

Eyes and Vision

This text is excerpted from an original work of the Core Knowledge Foundation.

The human eye has several parts. I'd like to start by showing you two parts you can see easily.

In the images here, you can see what eyes look like up close. The pupil is the black part in the center of the eye. The iris is the colorful part of the eye that surrounds the pupil.

The iris can be different colors. Some of you may have green eyes or brown eyes. When we say that a person has green eyes or brown eyes, it's his or her irises we are talking about.

The pupil is not as colorful as the iris. It is always black, but it changes shape. When it is dark, the pupil gets bigger to let more light in. When it is very bright and sunny, the pupil shrinks to let less light in. How much light will be let into the inside of your eye depends on the shape of the pupil.



The top picture shows a large pupil, which is letting more light in. The bottom picture shows a small pupil, which is letting less light in.

Now, let's learn about some parts of the eye that you can't see just by looking at a person's face.

This diagram shows some parts of the eye as they would look if you could see inside a person's head. You are looking at them from the side.

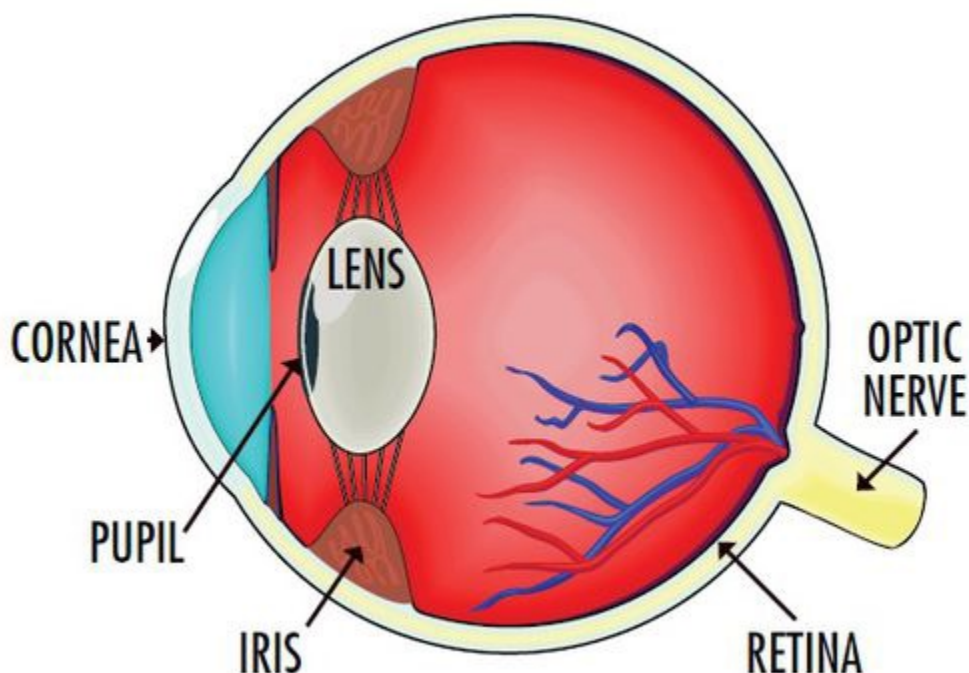
You can see the iris and the pupil. There are also some other parts shown.

The cornea is a thin, clear tissue that covers the colored part of the eye. It helps protect the eye from dirt and germs.

The lens is the part of your eye that focuses light. The lenses in your eyes curve outward.

The retina is made of a special kind of tissue that is very sensitive to light. Light from the lens falls on the retina. Then, nerves in the retina send messages to the brain.

These messages travel down a nerve called the optic nerve.



The human eye

Now, let's see how all of these parts work together so you can see things. You may be

surprised to learn that the eye does not really see objects. Instead, it sees the light that reflects off objects.

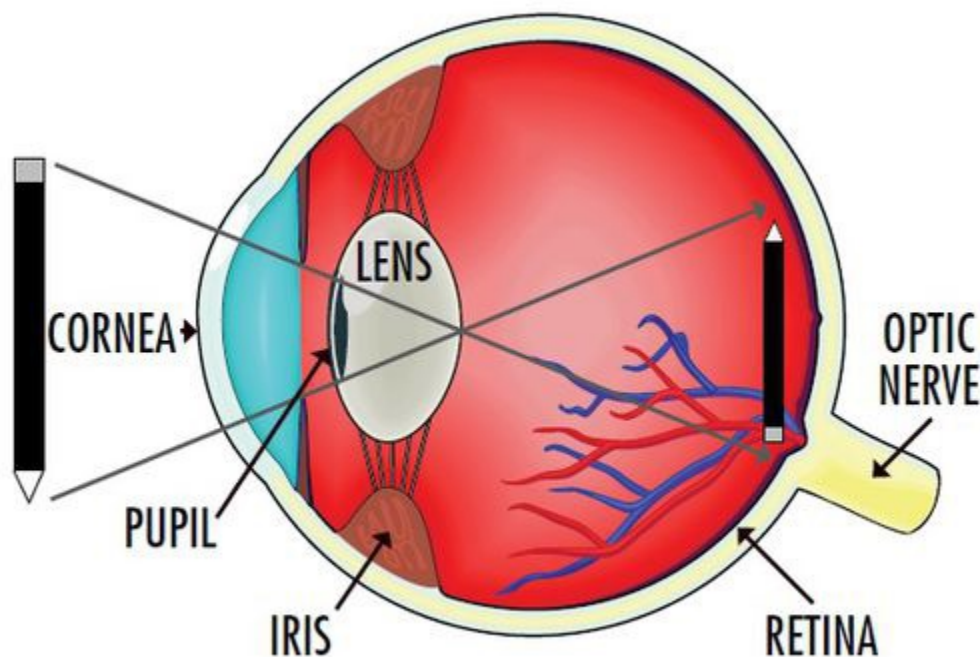
Light passes into the eye-first through the cornea, and then through the pupil. If it's dark, the pupil expands to let more light in. If it's bright, the pupil gets smaller to let less light in. When a doctor shines a light in your eyes, she is watching to see if your pupils change shape.

Next, the light passes through the lens, which focuses the light and projects it onto the retina.

The retina is lined with special cells called rods and cones. These are special kinds of nerve cells that sense light. The rods and cones send information to the brain, using the optic nerve.

All of this happens very quickly-so quickly that it seems like you see things at the exact moment you look at them. In reality, though, you are seeing them a split second later.

The brain combines the information passed through the optic nerve of each eye to make one image. That is when you "see" the object.



Your eyes see light reflected off objects.