

Unit 7 Outline – Chapter 9 (p. 211 - 259)
Nervous System

Anatomy and Physiology – Mrs. Michaelsen

Chapter Objectives:

1. What makes up nervous tissue? (Ch 9a)
2. Differentiate between neurons and nerves. (Ch 9a)
3. What is the difference between the central nervous system and the peripheral nervous system? What are the major organs/parts in each? (Ch 9a)
4. List and explain the three functions of the nervous system? (Ch 9a)
5. What are the two parts of a neuron? (Ch 9a)
6. Name the two types of nerve fibers and explain the differences between them. (Ch 9a)
7. Describe the difference between myelinated axons and unmyelinated axons. (Ch 9a)
8. What are the three structural classifications of neurons? (Be able to identify them from pictures as well) (Ch 9a)
9. List and describe the three functional classifications of neurons. (Ch 9a)
10. Differentiate between neurons and neuroglial cells. (Ch 9a)
11. What are the 4 major types of neuroglial cells? (Ch 9a)
12. Why are neuron membranes said to be polar? (Ch 9a)
13. How do ions move across a membrane (what determines the direction of movement)? (Ch 9a)
14. Where are sodium and potassium ions most commonly found when the membrane is resting? (Ch 9a)
15. How are sodium and potassium ions moved from one side of a membrane to the other? (Ch 9a)
16. What is the typical resting potential for a neurons membrane? (Ch 9a)
17. What is depolarization? Repolarization? (Ch 9a)
18. Why is a threshold potential important? (Ch 9a)
19. What is an action potential and what happens when one is triggered (chemically and electrically)? (be specific) (Ch 9a)
20. Explain how saltatory conduction is different from standard impulse conduction. (Ch 9a)
21. Draw a picture of a synapse labeling the synaptic knob, the synaptic cleft, and synaptic vesicles. (Ch 9a)
22. Define synaptic transmission. (Ch 9a)
23. What are neurotransmitters and what is their function at the synapse? (Ch 9a)
24. Distinguish between motor nerves, sensory nerves, and mixed nerves. (Ch 9a)
25. What is a nerve pathway? (Ch 9a)
26. Describe the reflex arc for the knee-jerk reflex and the withdrawal reflex. (Ch 9a)
27. List and explain the three layers of the meninges. (Ch 9b)
28. Where is cerebrospinal fluid found in the nervous system and what is its function? (Ch 9b)
29. What are the functions of the spinal cord? (Ch 9b)
30. What are the four major divisions of the brain? (Ch 9b)
31. What are the five lobes of the cerebrum and what major functions are housed in each? (Ch 9b)
32. Distinguish between the cerebral cortex and the cerebral medulla. (Ch 9b)
33. What are the differences between motor areas, sensory areas, and association areas in the cerebrum? (Ch 9b)

34. Describe cerebral lateralization (hemisphere dominance). (Ch 9b)
35. What is the difference between the dominant and the non dominant hemisphere? (Ch 9b)
36. What is controlled by the dominant hemisphere? (Ch 9b)
37. What is controlled by the non dominant hemisphere? (Ch 9b)
38. What is the purpose of the ventricles in the brain? (Ch 9b)
39. List four parts found in the diencephalons. (Ch 9b)
40. What is the function of the thalamus? Hypothalamus? (Ch 9b)
41. What is the limbic system and what makes it up? (Ch 9b)
42. What is the reticular formation? What is it responsible for? (Ch 9b)
43. What makes up the brain stem? (Ch 9b)
44. What is the function of the pons? The medulla oblongata? (Ch 9b)
45. What is the function of the cerebellum? (Ch 9b)
46. How many cranial nerves are there? Spinal nerves (pairs)? (Ch 9e)
47. List several cranial nerves and their functions. (Ch 9e)
48. What happens in a plexus? (Ch 9b)
49. What is the function of the autonomic nervous system? (Ch 9b)
50. Differentiate between the sympathetic and parasympathetic divisions of the autonomic nervous system. (Ch 9b)

Other Assignments/Activities:

- First half of chapter
 - Neuron drawing
 - Three-neuron arc description
 - Lab – Reaction Time
 - Mirror activity with maze
- Second-half of chapter
 - Flow of cerebrospinal fluid drawing
 - Lab – Observing Nervous Responses
 - Computer lab to do a “brainy” activity

Website: Access at <http://www.chetekhighscience.yolasite.com>

- Please visit the website and complete the sheep brain dissection assignment. Directions will be provided there.

Note: There will be two exams given during this unit.

- The first exam will cover material taken from the text and lecture in Chapter 9 9.1 (p. 211) – 9.11 (p.229) – The Nervous System.
- The second exam will cover material taken from the text and lecture in Chapter 9 9.12 (p. 212) – 9.16 (p. 253)