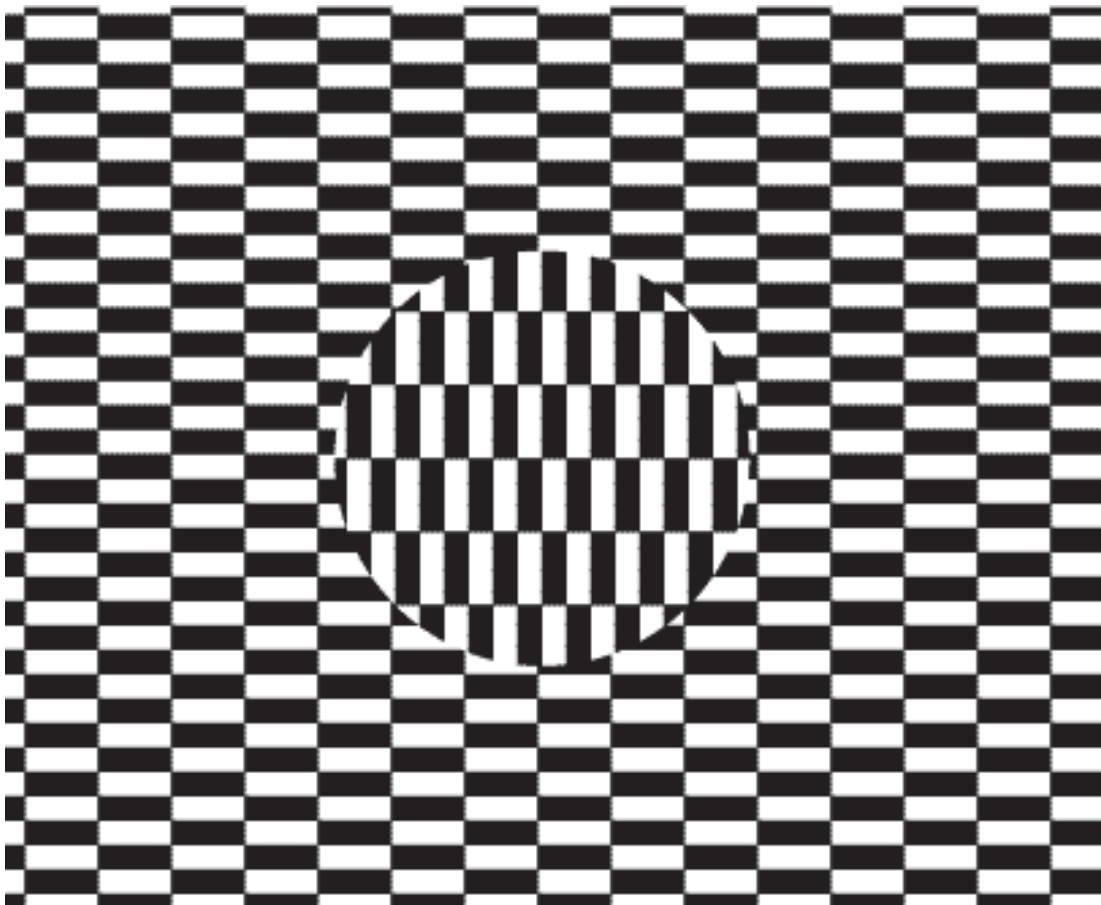



## Optical Illusion – Eye Tricks

This one will make you dizzy. Try focusing on just the center circle while moving your head.





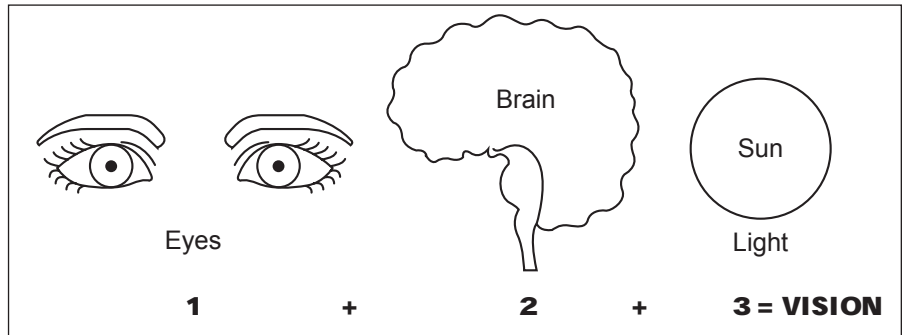
# The Visual System

The human eye is composed of many parts that work together. They receive visual images, focus them properly, and send messages to the brain.

To have vision, you must have three things:

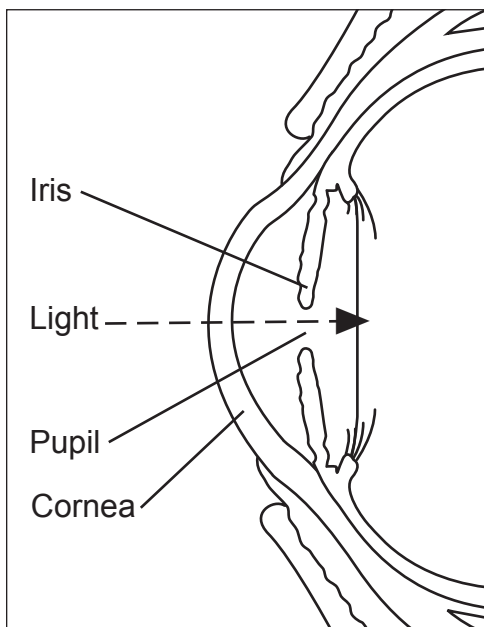
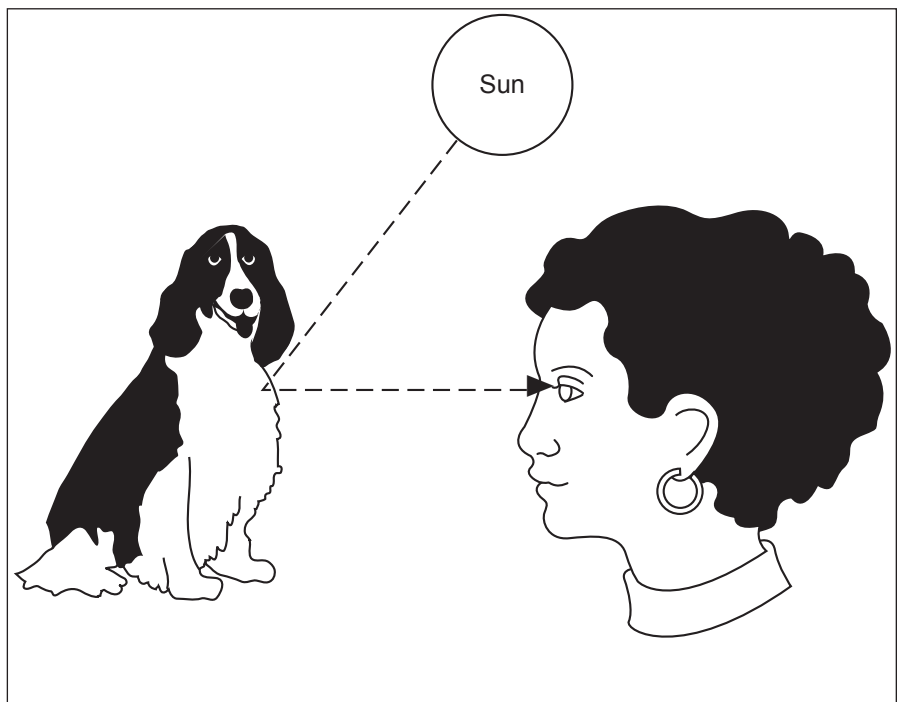
- (1) eyes,
- (2) a brain, and
- (3) light.

So how does all this work? We start with light.



Light rays bounce off an object you are looking at. Let's say the object is a dog. The light reflects off the dog's image and comes back to your eye.

Light then enters through the outer part of the eye, called the **cornea**. The cornea is clear like a window. The cornea helps the eye to focus. "To focus" means to make things look sharp and clear.



Next, the light rays go through an opening called the **pupil**. The pupil is the dark round circle in the middle of the colored part of your eye. The colored part is called the **iris**. The pupil is really a hole in the iris. The iris controls how much light goes into your eye.

*Continued on next page*

# Experiments to Try

## Are Two Eyes Better Than One?



### Senses Experiment: Are Two Eyes Better Than One?

#### WHAT THIS EXPERIMENT SHOWS:

How two eyes give you more depth perception, which is the ability to judge how near or far objects are.

#### WHAT YOU NEED:

Two pencils

#### WHAT TO DO:

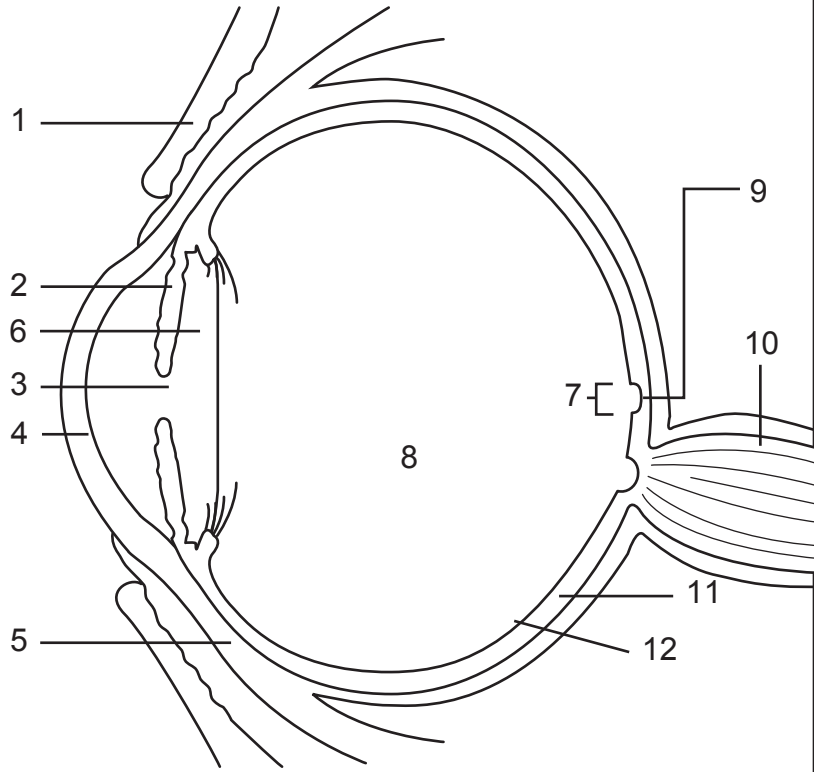
1. Hold a pencil lengthwise (on its side) in each hand.
2. Now, with one eye closed, try to touch the erasers together. Did you miss?
3. Now, try it with both eyes open. Voila! Two eyes give you better depth perception.

# Scramble and Word Search

## Scramble

Unscramble the parts of the eye listed below. *Hint:* The location of each is shown on the diagram.

1. dyelie \_\_\_\_\_
2. siir \_\_\_\_\_
3. lpuip \_\_\_\_\_
4. onarce \_\_\_\_\_
5. rsleca \_\_\_\_\_
6. nesl \_\_\_\_\_
7. aclamu \_\_\_\_\_
8. stivorue mhuro \_\_\_\_\_
9. ovafe \_\_\_\_\_
10. pocit verne \_\_\_\_\_
11. drohcio \_\_\_\_\_
12. tranie \_\_\_\_\_



Photocopy from original for best quality.

## WORD SEARCH

Can you find these hidden words?

- IRIS
- EYE
- RETINA
- LENS
- CORNEA
- MACULA
- PUPIL
- CELL
- NERVE

R A C L I N E R V E  
 E E Y E Y T E A O Y  
 R E T N E A C A C C  
 P U P I L U E C L O  
 N E S R N Y N O E R  
 A P I I V A R T N N  
 E I E S P A N Y S E  
 M E I V A N I T E A  
 E A S U O E R T I V  
 T E C R A C U L A P  
 O D D U T I E S D A  
 F L E N L L D L N S  
 D O R V E A M A L E



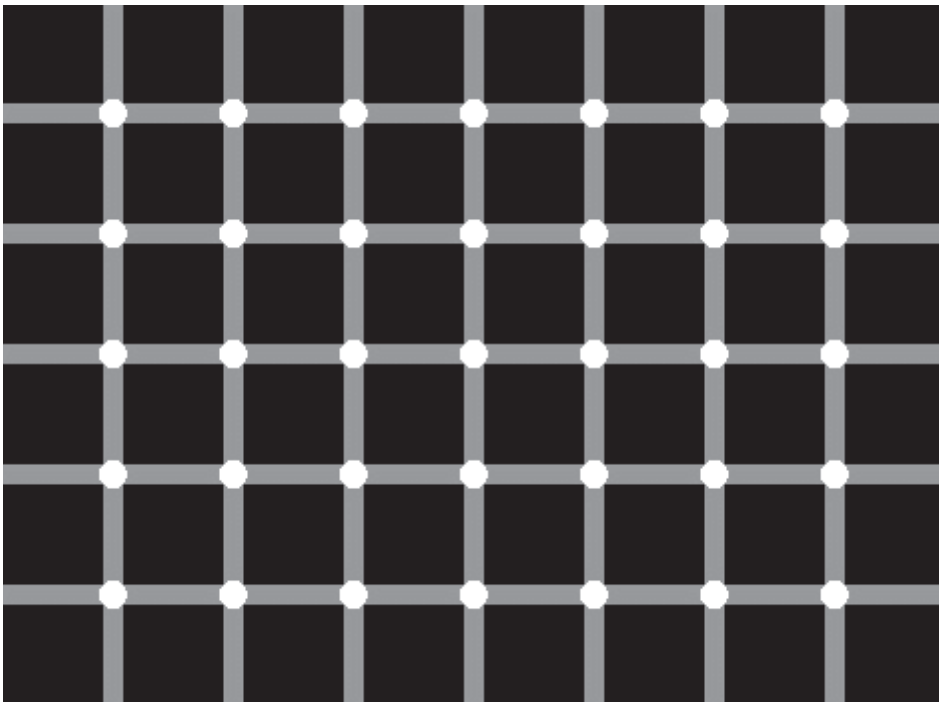
*Eye-Opening Facts*

## History Tells Us...

▲ Abraham Lincoln was farsighted and had a "lazy eye." His first pair of eye-glasses cost about 38 cents.

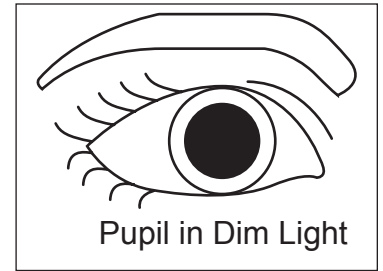
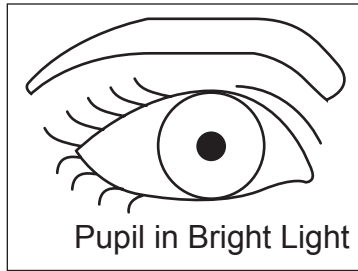
# Optical Illusion – Eye Tricks

Try to count the number of black dots on the image below.....



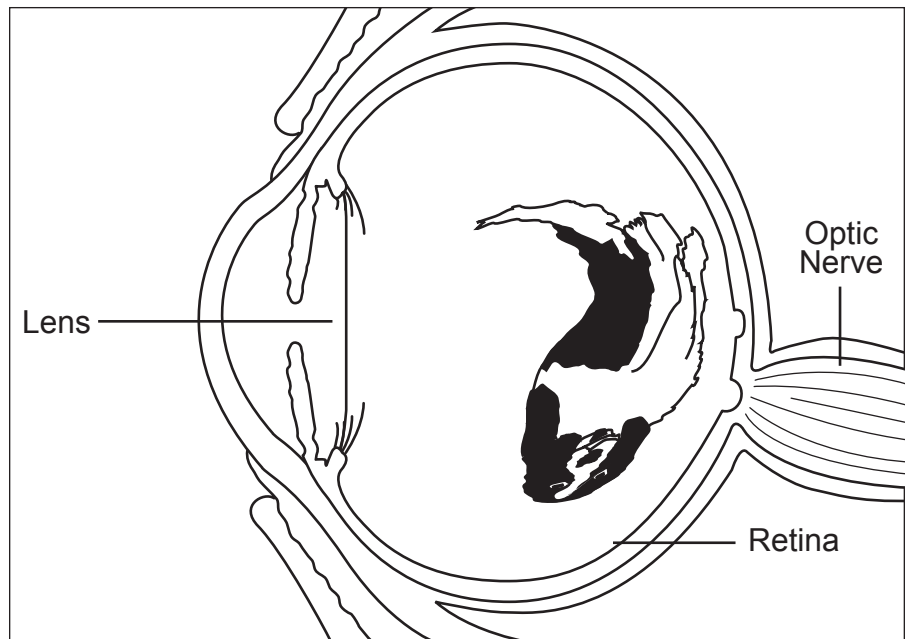
## HANDOUT: The Visual System (continued)

**W**hen the light is bright, the iris closes the pupil until the right amount of light gets in. When the light is dim, the iris opens the pupil to let in more light. All of this happens automatically. You do not have to tell your eye to do it!



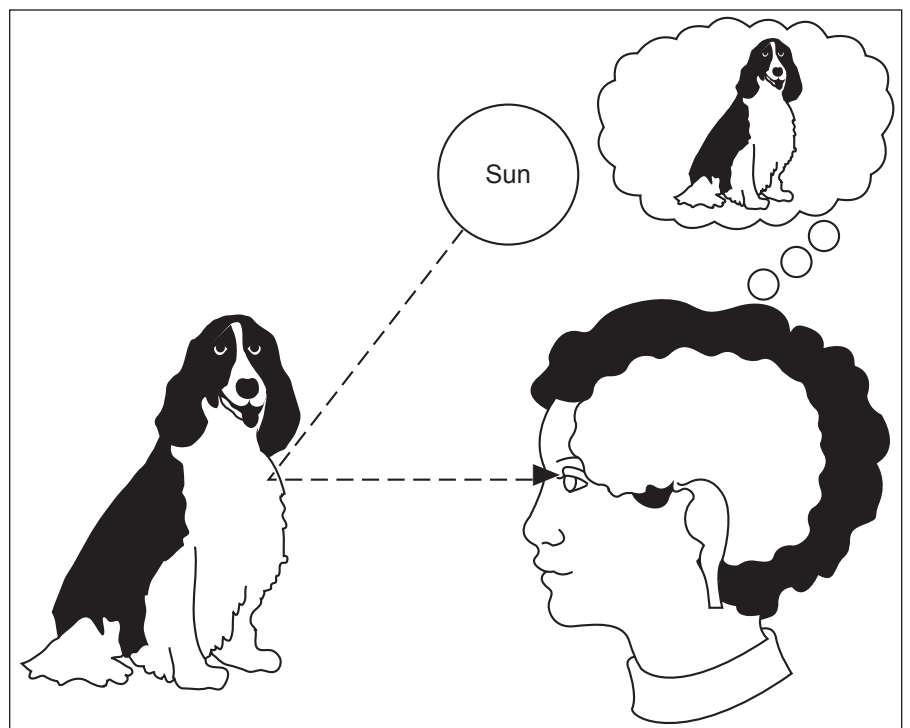
**Y**our eye has a **lens** to focus the rays of light. The lens of the eye is behind the iris. Light passes through the lens on its way to the back of the eye.

The back of the eye is very important. Lining the inside of the eye is the **retina**. The retina includes 130 million tiny light-sensitive cells that send messages to other cells. These cells come together at the back of the eye to form the **optic nerve**. The optic nerve is part of the brain.



Fortunately for you, your brain decides how you see. The retina sees the world upside down, but the brain turns it right side up.

**W**hen you look at an object, each eye sees a slightly different picture. The brain combines the images, or pictures, that each eye sees and makes them into one picture.





## The Anatomy of the Eye

- ▲ **Choroid** (KOR-oyd)  
A layer of blood vessels that feeds the retina.
- ▲ **Cornea** (KOR-nee-uh)  
The clear outer part of the eye's focusing system located at the front of the eye.

- ▲ **Eyelid**  
The skin-covered structure that protects the front of the eye; limits light entering the eye; spreads tears over cornea.
- ▲ **Fovea** (FOH-vee-uh)  
The center of the macula; gives the sharpest vision.

- ▲ **Iris**  
The colored part of the eye; regulates the amount of light entering the eye.
- ▲ **Lens**  
The clear part of the eye behind the iris that helps to focus light on the retina. Allows the eye to focus on both far and near objects.

- ▲ **Macula** (MAK-yoo-luh)  
The small sensitive area of retina that gives central vision; contains the fovea.

- ▲ **Optic nerve**  
The bundle of over one million nerve fibers that carries visual messages from the retina to the brain.

- ▲ **Pupil**  
The opening at the center of the iris. The iris adjusts the size of the pupil and controls the amount of light that can enter the eye.

- ▲ **Retina** (RE T-in-nuh)  
The light-sensitive tissue lining the back of the eyeball; sends electrical impulses to the brain.

- ▲ **Sclera** (SKLEH-ruh)  
The tough, white outer coat of the eye.

- ▲ **Vitreous Humor** (VIT-ree-us)  
The clear gel filling the inside of the eye.

