

**Bio101
Laboratory 13**

**Neuron/Spinal Cord Histology
Brain Anatomy
Sheep Brain Dissection**

1

Brain, Cranial Nerves, and Spinal Cord

- Objectives for today's lab
 - Become familiar with the gross anatomy of the brain and spinal cord
 - Become familiar with the histology of nerve tissue and the spinal cord

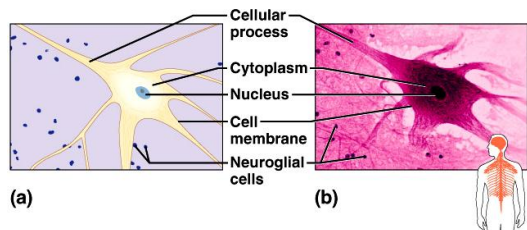
2

Nervous Tissue (slide # 1525)

- Major characteristics
 - Mononucleated (usually central)
 - Many cytoplasmic extensions
 - Usually surrounded by small, glial cells (supporting cells)
- Major Functions
 - Transmission of nerve impulses
 - Sensory reception

3

Nervous Tissue



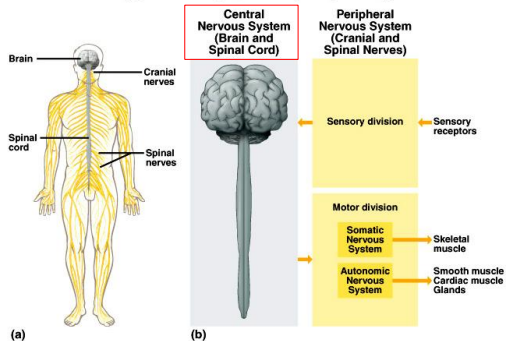
(a)

(b)

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Overview of the Nervous System

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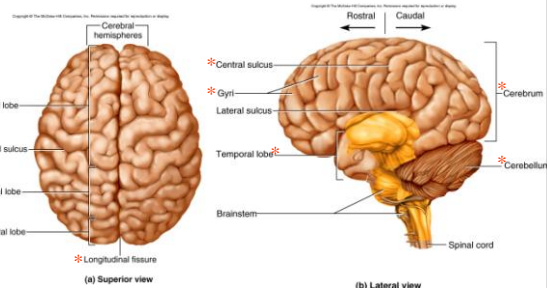


(a)

(b)

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Parts of the Brain



(a) Superior view

(b) Lateral view

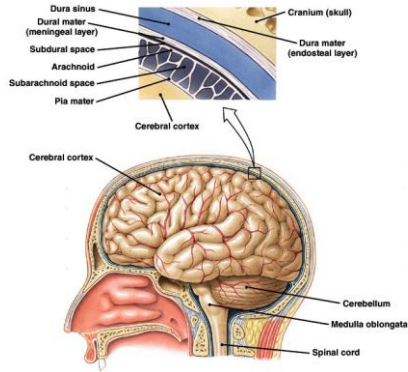
DIAGRAM TO KNOW FOR EXAM

Average male brain ≈ 1,600g, average female brain ≈ 1,450g

Figure from: Saladin, *Anatomy & Physiology*, McGraw Hill, 2007

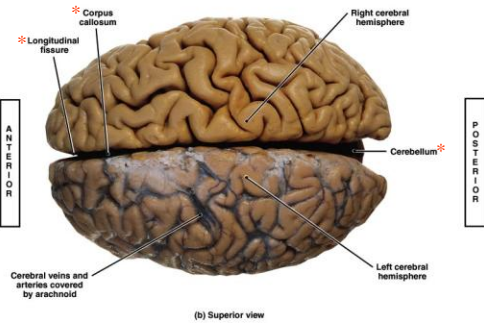
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Relationship of the Brain and Skull



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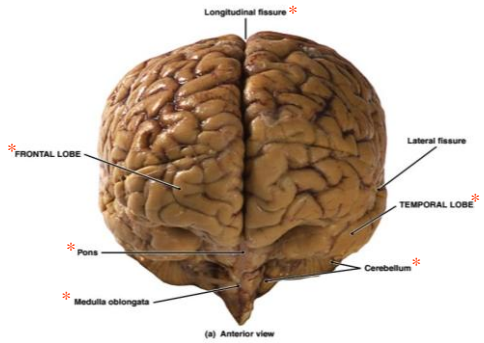
Brain – Superior View



(b) Superior view

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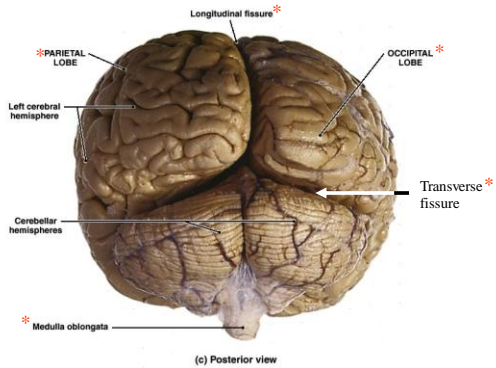
Brain – Anterior View



(a) Anterior view

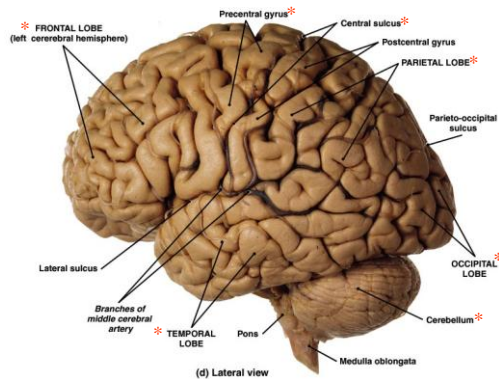
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Brain – Posterior View



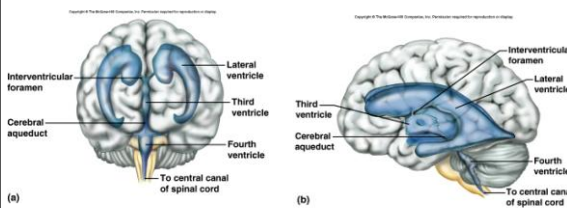
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Brain



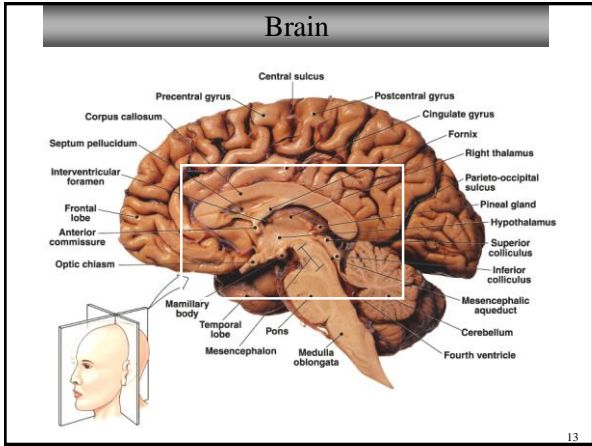
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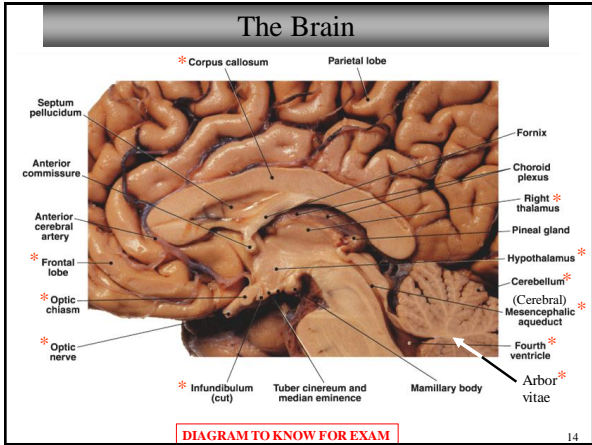
Ventricles of the Brain

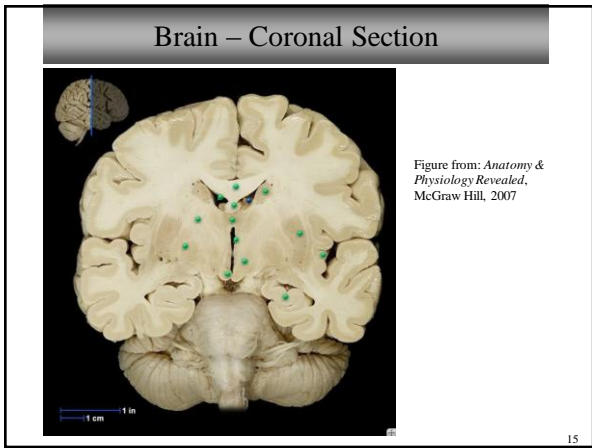


Ventricles make and circulate cerebrospinal fluid, CSF

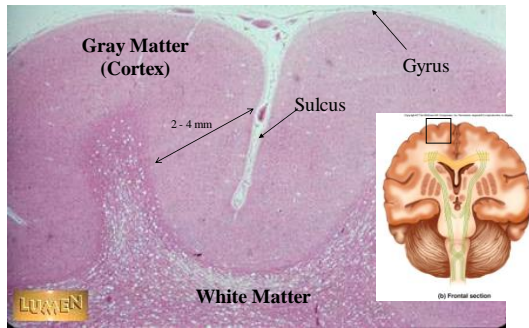
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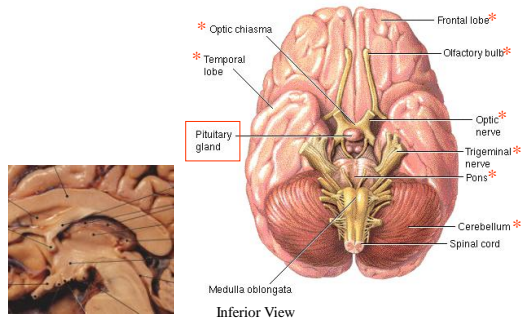


Histology of Cerebral Cortex



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The Brain



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Cranial Nerves (CN or N)

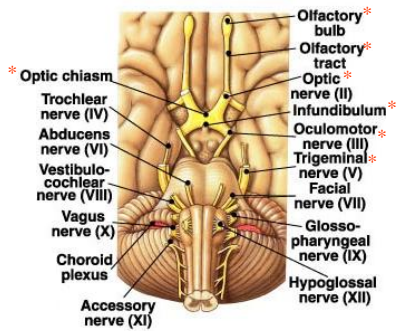
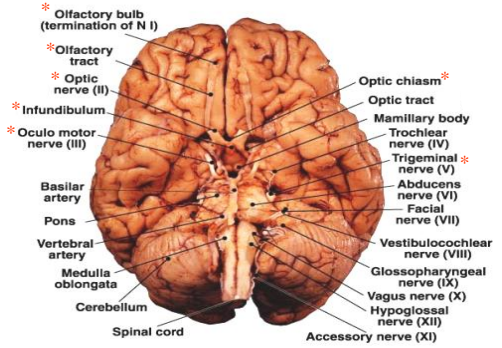


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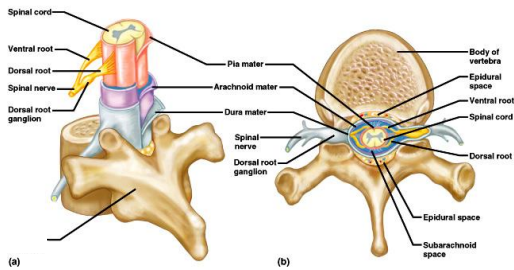
Cranial Nerves



(a)

Spinal Cord

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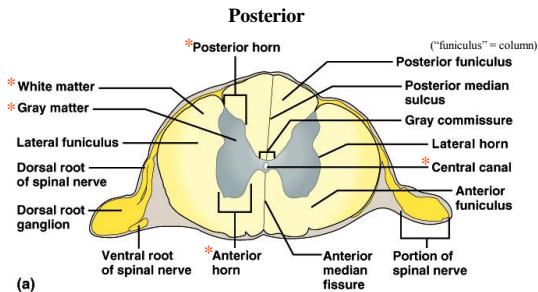


(a)

(b)

Spinal Cord

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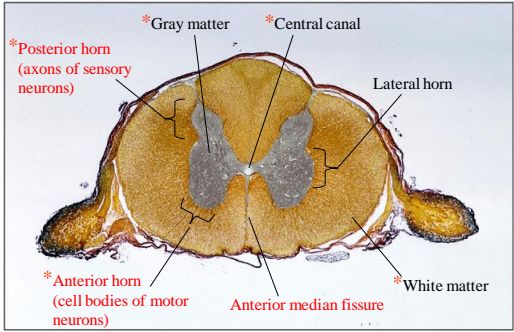
(a)

Anterior

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Spinal Cord

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(b)

DIAGRAM TO KNOW FOR EXAM

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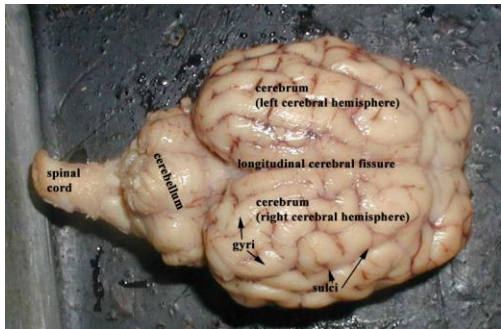
Sheep Brain



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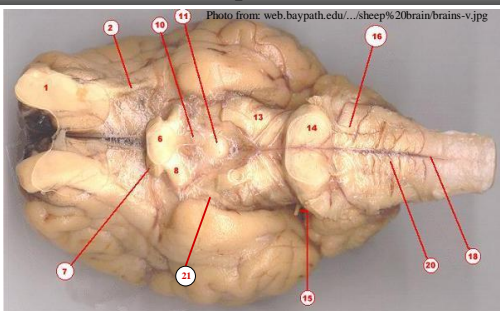
Sheep Brain



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Sheep Brain

Photo from: web.baypath.edu/~sheep%20brain/brains-v.jpg

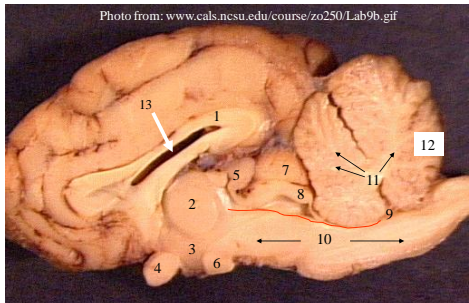


1. olfactory bulb	10. opening where the infundibulum attaches		
2. olfactory tract	11. mammillary body	15. trochlear nerve	20. medulla oblongata
6. optic chiasma	13. trigeminal nerve	16. abducens nerve	21. oculomotor nerve
7. optic nerve	14. pons	18. spinal cord	
8. optic tract			

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Sheep Brain

Photo from: www.cals.ncsu.edu/course/zo250/Lab9b.gif

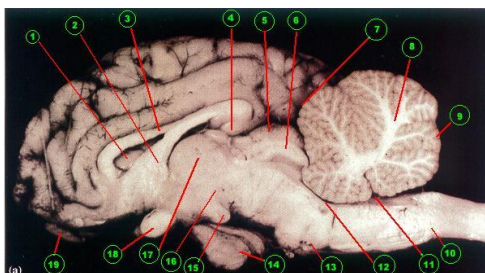


1. Corpus callosum	5. Pineal gland (body)	9. Fourth ventricle	13. Lateral ventricle
2. Thalamus	6. Mammillary Body	10. Brain stem	
3. Hypothalamus	7. Superior colliculus	11. Arbor vitae (white matter)	
4. Optic chiasm	8. Inferior colliculus	12. Cerebellar gray matter	

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Sheep Brain – Sagittal Section

Photo from: web.baypath.edu/~sheep%20brain/brains-v.jpg



1. lateral ventricle	8. arbor vitae	15. mammillary body
2. fornix	9. cerebellar cortex (grey matter)	16. hypothalamus
3. corpus callosum	10. medulla oblongata	17. thalamus
4. pineal body	11. fourth ventricle	18. optic chiasma
5. superior colliculus	12. cerebral aqueduct	19. olfactory bulb
6. inferior colliculus	13. pons	
7. transverse fissure	14. pituitary gland	

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