NERVOUS SYSTEM II-BRAIN AND CRANIAL NERVES

Lab 11 Objectives

Exercise 19 begins on p. 279 in 9th and 10th editions
Exercise 17 begins on p. 275 in 11th edition

Watch the brain video.

For 9th and 10th editions read lab 19- do activities 1, 2, 3 (part 1), and sheep brain dissection/observation
For 11th edition read lab 17- do activities 1, 2, 3 (part 1) and sheep brain dissection/observation

Lab 19 Activities 1, 2, and sheep brain dissection for 9th and 10th editions
Lab 17 Activities 1, 2, and sheep brain dissection for 11th edition

Identify the brain regions and features on the sheep brains, models and diagrams.

**External Structures:**
- Cerebrum
- Cerebral hemispheres
- Gyri
- Sulci
- Longitudinal fissure
- Central sulcus
- Frontal lobe
- Parietal lobe
- Lateral sulcus
- Insula
- Parieto-occipital sulcus
- Occipital lobe
- Primary somatosensory cortex
- Primary motor area/cortex
- Diencephalon (Hypothalamic region of)
- Olfactory bulbs
- Optic chiasm
- Infundibulum
- Pituitary gland (may be missing)
- Mammillary bodies
- Cerebral peduncles of midbrain (mesencephalon)
- Pons
- Medulla oblongata
- Cerebellum
- Vermis
- Folia
- Corpora quadrigemina

**Internal Structures:**
- (most can be located on saggital sections)
- Cerebral cortex
- Cerebral white matter
- Basal nuclei/ganglia (frontal section)
- Corpus callosum
- Fornix
- Lateral ventricle
- Thalamus
- Intermediate mass of thalamus
- Hypothalamus
- Mammillary bodies
- Pineal gland
- Epithalamus
- Cerebral aqueduct
- Fourth ventricle
- Cerebellar cortex
- Arbor vitae

**Major divisions:**
- Cerebrum
- Cerebellum
- Diencephalon
- Mesencephalon/midbrain
- Pons
- Medulla oblongata
Superior colliculi  
Inferior colliculi  
Pineal gland  

VIRTUAL SHEEP BRAIN DISSECTION AT:  
http://academic.scranton.edu/department/psych/sheep/ieframerow.html  

Exercise 19- Activity 3 in 9th and 10th editions  
Exercise 17- Activity 3 in 11th edition  

Identify cranial nerves on models, diagrams, and sheep brains  
For the cranial nerves listed below, know the following:  
Name and Roman numeral  
Function  
Exit hole in skull  
Location on human models and diagrams  
Location on sheep brain (usually only nerves I-VI can be easily seen)  

<table>
<thead>
<tr>
<th>#</th>
<th>Nerve Name</th>
<th>Exit</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Olfactory</td>
<td>Cribriform plate</td>
<td>S  Smell (sensory)</td>
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<tr>
<td>II</td>
<td>Optic</td>
<td>Optic foramen</td>
<td>S  Vision (sensory)</td>
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<tr>
<td>III</td>
<td>Oculomotor</td>
<td>Superior orbital fissure</td>
<td>M  Move eyeball, lens, pupil and eyelids</td>
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<tr>
<td>IV</td>
<td>Trochlear</td>
<td>Superior orbital fissure</td>
<td>M  Move eyeball</td>
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<tr>
<td>V</td>
<td>Trigeminal</td>
<td>Foramen ovale</td>
<td>B  Sensory to face</td>
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<td>Foramen rotundum</td>
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<tr>
<td></td>
<td></td>
<td>Superior orbital fissure</td>
<td>M  Motor for mastication</td>
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<tr>
<td>VI</td>
<td>Abducens</td>
<td>Superior orbital fissure</td>
<td>M  Move eyeball</td>
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<tr>
<td>VII</td>
<td>Facial</td>
<td>Stylomastoid foramen</td>
<td>B  Motor for facial expression</td>
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<td></td>
<td>Motor for lacrimal and salivary glands</td>
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<td></td>
<td>Taste (sensory)</td>
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<tr>
<td>VIII</td>
<td>Vestibulocochlear</td>
<td>Internal acoustic meatus</td>
<td>S  Hearing and equilibrium</td>
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<tr>
<td>IX</td>
<td>Glossopharyngeal</td>
<td>Jugular foramen</td>
<td>B  Motor for swallowing and speech</td>
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<td></td>
<td></td>
<td>Motor for salivary gland function</td>
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<td></td>
<td></td>
<td>Taste (sensory)</td>
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<tr>
<td>X</td>
<td>Vagus</td>
<td>Jugular foramen</td>
<td>B  Parasympathetic motor to visceral organs</td>
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<td></td>
<td></td>
<td></td>
<td>Sensory for viscera</td>
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<tr>
<td></td>
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<td></td>
<td>Sensory and motor to pharynx and larynx</td>
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<tr>
<td>XI</td>
<td>Accessory</td>
<td>Jugular foramen</td>
<td>M  Motor for swallowing</td>
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<td>Motor to neck muscles</td>
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<tr>
<td>XII</td>
<td>Hypoglossal</td>
<td>Hypoglossal canal</td>
<td>M  Motor for tongue movement and speech</td>
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</tbody>
</table>

S = sensory  
M = motor  
B = Mixed, both sensory and motor  
How to remember the order of the names 1-12:  
On Old Olympus’ Towering Top A Fairly Vocal Gentleman Viewed A Hotel.
How to remember the nerves are sensory, motor, or both to remind you of function:

Some Say Marry Money But My Brother Says Bad Boys Marry Money.

For Study: Review Sheet Exercise 19 p. 299-304 in 9th edition
Review Sheet Exercise 17 p. 293-298 in 11th edition

Homework:
- Read exercises 23, 24, 25, and 26 in 9th and 10th editions
  exercises 22, 23, 24, 25 and 26 in 11th edition
- Optional: print the “Microscope Photos” for use in class to assist in identification of slides: http://www2.sunysuffolk.edu/blandoc/