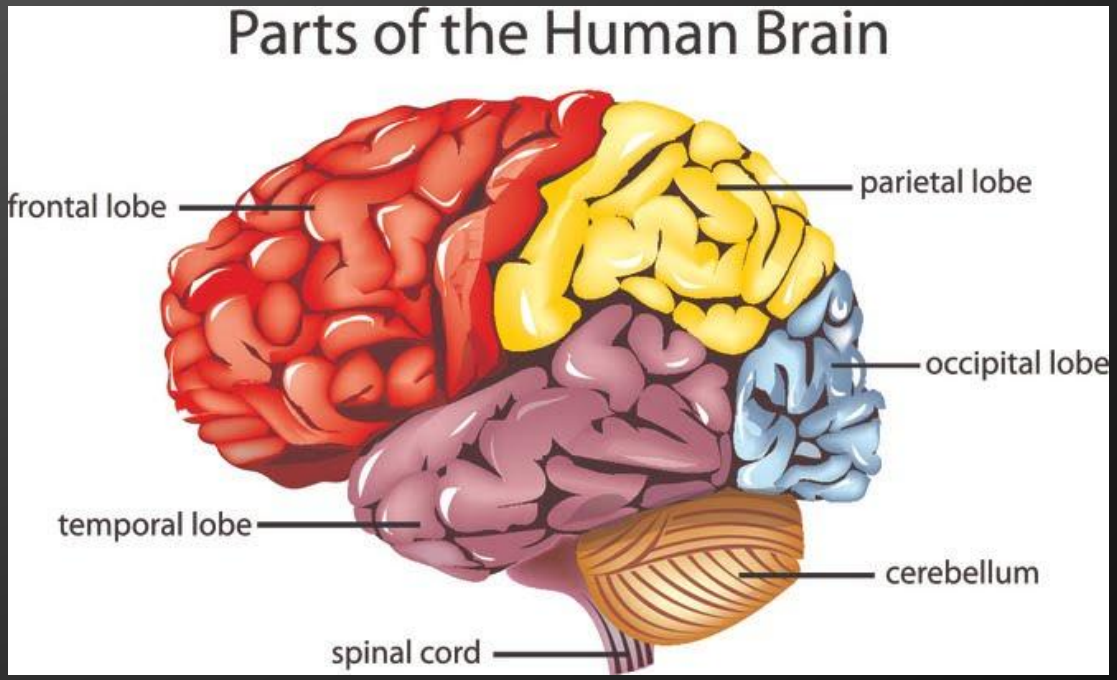
CONES are cells that respond to color. They detect red, green, and blue light. Cones respond best in bright light.

Rods and cones change images on the retina into signals that are then sent to the brain through the OPTIC NERVE.

The optic nerve begins at the blind spot. This area has no rods or cones.

(Do X and O.)

The BRAIN will then interpret the signals. It will change it into an *upright image*. It will also combine the image received from both eyes into a *3-dimensional image*.



NEARSIGHTEDNESS

CAN see NEAR

The eyeball is too long, making the focal point in front of the retina.

Concave lenses are used to correct.

FARSIGHTEDNESS

CAN see FAR

The eyeball is too short, making the focal point behind the retina.

Convex lenses are used to correct.