Behind the iris, there is a convex structure called the lens.
The lens adjusts its thickness based on the distance between the eye and the object, allowing us to see the object clearly.

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General Onologic Soft

K5.1.1 K5.1.1

K5.1.1 The Structure of Eyes and the Process of Seeing

GM Kids Series GM Kids Series

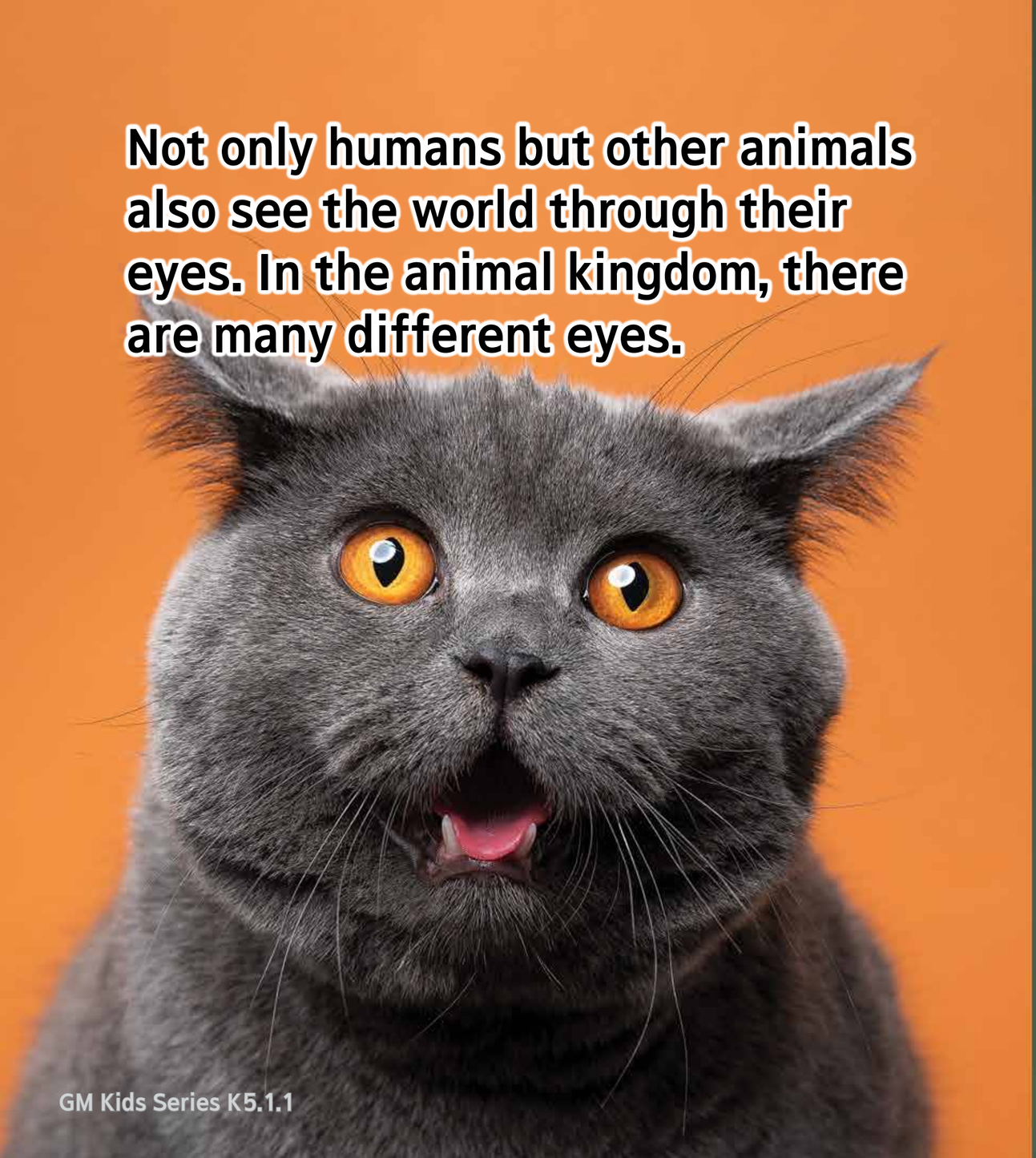
The Structure of Eyes and the Process of Seeing

General Onologic Soft

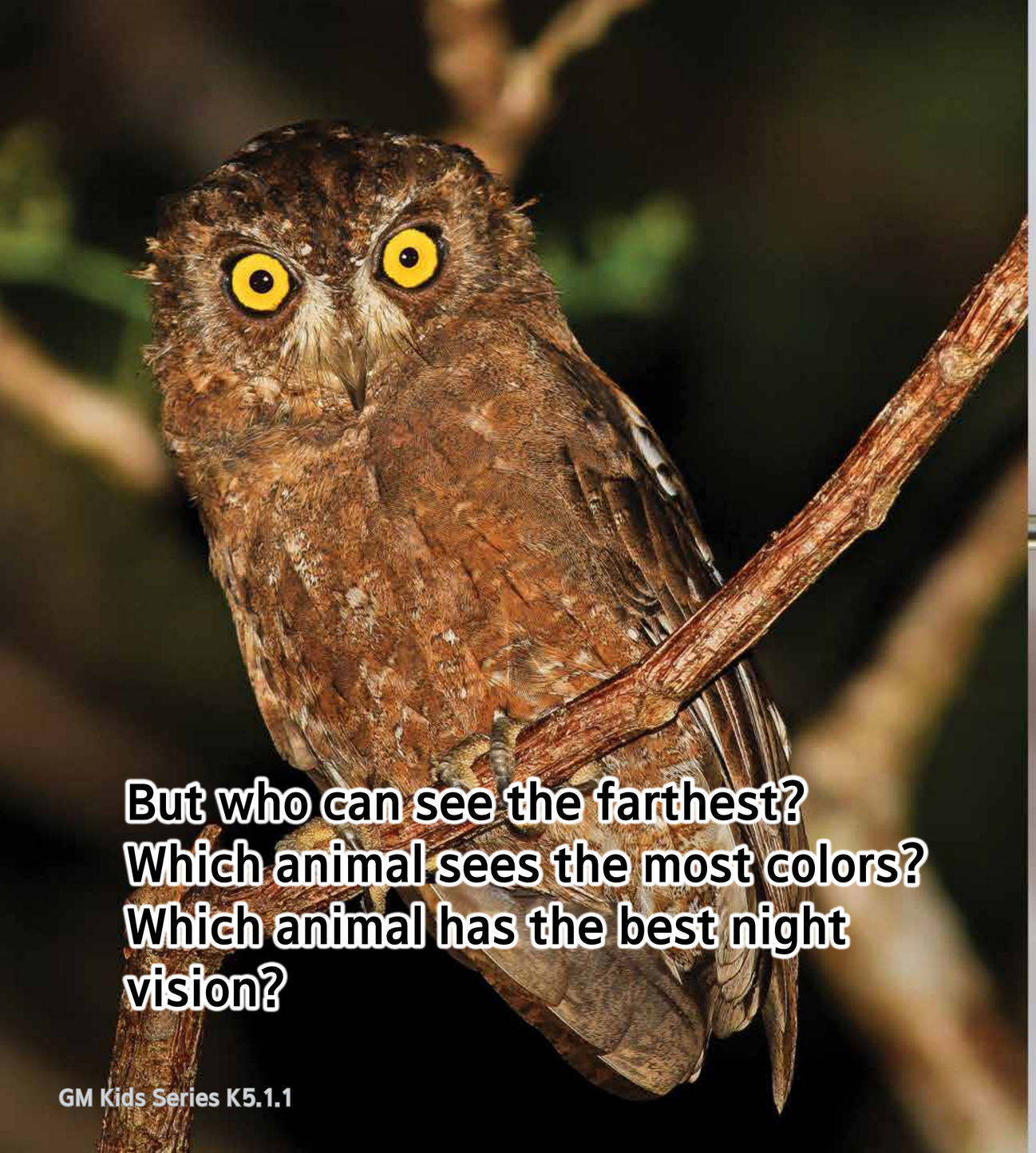
Our eyes are in charge of sending the beautiful scenes we see to the brain. We have eyes on each side of our face, forming a pair, but what we see on the outside is not the entire eye.

Our eyes are round like ping pong balls. They have a diameter of about 2.4 cm. Because the eye is round like a ball, it is also called an eyeball.

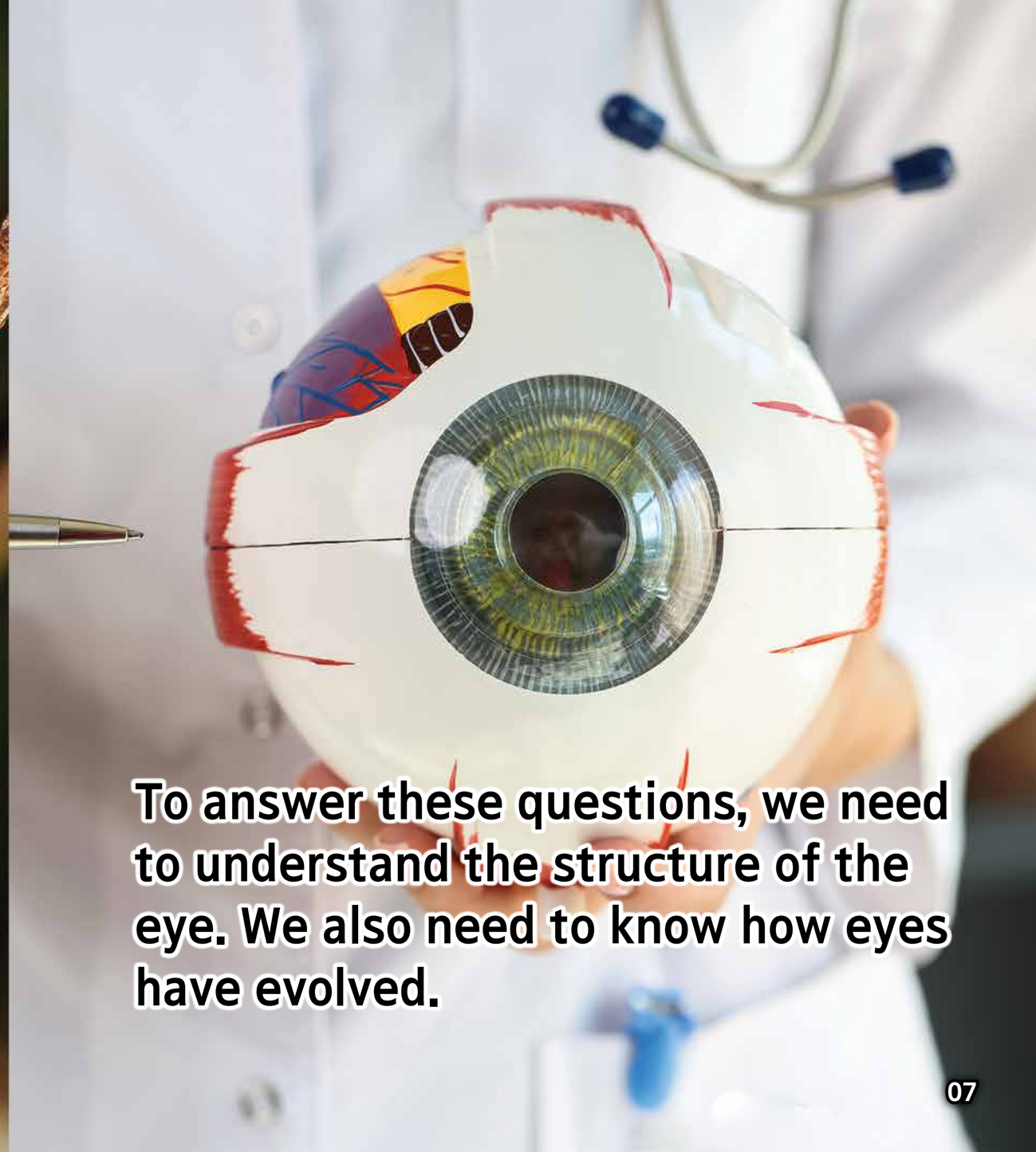
Not only humans but other animals also see the world through their eyes. In the animal kingdom, there are many different eyes.



Chameleons can move each eye separately. Horned lizards can even squirt blood from their eyes.



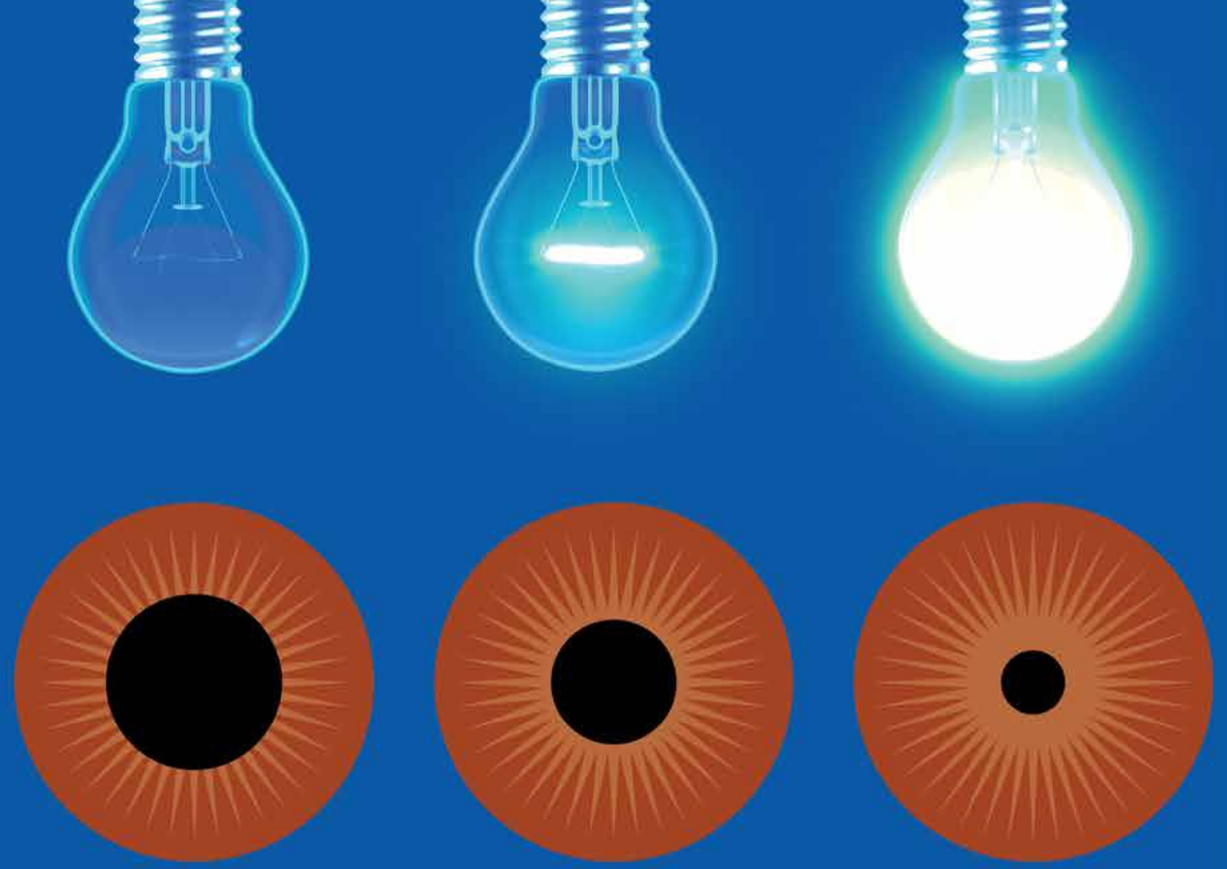
But who can see the farthest?
Which animal sees the most colors?
Which animal has the best night vision?



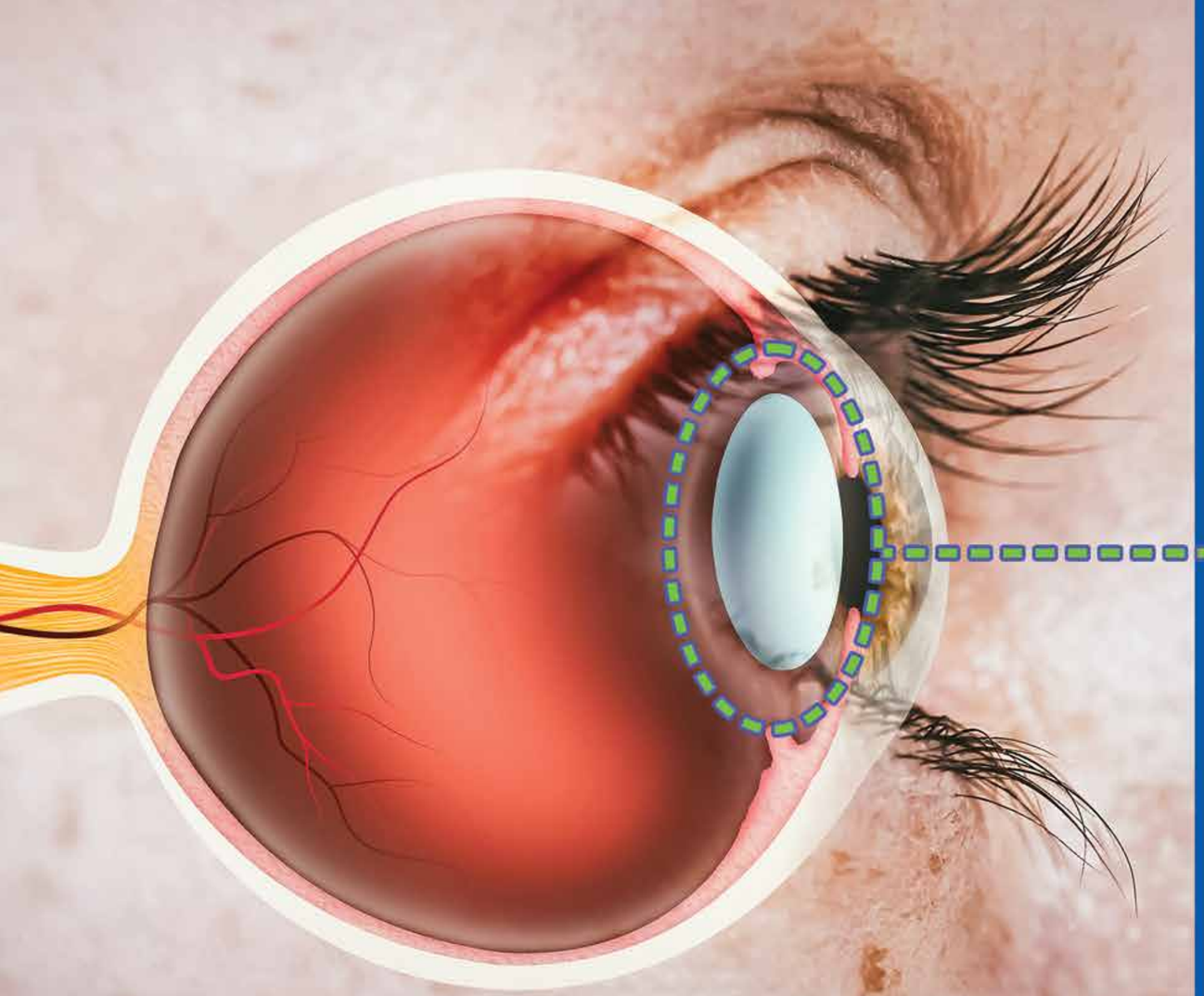
To answer these questions, we need to understand the structure of the eye. We also need to know how eyes have evolved.

At the very front of the eye, there is a tissue called the cornea.
The cornea acts as a protective shield for the eye and works like a camera lens by bending light.

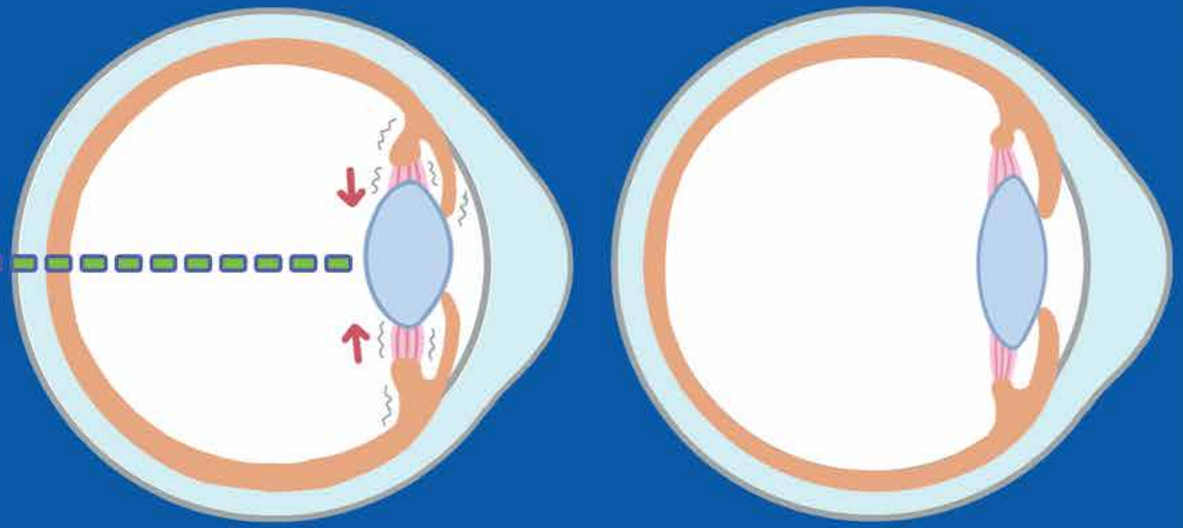
Around the pupil, there is a tissue called the iris, which determines the color of the eye.



The iris expands and contracts to change the size of the pupil, controlling the amount of light that enters the eye.

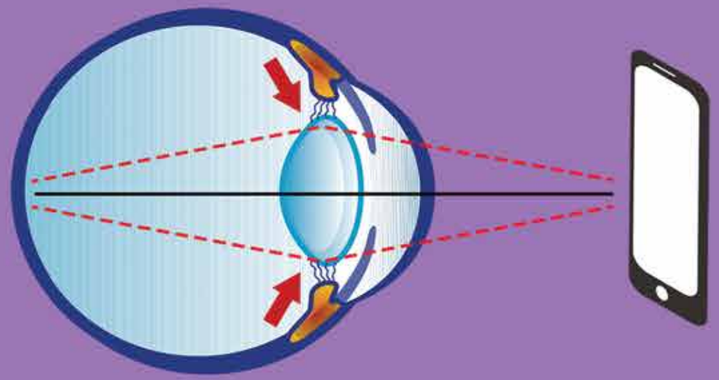


Behind the iris, there is a convex structure called the lens.

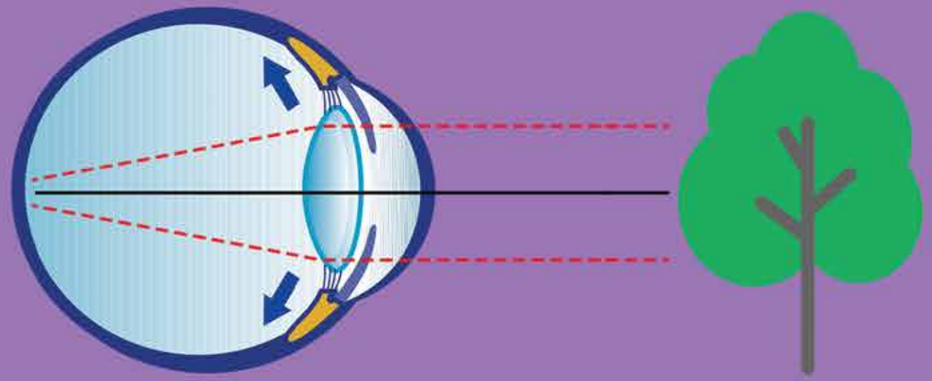


The lens is soft like jelly, allowing it to easily adjust its thickness based on the distance between the eye and the object.

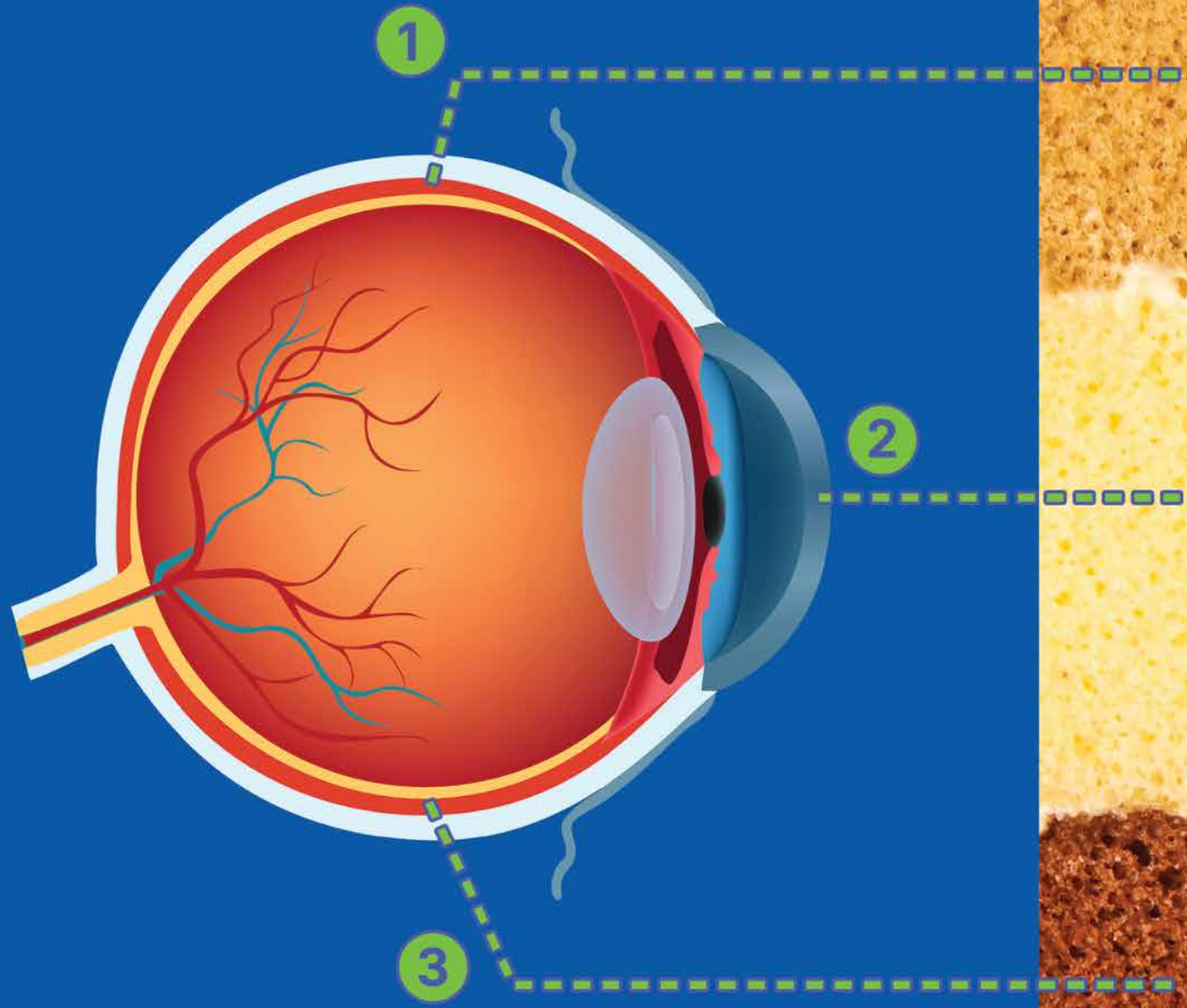
CLOSE DISTANCE



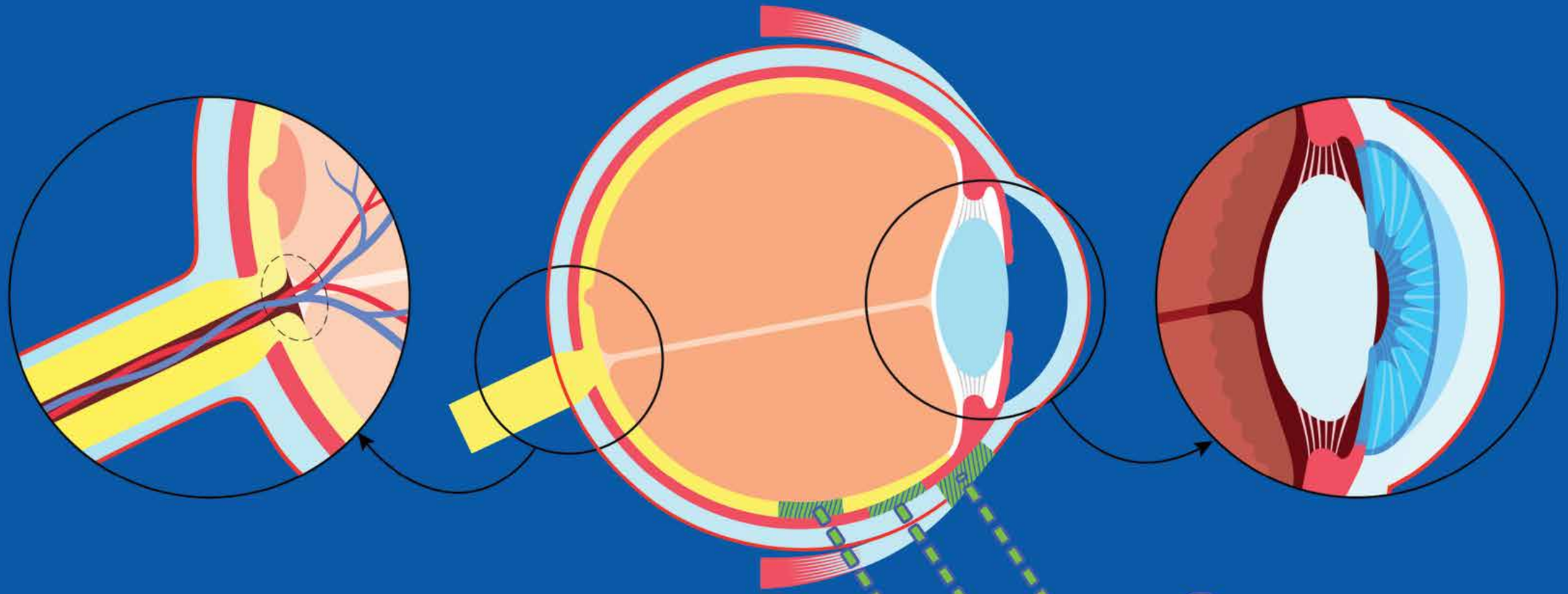
LONG DISTANCE



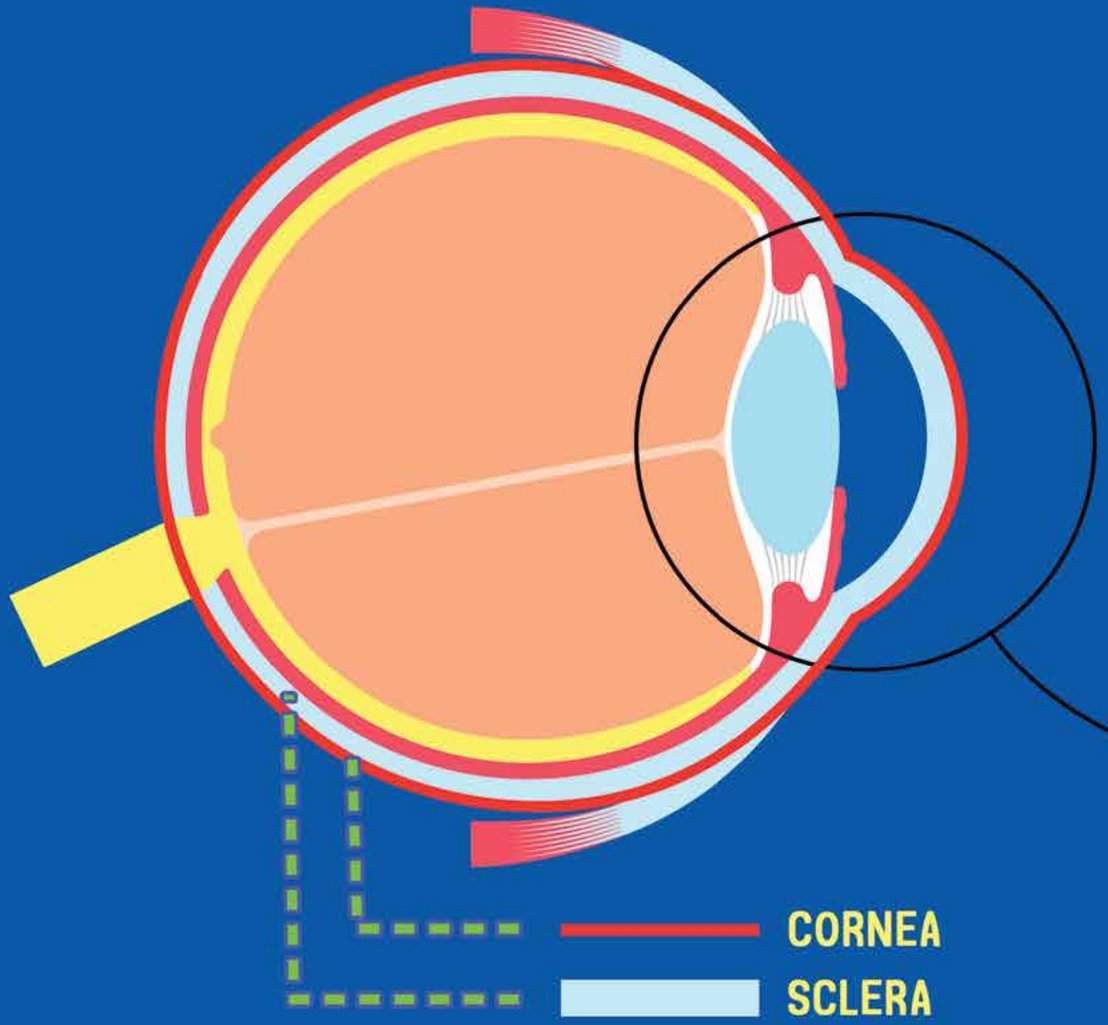
Thanks to this, we can accurately focus on what we want to see and view objects clearly.



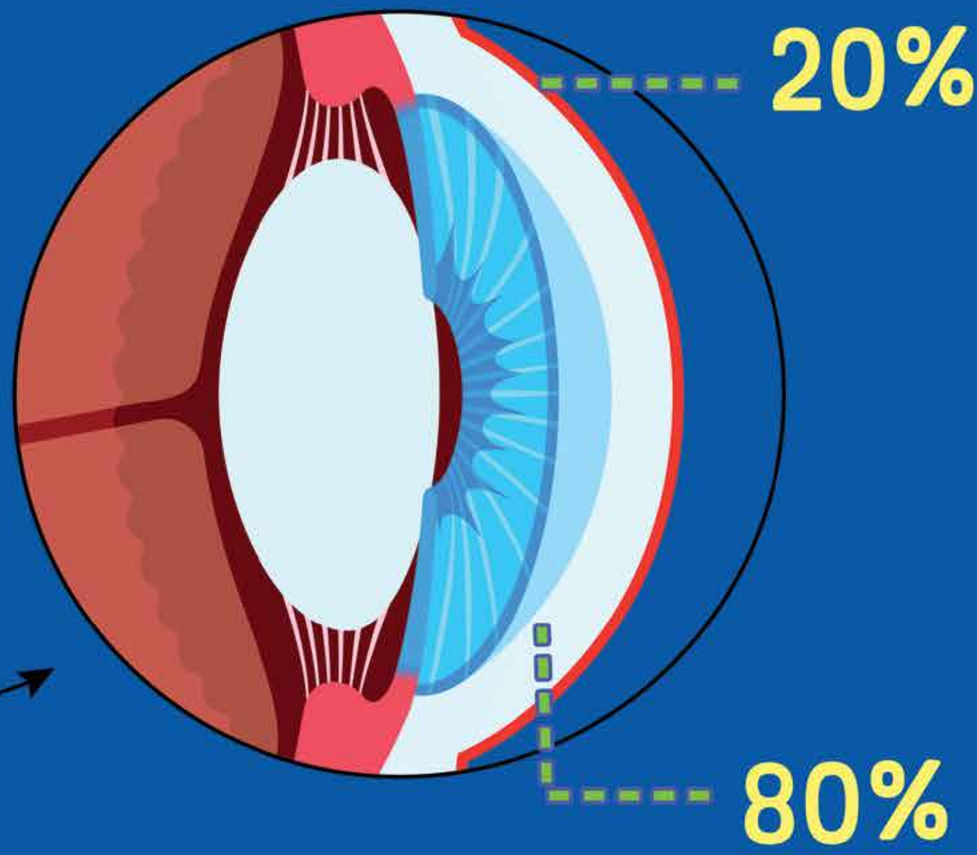
The eyeball is surrounded by three layers of membranes.



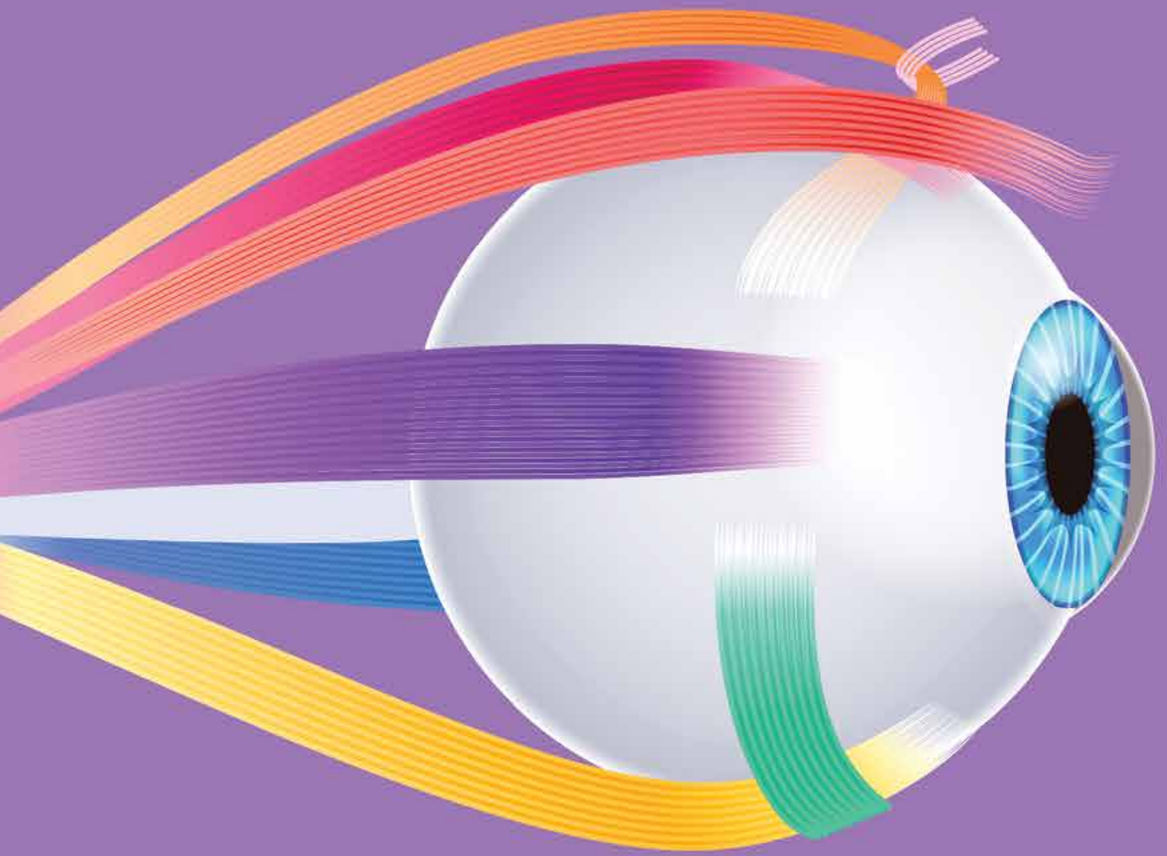
The outer part of the eyeball is
made of the fibrous layer,
the middle part is the uvea layer,
and the inner part is the retina,
which is a neural tissue.



The fibrous layer is made up of the cornea and the sclera.

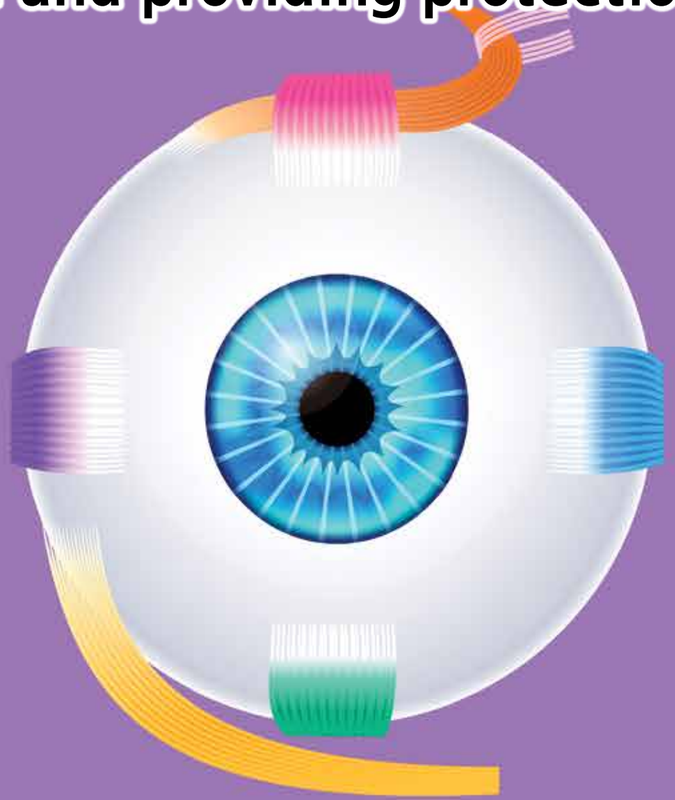


The cornea, which is at the very front of the eye, makes up about 20% of the fibrous layer, while the other 80% is the sclera.

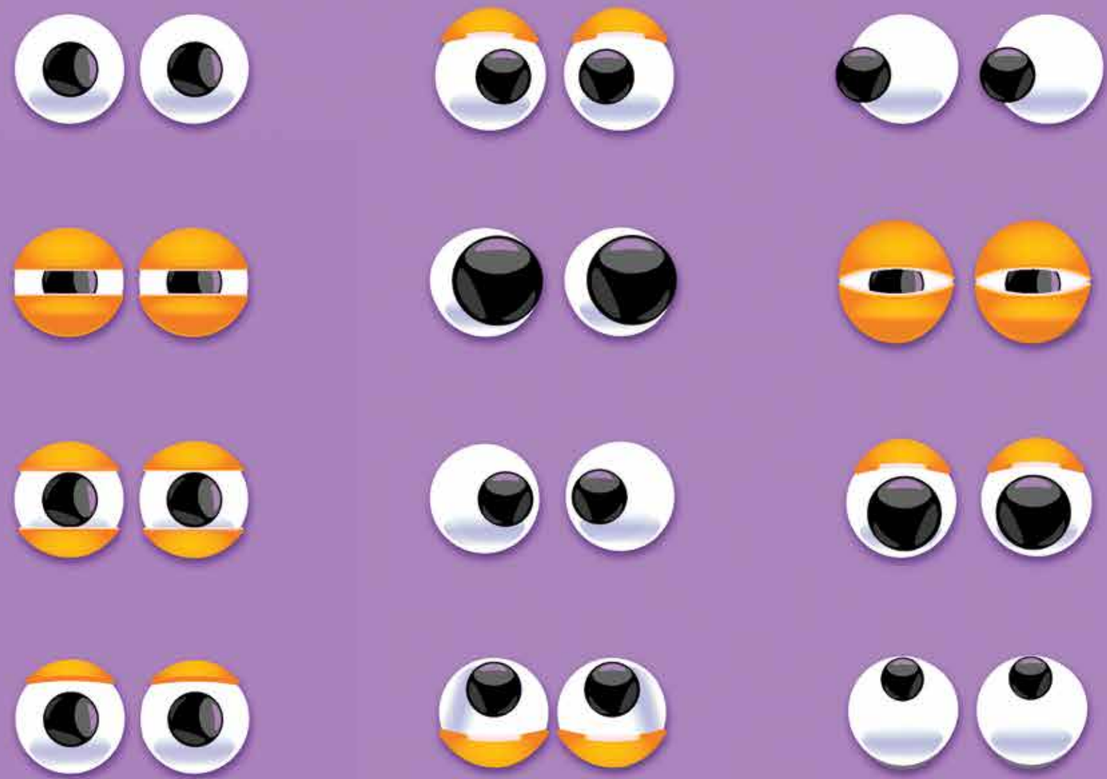


Six muscles are attached to the sclera, helping the eye move easily up, down, left, and right.

The white part of our eyes is the sclera showing through a clear membrane called the conjunctiva. The sclera is tough and strong, helping the eyeball maintain its shape and providing protection.

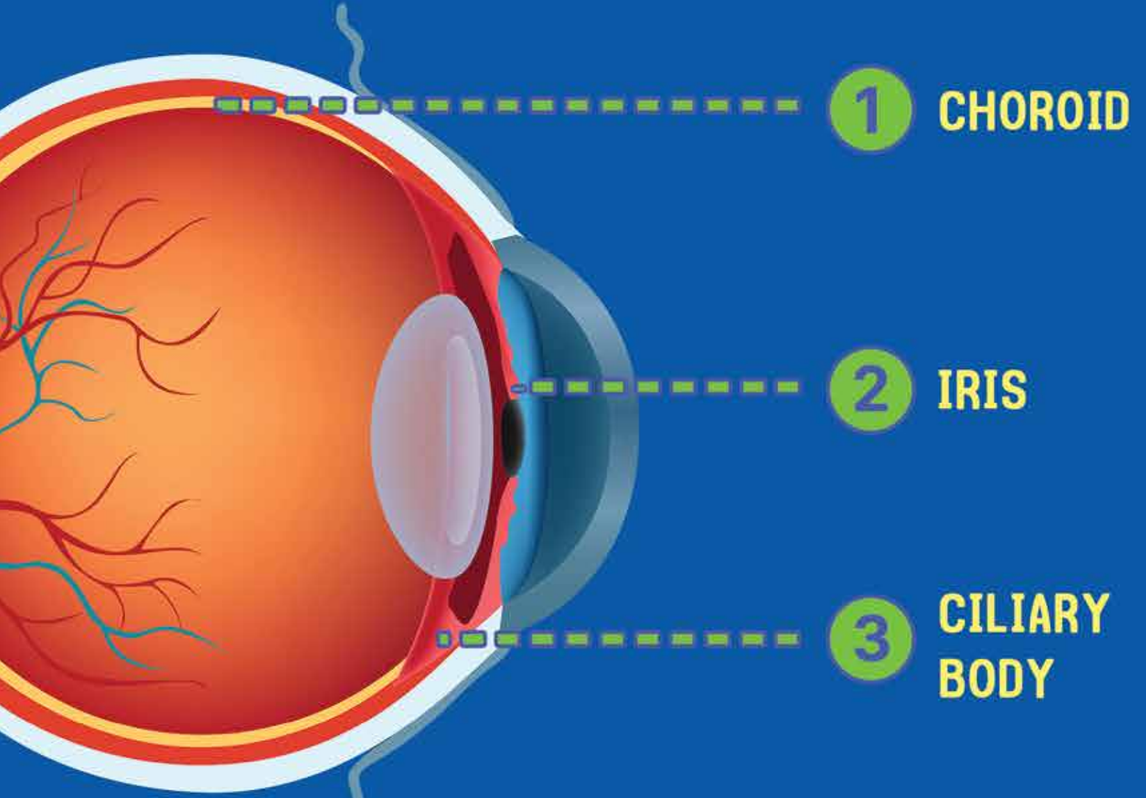


Did you know that humans are the only animals whose sclera, the white part of the eye, can be seen from the front?



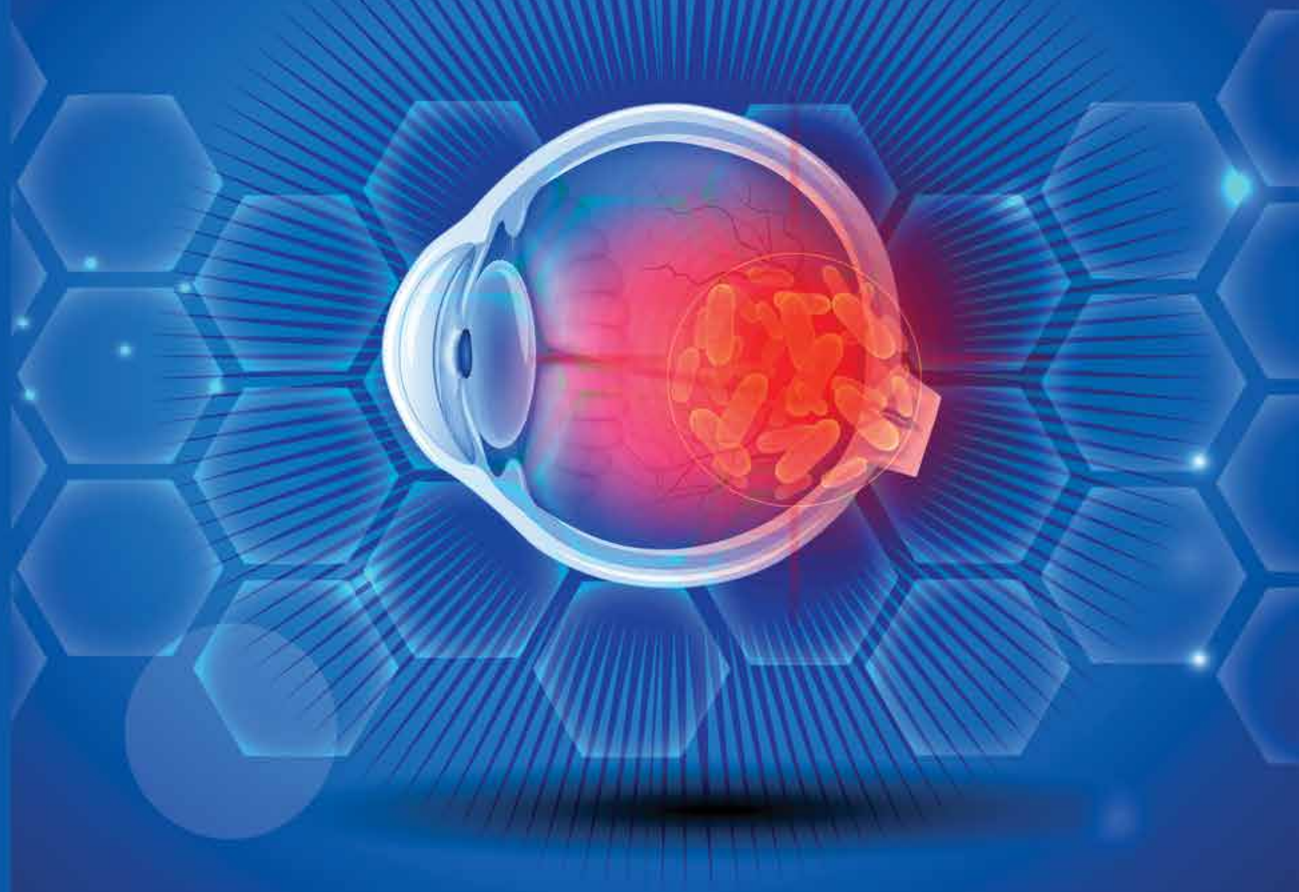
The white of the eye helps show others where we are looking. Humans can communicate with their eyes.

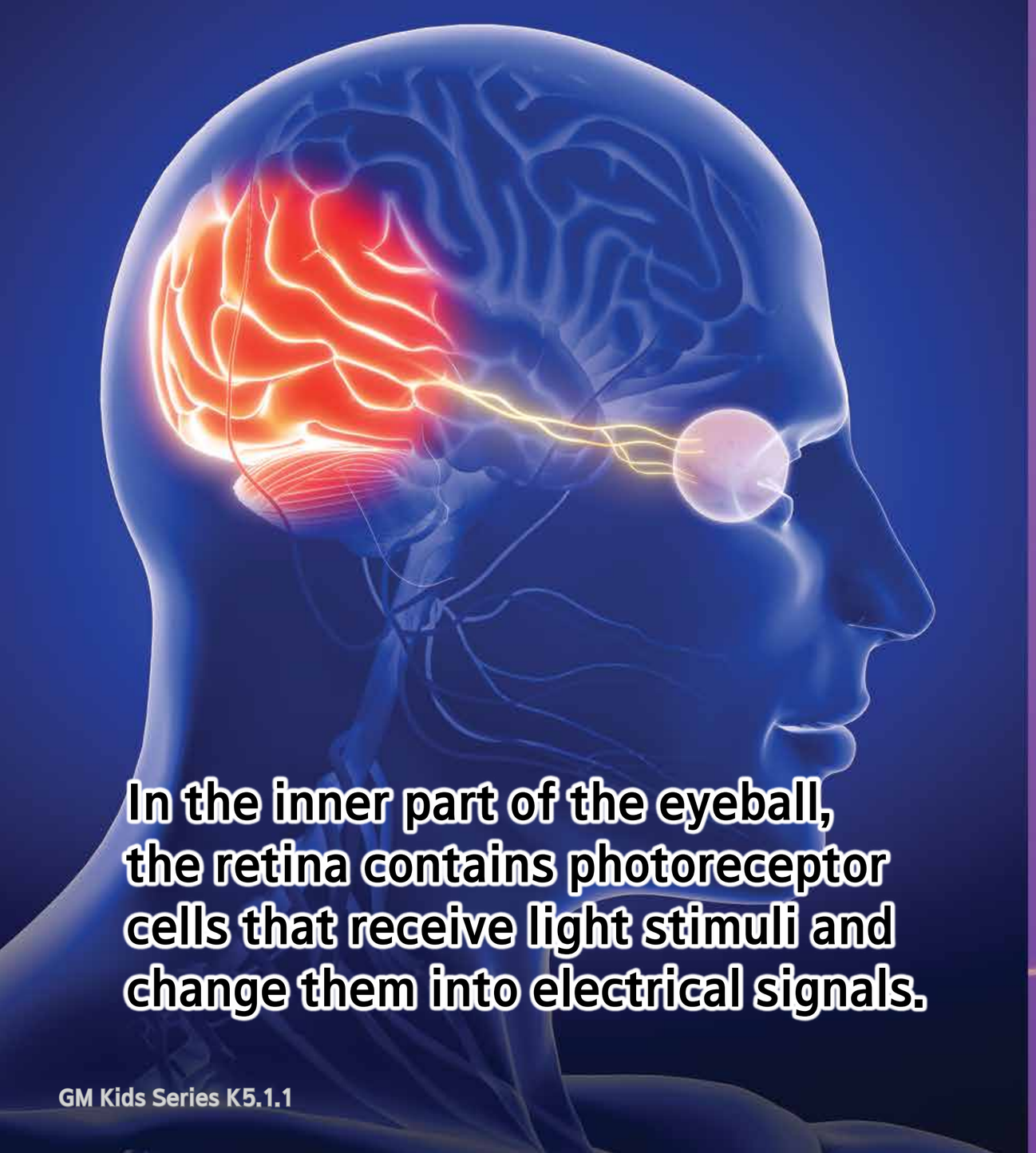
Bodyguards wear sunglasses
to hide where they are looking.
The white of the eye is a very
important feature for humans
to cooperate with each other.



At the front of the uvea are the iris and the ciliary body, and at the back is the choroid.
The choroid blocks light from outside and has many blood vessels that supply nutrients to the retina.

Due to the numerous blood vessels, inflammation often occurs in the choroid.





In the inner part of the eyeball, the retina contains photoreceptor cells that receive light stimuli and change them into electrical signals.

When these photoreceptor cells send electrical signals to the brain through the optic nerve, we can see objects clearly.

In fact, the information sent by the eyes to the brain is not in 3D but in 2D. Also, this information is separated into pieces like a mosaic.

However, our experiences feel so vivid. Scientists are working to discover how the brain solves this problem.