

Sheep Eye Dissection

Name _____

Your eye is one of the most complex organs of your body. Much could be learned about the human eye functions if we could look inside. However, we can not do this, so we must use the next best thing....the sheep eye. The sheep eye is similar in size and structure to the human eye. There are very few differences between the sheep eye and the human eye.

Objectives:

- Follow lab procedures to dissect the sheep eye
- Dissect the sheep eye
- Identify sheep eye structures & functions
- Make comparisons between the sheep eye and the human eye
- Use observation and recording skills

Precautions:

Follow lab safety rules whenever handling sharp instruments and preserved specimens. In the event of a cut or chemical contact, report it immediately to your teacher. Remember, Only one person at a time can handle or work on the specimen.

Part 1 Examine the Eye:

Find the front of your sheep eye, and find the following structures:

1. Sclera
2. Cornea
3. Optic nerve
4. Eyelid

Notice the yellow tissue surrounding the eye, this is fat and muscle.

A. What is the job of the Sclera?

Part 2 Trim the Fat and Muscle

Using your scissors, remove the eyelid and trim the excess fat & muscle away from the eye. Be careful not to cut off the optic nerve. Clean the eye until the sclera and optic nerve are clearly exposed. Place the fat on one side of your plate.

Part 3 Remove the Cornea

In the area near the top of the eye, where the sclera and cornea join, carefully make a stab wound with the scalpel. Be careful to not go too deep. You don't want to damage the inner eye.

At the point of the incision, you will notice a discharge of a watery substance. This fluid is aqueous humor.

Now insert your scissors in the incision and cut around the cornea. Once you have finished removing your cornea, place your eyeball on the plate.

Cut the cornea in half. Notice its texture and toughness. When done place the cornea on the plate.

A. What is the job of the cornea?

B. What is the job of the aqueous humor?

Part 4 Remove the Iris

Pick up your sheep eye again. Find the iris and carefully begin to cut around the outside of the iris with scissors.

Notice a ring of ciliary muscles, located on the inner side of the iris. They connect the iris to the lens.

Remove the iris and set it to one side of your plate.

A. What is the job of the iris?

Part 5 Remove the Lens & Vitreous Humor

To remove the lens and vitreous humor, apply pressure to the back of the eye. The lens and vitreous humor should slide out.

The vitreous humor is a thick gel like liquid that resembles snot.

The lens will be a hard yellow transparent disc.

Once you find the lens, hold it up and look through it. Even though the lens is not clear, it is transparent enough to see through. Next, place the vitreous humor and lens on the plate.

A. What is the job of the vitreous humor?

B. What is the job of the lens?

Part 6 Locating the Tapetum

Turn the eye cavity inside out, by pushing gently from the back. You may need to cut a slit in the sclera with your scissors to make this easier.

Identify the tapetum. It is the shiny blue green layer that helps to reflect light in larger mammals. Human eyes lack a tapetum and this is why our eyes often look red in photographs.

Part 7 Locate the Optic Nerve & Retina

Again find the optic nerve on the outside of the eye. Feel the texture and look at the fibers that make up the nerve.

Find where the optic nerve comes through the wall of the eyeball and connects to the retina. The retina is a wrinkled saclike structure in the sheep eye. In the human eye, the retina is also the inner most layer of the eyeball, but it is smooth in appearance and lines the eye.

What is location where the optic nerve meets the eyeball called?

A. What is the job of the optic nerve?

B. What is the job of the retina?

Analysis Questions:

1. Explain why it is important that the lens and cornea be transparent.

2. Explain 2 differences between the human eye and the sheep eye.

