Chapter 8- Lab
Sheep Brain Dissection

Title: **Sheep Brain Dissection**

Purpose: To locate and identify the structures of a sheep's brain through the method of dissection.

Learning
Objectives: After completing the exercise, students should be able to
      1. Identify the major features of the sheep brain from different views (dorsal, ventral, lateral, midsagittal)
      2. Locate the larger cranial nerves of the sheep brain

Materials: preserved sheep brain, dissecting tray, dissection equipment, gloves, paper towels, Pre- Lab diagrams

Procedure:

    You will be working in groups of 4. However, when you cut the brain in half, you will be able to study in groups of 2.

    Use your pre-lab diagrams to help you identify sheep brain structures.

    Mini-Lab Practical- each student will be tested and asked to identify 2 structures of the sheep's brain.

1. Obtain a preserved sheep brain and rinse it thoroughly in water to remove as much of the preserving as possible.
2. Examine the surface of the brain for the presence of meninges. (The outermost layers of these membranes may have been lost during removal of the brain from the cranial cavity.) If **meninges** are present, locate the **dura**, **arachnoid**, and **pia maters**.
3. Remove any remaining dura mater by pulling it gently from the surface of the brain.
4. Position the brain with its ventral (inferior) surface down in the dissecting tray. Locate the following structures on the specimen:

Left and Right Cerebral Hemispheres	Parietal Lobe
Gyrus (Gyri)	Temporal Lobe
Sulcus (Sulci)	Occipital Lobe
Longitudinal Fissure	Cerebellum
Frontal Lobe	Brain Stem

5. Position the brain on one of its lateral surfaces in the dissecting tray (You may need to hold the specimen on its side). Locate the following structures on the specimen:

Left and Right Cerebral Hemispheres	Parietal Lobe
Gyrus (Gyri)	Temporal Lobe
Sulcus (Sulci)	Occipital Lobe
Cerebellum	Frontal Lobe
Brain Stem (midbrain, pons, medulla oblongata)	Optic nerve
Olfactory bulb	Optic chiasm
Olfactory tract	Optic tract

6. Gently separate the cerebral hemispheres along the longitudinal fissure, and expose the transverse band of white fibers within the fissure that connects the hemispheres. This band is the *corpus callosum.*
7. Position the brain with its ventral (inferior) surface upward. Locate the following features on the specimen:

Longitudinal fissure		
Olfactory bulbs	Optic tract	Midbrain (brain stem)
Olfactory tract	Pons (brain stem)	Spinal Cord
Optic nerves	Pituitary gland	
Optic chiasm	Medulla oblongata (brain stem)	

8. Using a scalpel cut the sheep brain along the interior of the longitudinal fissure (at the corpus callosum). Cut deep enough to create 2 halves of the sheep brain. Locate the following structures on the specimen:

Cerebellum	Midbrain	Optic tract
Cerebral cortex	Pons	Spinal cord
Corpus callosum	Olfactory bulb	Thalamus
Hypothalamus	Olfactory tract	Pituitary gland (?)
Lateral ventricle	Optic nerve	
Medulla oblongata	Optic chiasm	

9. Study the different parts of the sheep brain from the different views. The instructor will come around and test you on identification of sheep brain parts.
10. Dispose of the sheep brain as directed by the lab instructor.

Conclusion Questions:

1. List the 4 major divisions of the brain and their significant functions.

    a.

    b.

    c.

    d.

2. Using the model of the human brain for comparison, how do the sizes of the olfactory bulbs of the sheep brain compare with those of the human brain? What does this mean in regards to a sheep's sense of smell?

3. Starting with the eye and ending with the specific area of the cerebrum, create a flow map illustrating the pathway of an action potential for the sense of sight.

4. Why is the cerebrum of a human brain larger than that of a sheep brain? Give 2 possible explanations as to why human's cerebrum is larger than a sheep's cerebrum.