Name\_\_\_\_\_ Date\_\_\_\_\_

## **Eyeball Dissection**

You will dissect a cow eye, noting particular structures listed on the last page. Remember to pay attention to how these structures contribute to the eye's overall function. After you have completed the dissection, answer the questions on the last two pages of this handout.

## **Procedure:**

- Begin by noting the optic nerve at the posterior of the eyeball and the extrinsic muscle attachments (those that swivel and anchor the eyeball in its socket). Also note the cornea, which may be clouded because the eyeball has been preserved.
- Using scissors, carefully remove the fat and muscle tissue, leaving the optic nerve intact. With the cornea facing downward, make an incision with the scalpel about 1/4 inch above the cornea. Continue the incision around the entire eyeball, moving parallel to the corneal edge.
- 3. Lift the posterior part of the eyeball (which should contain the vitreous humor) away from the lens.
- 4. In the anterior portion of the eye, you should be able to examine the following structures.
  - Lens: this is a biconvex (curved outwardly on both sides) structure that may appear opaque. The shape of the lens is controlled by ciliary muscles (small muscles attached to the lens). The flexibility of the lens is what enables it to focus images onto the retina.
  - Ciliary Body: This is a black-pigmented body that appears to surround the lens.
- 5. Still working with the anterior portion of the eye, carefully remove the lens and note the following structures:
  - Aqueous Humor: This is a clear watery fluid contained in a chamber anterior to the lens. It provides nutrients for the lens and cornea and maintains intraocular (within the eye) pressure. Maintenance of correct

intraocular pressure is important for the health of the eye: for example, the disease glaucoma is caused by an increase in intraocular pressure.

- Iris: The pigmented iris is composed of muscle fibers and acts as a diaphragm, regulating the amount of light entering the eye. It controls the aperture of the pupil.
- □ **Cornea:** This is a tough transparent membrane that both protects the eye and allows light to enter it.
- 6. Examine the posterior portion of the eyeball. Not the following structures:
  - Vitreous Humor: This is a gel-like substance that maintains the pressure of the eye.
  - Retina: A delicate white membrane at the posterior of the eyeball. The retina contains the specialized cells, rods and cones, that transmit light energy into nerve impulses. These nerve impulses are then transmitted to the optic cortex of the brain (or the occipital lobe).

## Questions:

1. Describe the texture of the fatty tissue around the eye.				
2. What is the purpose of this fatty tissue?				
3. Describe how the optic nerve feels compared to the fatty tissue.				
4. What is the fluid inside the eyeball called?				
5. Describe what the fluid look like.				
6. What is the purpose of this fluid?				
7. After scooping out the fluid, look at the retina. Describe how the retina looked.				
8. Why do you think that the retina is colored this way?				
9. How does the lens from the dissection differ from the lens we would see in our eye?				
10. Describe how the back of the iris looks.				
11. Why do you think the iris looks like this?				

Optic Nerve	Cornea	Sclera	Pupil
Iris	Retina	Optic Disc	Aqueous Humor
Lens	Conjunctiva	Vitreous Humor	Choroid Layer



## (a)

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