

# Are Elephants Colorblind?



Exploring How Elephants See the World

# How Do Humans See?

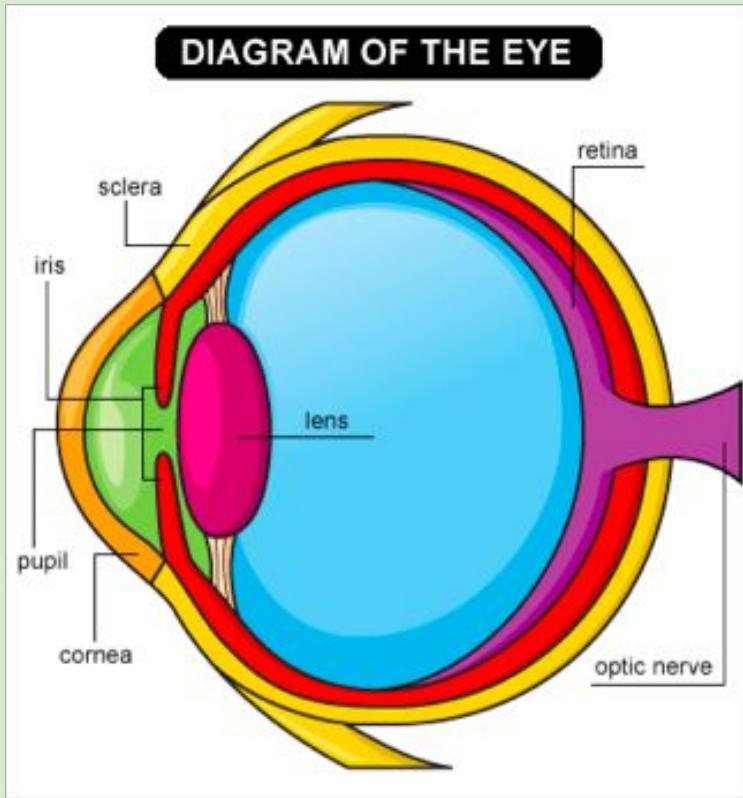
- Humans have three types of cones in their retina: Red, Blue, and Green, a condition known as trichromic vision.
- These cones are specialized cells in the retina that respond to light.
- Cone cells help us see color and function best in bright light.
- Rod cells are also present and are most sensitive to changes in light, shape, and movement, helping us to see in dim light.

# How Do Elephants See

- Research has shown that elephants are colorblind compared to humans.
- In daylight, elephants are dichromic, meaning they have two types of cones: one for red and one for green.
- However, this does not mean they cannot make sense of their visual world; it just means they see things differently.
- They can see blue and yellow, but reds and greens are not distinguishable.

Interestingly, colorblind humans share the same sets of visual pigments as elephants.

# Picture of an Elephants Eye



# Elephant Vs. Human Vision

## Elephant Vision:

- Clear vision only up to about 10 meters
- Can only see for short distances, up to 25 meters
- Have limited peripheral vision
- Eyes change with the time of day, a condition called arrhythmic vision

## Human Vision:

- Better long-distance vision
- better peripheral vision



# **Elephants See in the Dark**

**Elephants have arrhythmic vision, which allows their vision to change with the time of day.**

**At night, their eyes are extremely sensitive to blue and violet light.**

**This allows them to see well with just a small amount of daylight, letting them see well into the night compared to humans.**

**However, if clouds block all moonlight, an elephant is "virtually blind."**



# Other Elephant Senses

- Since an elephant's eyesight is not as good as a human's, their other senses have adapted to make up for this difference.
- An elephant's sense of smell is unparalleled. Its 5 times better than humans.



- Their acute sense of smell, along with their senses of touch, hearing, and the ability to detect vibrations, are also used for communication.

# Fun Facts About Elephant Eyes

- Elephants have long eyelashes to help protect their eyes from sand, dirt, and other particles.
- They have three eyelids: an upper, a lower, and a "third eyelid" called a nictating membrane.
- This nictating membrane moves vertically across the eye, protecting it while the elephant is feeding or bathing, and keeping it moist and clean.

