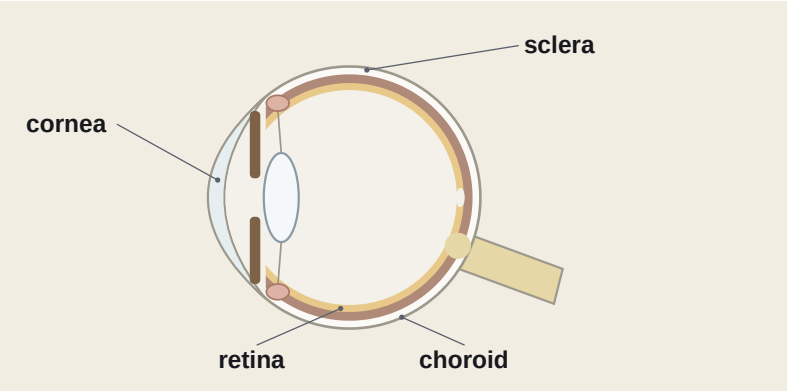
A8 · The eye and how we see · Notes

Goals: Name the three layers of the eye and the parts at the front, and give the job of each. Trace light from the cornea to the brain. Compare rods and cones. Explain the fovea centralis and the blind spot. Explain how the lens focuses on near and far objects. Name three vision defects, their causes and how they are corrected.

Name: _____ Date: _____

Slide 1 of 7 · The three layers of the eye

In lesson A7, a photoreceptor was a receptor that detects light. Photoreceptors are found in the eye. Today you learn how the eye works.



Key ideas

The outer layer of the eye is the _____. Its clear front is the _____.

The middle layer is the _____. Its blood vessels feed the retina.

The inner layer is the _____. It holds the photoreceptors.

Example

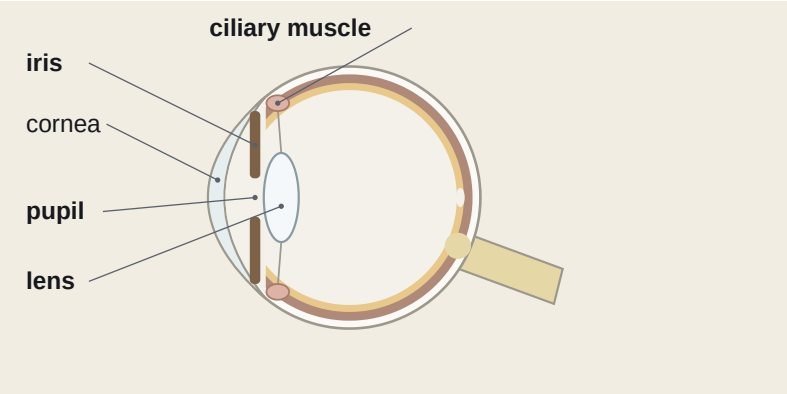
Name the three layers of the eye, from the outside in.

Try it

State the job of the cornea.

Slide 2 of 7 · Letting light in: the iris, the pupil and the lens

On the last slide, light entered the eye through the clear cornea. Three more parts sit just behind the cornea.



Key ideas

The _____ is a ring of muscle. It is the coloured part of the eye.

The hole in the middle of the iris is the _____.

The _____ focuses light on the retina.

The _____ changes the shape of the lens.

Example

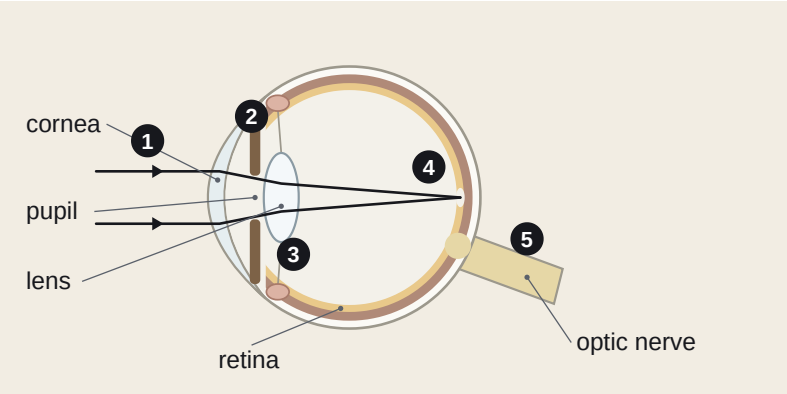
Predict what happens to the pupil in a dark room. Name the part that causes the change.

Try it

State the job of the lens.

Slide 3 of 7 · Method: trace light from the cornea to the brain

You have now met every part that light passes on its way into the eye. Here the path becomes five steps.



Key ideas

Light passes the _____, then the _____, then the lens.

It reaches the _____. Rods and cones start action potentials.

The _____ carries them to the occipital lobe.

Example

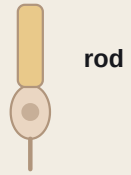
List, in order, the parts light passes from outside the eye to the retina.

Try it

State what travels along the optic nerve: light or action potentials. Explain.

Slide 4 of 7 · Rods and cones

On the method slide, light ended at the retina. There, rods and cones started action potentials. Rods and cones are the photoreceptors.



rod



cone

Cell	Works in	Detects	Where on the retina
rods	dim light	black and white	around the fovea centralis
cones	bright light	colour	packed in the fovea centralis

Key ideas

_____ work in dim light. They give vision in black and white.

_____ need bright light. They detect _____.

Rods contain a pigment called _____.

Example

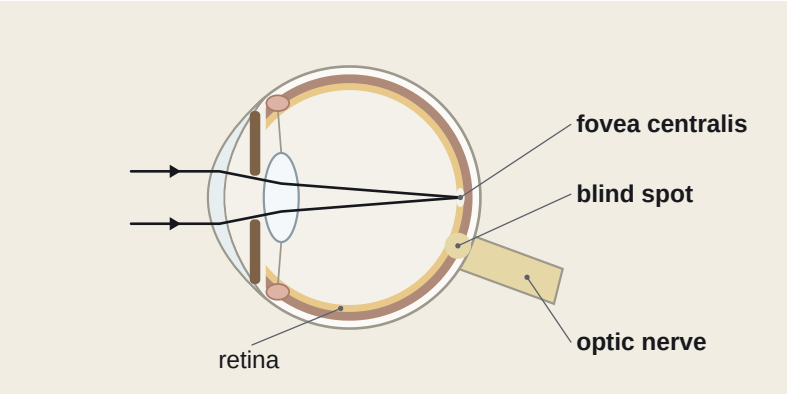
At night you see shapes but not colours. Name the photoreceptors that are working.

Try it

Compare rods and cones. Give what each one detects.

Slide 5 of 7 · The fovea centralis, the blind spot and the optic nerve

On the last slide, rods worked in dim light and cones detected colour. Rods and cones are not spread evenly over the retina.



Key ideas

The _____ is packed with cones. Vision is sharpest there.

The _____ carries action potentials to the occipital lobe.

Where the optic nerve leaves the eye is the _____. It has no rods and no cones.

Example

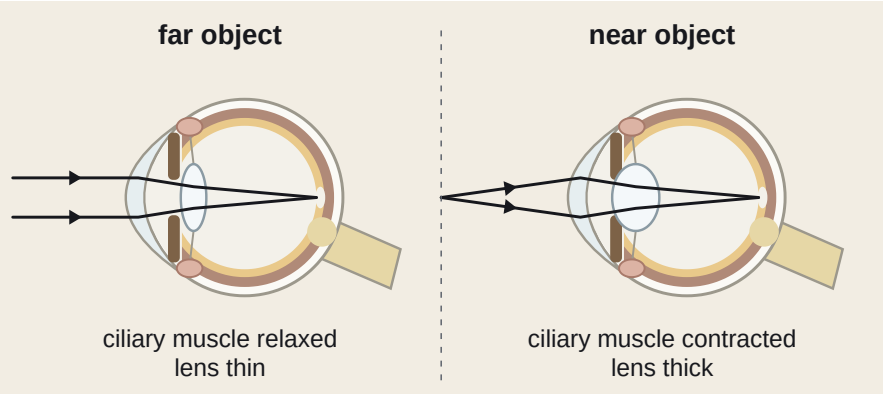
Explain why the blind spot cannot detect light.

Try it

Explain why vision is sharpest at the fovea centralis.

Slide 6 of 7 · Focusing on near and far objects

On the last slide, light from an object met at the fovea centralis. The lens must change shape to make that happen for near and far objects.



Key ideas

For a far object, the ciliary muscle _____. The lens becomes thinner.

For a near object, the ciliary muscle _____. The lens becomes _____.

This adjusting of the lens is _____.

Example

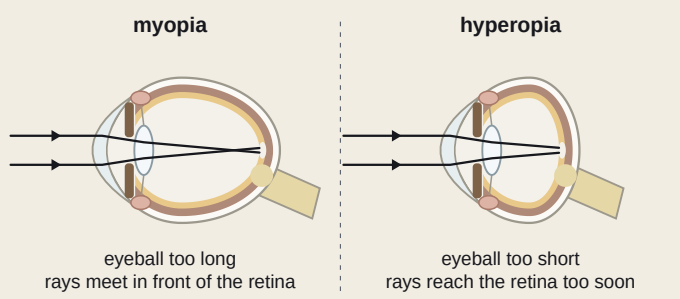
You look from your phone to a far mountain. Describe what the ciliary muscle and the lens do.

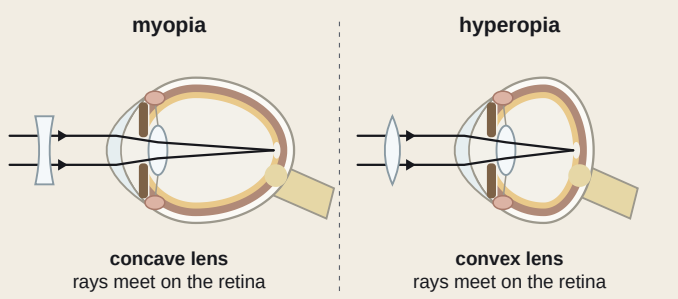
Try it

You look from a far clock to a book in your hand. Describe what the ciliary muscle and the lens do.

Slide 7 of 7 · Vision defects and how they are corrected

On the last slide, a healthy lens made light meet on the retina. In many eyes the light meets in the wrong place, and the picture is blurred.





Key ideas

In _____, the eyeball is too long. A _____ corrects it.

In _____, the eyeball is too short. A _____ corrects it.

In _____, the cornea or the lens is unevenly curved.

Example

A person reads a book easily but cannot read a far road sign. Name the defect and the lens that corrects it.

Try it

A person sees far objects clearly but not near ones. Name the defect and the lens that corrects it.