Intermountain® Healthcare

How Your Eyes Work

The eye is a round organ about the size of a ping pong ball that sits in the sunken area of the face known as the "bony orbit." Our eyes let us see everything around us by collecting and processessing light in 2 ways:

1. **Central vision** — when light bounces off people and things we look at directly
2. **Peripheral** [puh-RIF-er-uhl] **vision** — when our eyes process light from what we look at indirectly

The eye captures light (even at night) and changes it into electrical signals, which are then transmitted to the brain to form the images we see.

Wise choices

Protect your eyesight by:

- Eating a healthy diet
- Not smoking
- Using eye protection during hobbies, on the job, or when playing sports
- Resting your eyes often when viewing electronic screens (such as computers, phones, and tablets) and using lubricating drops when your eyes are dry
- Wearing sunglasses that block harmful sun rays when outdoors
- Having a thorough eye exam each year

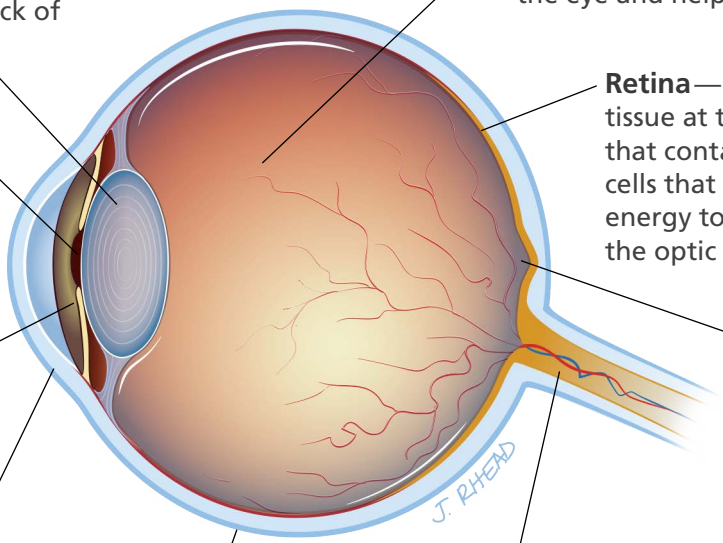
The parts of the eye

Lens—Located right behind the pupil, the lens helps focus light from items that are both far away and close up towards the back of the eye.

Pupil—A dark hole in the middle of the iris that widens and narrows to control the amount of light that gets to the back of the eye.

Iris—The colored part of the eye, the iris controls the amount of light entering the eye through the pupil.

Cornea—A clear dome over the iris that helps focus light to make things look sharp and clear.



Sclera—A protective outside coating of the eyeball.

Optic nerve—A collection of over 1 million nerve fibers that transmit visual messages to the brain.

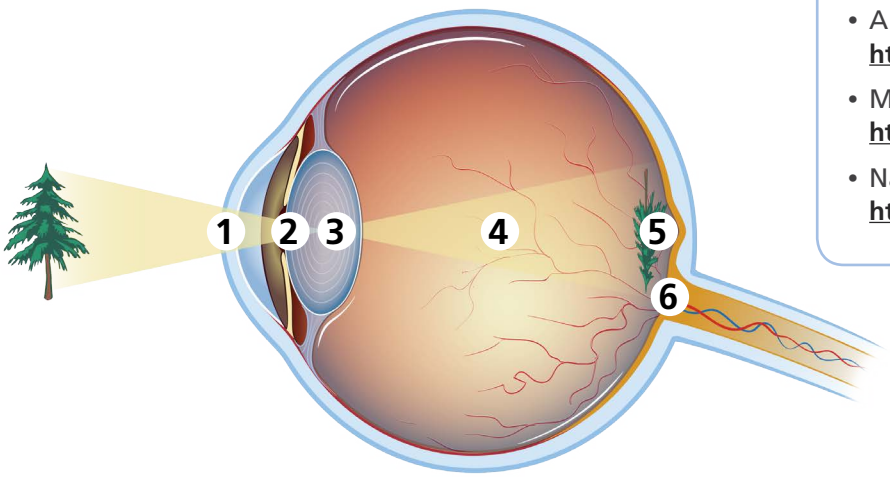
Vitreous humor—A clear, jelly-like substance that nourishes the inside of the eye and helps it keep its shape.

Retina—A thin, light-sensitive tissue at the back of the eye that contains "rod" and "cone" cells that help transmit light energy to the brain through the optic nerve.

Macula—The tiny area of the retina needed for central vision where cone cells are concentrated (rods make up the rest of the retina and transmit peripheral vision information).

How the eye helps you see

Seeing happens when light is reflected from an object in your field of vision. The light enters the eye. It then gets focused to the back of the eye where the light is converted into signals that can be delivered to the brain's visual centers.



Where can I learn more?

- Kid's Health: **http://kidshealth.org/PrimaryChildrens/en/kids/eyes.html**
- American Academy of Ophthalmology: **https://www.aao.org/eye-health/anatomy/parts-of-eye**
- American Optometric Association: **https://www.aoa.org/patients-and-public**
- MedlinePlus: **https://medlineplus.gov/retinaldisorders.html**
- National Eye Institute: **https://nei.nih.gov/kids/about_the_eye**

Let's follow the light.

1 The first thing the light touches is the **cornea**, which helps focus the light.

2 Then, light passes through the **pupil**, which can change size to control how much light gets in.

3 Next the light goes through the **lens** to focus the shape, depending on whether the light reflects off something near or far away from you.

4 Then, the light travels through the center of the eye that is filled with a clear jelly (known as the **vitreous**).

5 Finally, the light lands on the retina, which contains millions of cells called **photoreceptors** [foh-toh-ri-SEP-terz]. There are 2 types of photorecptors:

- **Rods**, which perceive black and white and help us with night vision
- **Cones**, which perceive color and provide detail vision

6 These **photoreceptors** change light into electrical signals that travel along the nerve fibers in the retina to the optic nerve.

7 The **optic nerve** carries the electrical signal to the visual center in the back of the brain. Your brain 'sees' that message as an image.