Lab 8: Nervous System & Senses

I. The Mammalian Brain

GOALS:
You should be able to....
* Identify and state the functions of the parts of the brain (listed below) using preserved sheep brain specimens and the plastic human brain model.
* List two observable differences in the structures of human and sheep brains.

Preserved Sheep Brain & Human Brain Model
pp. 231-234: Use procedure and diagrams to locate and learn the functions of the following:
- cerebrum
- occipital lobe
- diencephalon
- right & left cerebral hemispheres
- temporal lobe
- midbrain
- corpus callosum
- cerebellum
- pons
- frontal lobe
- thalamus
- medulla oblongata
- parietal lobe
- hypothalamus

II. Spinal Nerves and Spinal Cord

GOALS:
You should be able to....
* Describe the anatomy of the spinal cord.
* Explain how the spinal cord functions in relation to the brain and spinal nerves.
* Describe the path of a spinal reflex arc.

Spinal Cord Model
pp. 235-top of 236 (Skip “Observation”):
Use model, reading, and diagram to locate and learn the functions of:
- sensory neurons
- gray matter
- interneurons
- white matter
- motor neurons

List the following steps of a reflex arc in order:
sensory neuron, effector, sensory receptor, motor neuron, stimulus, interneuron, response

Spinal Reflexes
p. 236- top of 237: Read info and follow procedure using reflex hammers.

III. The Eye

GOALS:
You should be able to....
* Identify and state the functions of the parts of the eye (listed below) using preserved sheep eye and plastic model of human eye.
* Explain what causes the “blind spot” in your vision.
* Describe what occurs when your eye accommodates for different distances.

Key Terms:
- rod cells
- cone cells
- refraction
- blur
- accommodation
- blur
- accommodation
- blind spot
Preserved Sheep Eye & Human Eye Model
☐ pp. 237-238: Use procedure, reading, and diagram to locate & learn functions of:
• sclera
• cornea
• retina
• optic nerve
• lens
• ciliary body
• iris
• choroid
• pupil
• vitreous humor
• aqueous humor
• cornea
• ciliary body
• iris
• choroid
After observing the demonstration, dissect a sheep eye to locate the above structures.

Finding your blind spot & testing accommodation
☐ pp. 239-240: Follow procedures and answer questions.

IV. The Ear

GOALS:
You should be able to....
* Identify and state the functions of the parts of the ear using plastic model of human ear.
* Describe how humans perceive the direction of sound.

☐ pp. 241: Use the reading, diagram, and model to locate and learn the functions of:

<table>
<thead>
<tr>
<th>Outer Ear</th>
<th>Middle Ear</th>
<th>Inner Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>* pinna</td>
<td>* tympanic membrane</td>
<td>* cochlea</td>
</tr>
<tr>
<td>* auditory canal</td>
<td>* malleus (hammer)</td>
<td>* hair cells</td>
</tr>
<tr>
<td></td>
<td>* incus (anvil)</td>
<td>* cochlear (auditory) nerve</td>
</tr>
<tr>
<td></td>
<td>* stapes (stirrups)</td>
<td>* semicircular canals</td>
</tr>
<tr>
<td></td>
<td>* auditory tube</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* oval window</td>
<td></td>
</tr>
</tbody>
</table>

☐ p. 242: Follow “Experimental Procedure: Locating Sound”

☐ NOTE: You should read the more thorough explanation of how the ear works on pp. 606-607 in your text

V. Sensory Receptors in the Skin

GOALS:
You should be able to....
* Explain the relationship between the amount of touch receptors and the ability to distinguish two different touch points.
* Describe the different sensations felt during the temperature receptors experiment.

☐ p. 244: Follow experimental procedures and answer questions.

VI. Review
☐ p. 247: Answer questions 1-14, 20-21