

# Cross Section **HUMAN EYE** MODEL



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*Explore the mystery of sight through hands-on investigation!*

## How an eye works

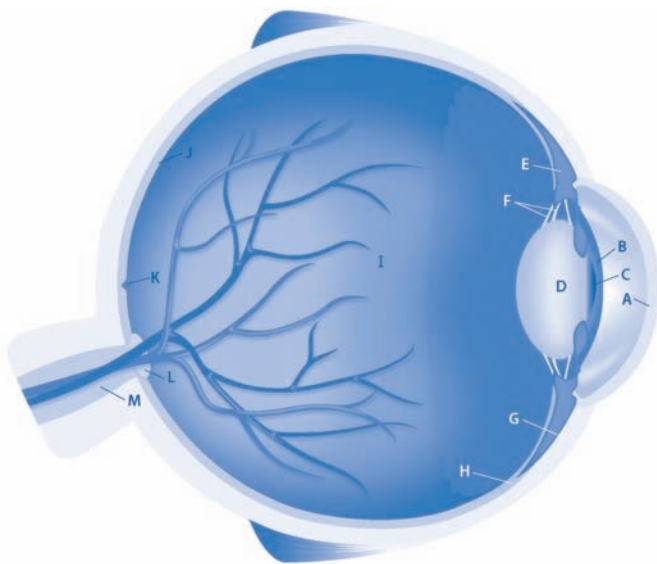
The eye is where light enters the body and is changed into nerve impulses sent to the brain by the optic nerve to be interpreted as the images we see. The retina is the main light-sensing part in the eye and it contains millions of cells called rods and cones. Rods are responsible for interpreting low-light and black, white, and gray images. Cones are responsible for interpreting colors and fine details and work best in bright light. Sometimes people can not see clearly because of an irregularly shaped or improperly working eye part. When this occurs, a person may have to wear contacts or glasses that help focus light correctly on the retina.

## Interesting Eye Facts

- Color blindness occurs when a person is unable to distinguish between different colors such as red and green. Color blindness is more commonly found in males and is caused by certain cones in the eye that are not present or not functioning properly.
- Vitamin A is important for healthy eyes. A lack in vitamin A can cause nighttime sight deficiency. Foods such as sweet potatoes and carrots are good sources of vitamin A.
- Red pupils in photographs are actually blood vessels in the back of the eye reflecting from the camera flash.
- Looking directly at the Sun is dangerous because it can cause damage to the rods and cones in the retina which can lead to blind spots and permanent loss of vision.
- Tears help keep the eye clean from dust, germs, and other particles. Tears form every time a person blinks to keep the eyes from drying out.

**E**xplore the mysteries of the human eye with this cross-section foam eye model. A hands-on introduction to the optical universe, this model is great for teaching the importance of sight in overall body function. Featured are general facts about vision and detailed explanations for each eye part represented by the model.

## **Parts of a human eye** (as represented by the model)

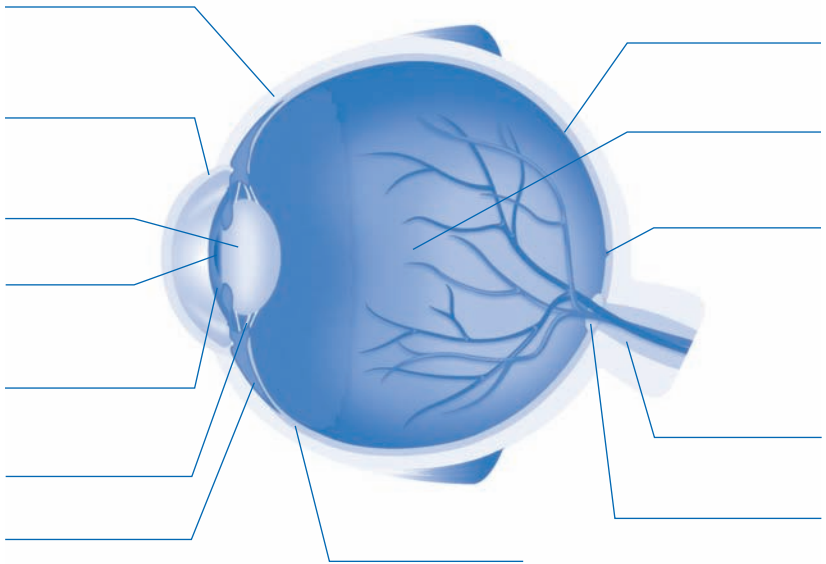


- A. **cornea** – clear, thin part of the eye that refracts light to help the eye focus and covers the iris and pupil
- B. **iris** – colored part of the eye that expands and contracts around the pupil
- C. **pupil** – dark center of the iris that controls the amount of light that enters the eye
- D. **lens** – bends and focuses light entering the eye on the retina
- E. **ciliary muscle** – muscle that contracts or relaxes the lens changing its shape to focus on objects near or far away
- F. **zonules** – small fibers that connect the lens to the ciliary muscle
- G. **sclera** – the white, outer coating of the eye
- H. **choroid** – layer of blood vessels between the retina and sclera that provides nutrients to the back of the eye
- I. **vitreous humor** – transparent liquid that fills the cavity of the eye to supply it with nutrients and give it shape
- J. **retina** – light-sensitive nerve tissue in the back of the eye that produces nerve impulses interpreted by the brain
- K. **macula** – center part of the retina that sees fine details and allows the eye to perform tasks like reading
- L. **optic disc** – blind spot in the eye containing no rods or cones that forms the entrance to the optic nerve
- M. **optic nerve** – sends the image information from the retina to the brain to interpret

Name: \_\_\_\_\_

## Worksheet

Fill in the parts of an eye.



## Suggested Activities

- Allow students to hold the cross-section foam eye model. Ask for observations and have them discuss what they already know about eyes and the sense of vision.
- Using the letters on the one-half of the eye model, quiz students on the different parts of an eye. Make photocopies of page 6 to use as a quiz.
- Encourage students to research on the internet or at the library to discover more about eyes and sight.
- Have students sit in a circle and pass the model's two halves in opposite directions. When one student receives both halves at once, that student should recite one fact about eye sight or name an eye part. After the fact is verified correct, redistribute halves to two different students and start again. Facts or eye parts should not be repeated more than once.

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