**Background**

**Lab: Sheep Brain Dissection**

It is a common thought that sheep are dull, boring as lazy creatures. This is mainly due to George Orwell’s *Animal Farm*, where sheep were portrayed as dumb creatures that would follow the leader at all times. Modern science has actually proven this stereotype about our quadruped cousins. Scientists have found that sheep are actually intelligent creatures with basic problem solving skills, decent sensory formation and high level memory formation. Today we are going to see this in our sheep brain dissection.

**Materials**

* A lab dissection tray and kit
* A sheep brain
* A group member ready to dissect

**Procedure**

1. First make sure that you have all safety equipment. Also make sure everyone is ready for lab (proper clothing, hair tied back, close toed shoes, etc).
2. Come up front and get a sheep brain. Place the brain centered on the dissection tray in front of you.
3. There is a chance that the sheep brain that you received is covered in the meninges. If it is covered in the meninges, you will have to remove them. Use the scalpel, scissors and your forceps to slowly remove the meninges. This is a delicate process. Any sudden movements will cause the meninges to come off with parts of the cerebellum and the cerebrum. Be sure to work slow and constantly make sure the meninges are not sticking to neural tissue. If you do not have the meninges attached to your sheep brain, go to step 4.
4. By now you should be looking at just the neural tissue of the brain. Use this as an opportunity to sketch a picture of the sheep brain from a superior and lateral view of the brain while it is intact and whole. Label the **cerebrum**, **cerebellum** and **spinal cord** in both pictures.

Figure 1.1 – Superior View

Figure 1.2 – Lateral View

1. Find the gap between the cerebellum and the cerebrum. This is the transverse fissure. Use the flat side of your forceps to ***lightly*** push the cerebellum downwards and away from the cerebrum. This will allow you to see further into the center portion of the brain. Inside you can see the corpora quadrigemina (the superior and the inferior colliculi organized as “hills”) and the pineal gland (which looks like a small bump)
2. Using your hands. Gently pull the hemispheres of the cerebrum apart. Note that there is nothing that is holding them together until you get down to the corpus callosum. Take a look down into the longitudinal fissure as you gently pull apart to see it.
3. Now take your scalpel and firmly cut down the longitudinal fissure. This is the fissure that separates the two cerebral hemispheres. Cut from the frontal lobe to the spinal cord. Be sure to use a solid and firm motion that does not “saw” the brain. This will cause damage to the underlying structures. Also make sure not to press too hard on the cerebrum of the brain, as you may flatten outer structures. The cleaner the cut, the better you will be able see underling structures.
4. Lay the two halves of the brain on your dissection tray with the inside sections facing up. Draw what you see.

Figure 1.2 – Longitudinal View

1. Now that it is time to find the sections of the brain that are hollow. The lateral ventricle is the largest hollow structure. Refer to your notes to find the position of the lateral ventricle in the human brain. Once you have a rough estimate of where the lateral ventricle is located take a dissecting pin or a dissecting probe and probe the hollow space. Now include a measurement of the length of the lateral ventricle and the height of the lateral ventricle.

Table 1.1

|  |  |  |
| --- | --- | --- |
| Location | Length (mm) | Width (mm) |
|  |  |  |

1. Now that you have two sides to the brain, use your dissecting pins to find and locate structures on either side of the brain. Mr. Owdij must sign off that you have found all of the structures that are seen in the table below.

|  |  |
| --- | --- |
| Name of Structure | Mr. Owdij’s Sign Off |
| Cerebellum |  |
| Cerebrum |  |
| Medulla Oblongata |  |
| Pons |  |
| Midbrain |  |
| Corpus Callosum |  |
| Thalamus |  |
| Hypothalamus |  |
| Lateral Ventricle |  |
| Third Ventricle |  |
| Spinal Cord |  |

1. Once all is ready, start to clean up your station. All dissection materials go into one trash can in the front of the classroom. Everything that was used gets washed with soap and water.
2. Once you have cleaned your dissection materials, return them to where you found them.

Analysis Questions:

1. List five different ways that the sheep brain is similar to the human brain.
2. List five different ways that the sheep brain is different from the human brain.
3. Based on the organization, size and structure of the sheep brain, what do you think that this sheep was good at while it was alive? Why?