

Sheep's Eye Dissection Lab

Date _____ Block _____

Purpose: To identify and examine the various parts of the sheep's eyeball.

Materials: lab apron safety goggles latex gloves dissecting scissors
 dissecting pins forceps dissecting tray paper towels
 newspaper parts display sheet sheep's eye

Procedure:

- 1) _____ After putting on a lab apron, safety goggles and gloves, get a dissecting tray, put a couple of pieces of paper towel on it and place a sheep's eye on it for inspection.
- 2) _____ All questions and drawings on page 1 must be completed and initialled before cutting! You must summarize the **Procedure** outlined in the instructions below.

Instructions and Observations:**Part A: External Features of the Sheep's Eye.**

- 1) _____ What does "external" mean? _____
- 2a) _____ Some **fat** tissue may be present. What colour is the fat? _____
- 2b) _____ What is the job of the fat attached to the surface of the eye? _____
- 3a) _____ What colour are the **muscles** on the outside of the eyeball? _____
- 3b) _____ What is the job of the muscles on the outside of the eyeball? _____
- 3c) _____ Quickly cut the fat and muscles off the eyeball so that you can see the **sclera**.
- 4) _____ What colour is the sclera? _____ iris? _____ pupil? _____
- 5) _____ The **cornea** is normally clear and colourless so that light can be refracted (focused) through it. In your sheep's eye the cornea may be cloudy. What do you think may have caused this? _____
- 6) _____ Use a pencil to sketch a side-view external diagram of the eyeball. Make sure to label the
 - sclera
 - cornea
 - optic nerve
 - muscles
- 7) Politely ask your teacher to sign in the box at the right **before** continuing your assignment.



Part B: Internal Features of the Sheep's Eye. (Place the parts on the identification sheet)

- 1a)___ Carefully use a razor blade or scissors to make a small incision (cut) near the centre of the eyeball. With your dissecting scissors, cut around the entire eye so that you have two equal hemispheres when you are finished.
- 1b)___ What did you observe about the texture of the **sclera** while cutting? _____
Why is this important? _____
- 1c)___ What colour is the sclera in your eye? _____
- 1d)___ What material was the sclera made from in our model? _____
- 2a) _ The jelly inside the eye is the **vitreous humour**. (It is like a jelly that gives the eyeball shape and prevents the sclera from collapsing. It does the same job as air in a beach ball.)
- 2b)___ Gloop your vitreous humour onto the parts identification worksheet.
- 2c)___ What food is like the vitreous humour? _____
- 2d)___ What is the job of the vitreous humour? _____
- 3a)___ Pick up the back of the sclera. It contains the optic nerve. The **retina** is a very thin layer containing rods and cones which detect shadows, shapes, and colour.
- 3b)___ Use your forceps and probe to peel the retina off the inside of the eye. Place it on the parts identification worksheet.
- 3c)___ What material did we make the retina from in our model? _____
- 3d)___ Rods work well in dim light to detect _____, while cones work especially well in bright light to detect _____.
- 4a)___ You may have found it difficult to remove the retina because it was attached to the optic nerve. The attachment area is called the _____.
- 4b)___ What did we make the **blind spot** from in our model? _____
- 4c)___ There are no rods or cones at the blind spot due to the connection. The retina can receive no information here. What does a sheep see when an object lands exactly on the blind spot? _____.
- 5a)___ The black, shiny layer under the retina is the **choroid coat**. It contains blood vessels that provide nutrients for the eye. Why is its surface shiny? _____

- 5b) _ Use the forceps and probe to carefully peel the choroid coat from the sclera. It on identification worksheet.
- 5c) __ What was the choroid coat made from in our model? _____
- 5d) __ What is the job of the choroid coat? _____
- 5e) __ What part of the body pumps blood to the choroid coat? _____
- 5f) __ Now that you have removed everything from the back half of the sclera, pin it to the parts identification sheet.
- 6a) __ Pick up the front half of the sclera that contains the cornea, iris and lens. Remove the lens carefully with the forceps.
- 6b) __ Did you notice the **aqueous humour** between the lens and the cornea? _____
(It is a watery fluid that carries nutrients to, and wastes away from the front of the eye. It also keeps the shape of the front of the eye and prevents the cornea from collapsing upon the lens.)
- 6c) __ What common food material is like the aqueous humour? _____
- 6d) __ What is the job of the aqueous humour? _____
- 7a) __ Pick up the **lens** and examine it carefully. Is it convex or concave? _____
- 7b) __ Why is it important that it is convex like a magnifying glass? _____
- 7c) __ Try dropping the lens once from about shoulder height onto the lab bench. It probably bounces. Why is it important that the lens is flexible? _____
- 7d) __ What material did we use in our model to represent the lens? _____
- 7e) __ Place the lens on the parts identification worksheet.
- 8a) __ Use your fingers to carefully remove the **iris**. What is the hole in the iris called? _____
- 8b) __ Make a sketch in pencil (in the space to the right) of the iris. The lines are small muscles that cause the iris to contract or dilate (get smaller or bigger). Make sure you label these muscles.
- 8c) __ The job of the iris is to limit the amount of light

entering the eye. Is the iris transparent, translucent or opaque? _____

8d)___ What part of a house window controls the amount of light entering like the iris? _____

8e)___ What was the iris made of in our model? _____

8f) ___ Place the iris to the parts identification worksheet.

9a)___ Cut the **cornea** out of the front of the sclera. It acts as a lens to focus the light and also protects the eye.

9b)___ If the inside of the eye is represented by the passenger compartment of a car, what part of the car lets the light in but protects the occupants? _____

9c)___ What material did we use to represent the cornea in our model? _____

9d)___ Place the cornea on the parts identification worksheet.

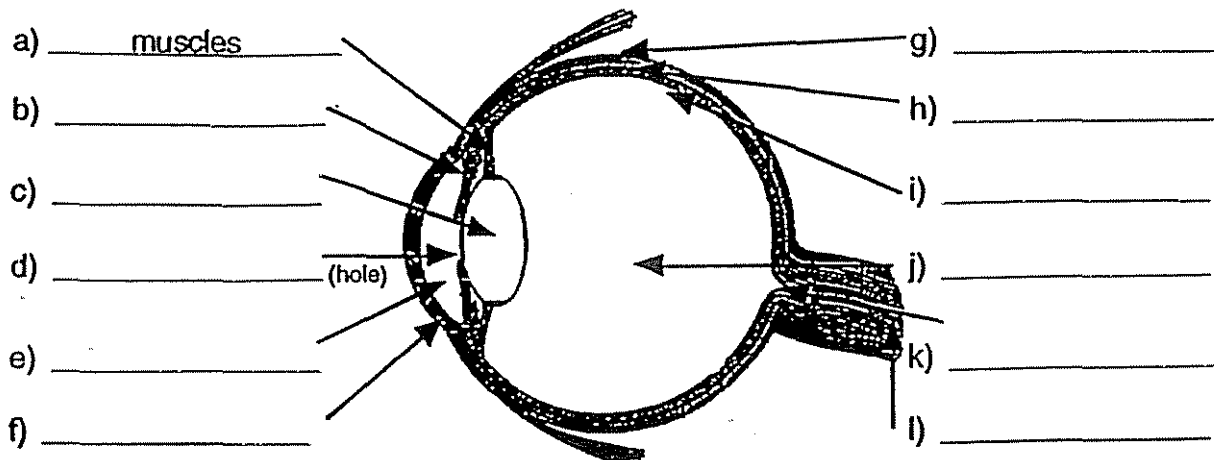
10)___ Politely show your teacher your completed parts identification worksheet and ask him or her to sign this box.

11a)_ Wrap up the sheep's eye parts in the paper and throw them away.

11b)_ Carefully wash all dissecting materials and the bench top and put equipment away.

Discussion:

1) Label the diagram with parts of the sheep's eye. (Hint: See **boldface** words!)



2) Write the names of the actual eye parts. (Hint: See **boldface** words!)

- a) Thick outer casing of eye _____ b) Shiny, black with blood vessels _____
c) Thin layer registering images _____ d) Cord carrying messages to brain _____
e) Connection--no info registers _____ f) Jelly-like liquid prevents damage _____
g) Controls amount of light entering _____ h) First window protects and focuses _____
i) Opening in coloured muscle _____ j) Final focusing transparent ball _____
k) Watery liquid feeds front of eye _____ l) Stretch and relax to move parts _____

Analysis:

What are three (3) things about this lab that are similar to what doctors do?