

UNIT 6 - NERVOUS SYSTEM / SPECIAL SENSES

ACTIVITY - Nervous System Worksheet

Name _____

Period _____

1. Complete the following chart on the structure of the neuron.

Neuron Structure	Function
a. Nucleus	
b. Dendrite	
c. Axon	
d. Myelin	
e. Schwann Cells	

2. Complete the following chart on the types of neuroglial cells.

Type of Cell	Location	Function
a. Astrocytes		
b. Oligodendrocyte		
c. Microglia		
d. Ependymal Cells		
e. Schwann Cells		

3. Give 2 reasons in which case an axon cannot be regenerated.

- a.
- b.

4. Describe the resting phase of a nerve (polarization).

5. Describe what occurs during the depolarization phase of the action potential.

6. Describe what occurs during the repolarization phase of the action potential.

7. Describe what occurs during the refractory period

UNIT 6 - NERVOUS SYSTEM / SPECIAL SENSES

ACTIVITY - Nervous System Worksheet - Answer Key

1. Complete the following chart on the structure of the neuron.

Neuron Structure	Function
a. Nucleus	<i>Directs all cell activities.</i>
b. Dendrite	<i>Takes impulses to the cell body.</i>
c. Axon	<i>Takes impulses away from the cell body.</i>
d. Myelin	<i>Lipoprotein that insulates the axons and assists with nerve impulse conduction.</i>
e. Schwann Cells	<i>Surrounds the axon and produces the myelin.</i>

2. Complete the following chart on the types of neuroglial cells.

Type of Cell	Location	Function
a. Astrocytes	<i>Located in the CNS between blood vessels and neurons.</i>	<i>Transfer nutrients and oxygen to the neuron and forms scar tissue in the CNS.</i>
b. Oligodendrocyte	<i>Found in nerve fibers in the CNS.</i>	<i>Produces myelin in the brain and the spinal cord.</i>
c. Microglia	<i>Located throughout the CNS.</i>	<i>Provide structure support and performs phagocytosis within the CNS.</i>
d. Ependymal Cells	<i>Located in the ventricles of the brain.</i>	<i>Produces the CSF.</i>
e. Schwann Cells	<i>Found in the peripheral nervous system tightly wound around axons.</i>	<i>Surround axons to produce myelin.</i>

3. Give 2 reasons in which case an axon cannot be regenerated.

- 1.No Schwann cells.*
- 2.No cell body.*

4. Describe the resting phase of a nerve (polarization).

The axon is not actively conducting nerve impulses. Sodium is the ion found in the greatest concentration in the extracellular fluid. Potassium is the ion found in the greatest concentration in the intracellular fluid. The outside charge of the polarized membrane is positive while the inside charge of the polarized membrane is negative.

5. Describe what occurs during the depolarization phase of the action potential. *As the action potential propagates down the length of the axon, the sodium channels in the axon membrane. Sodium, which is found in greater concentration in the extracellular fluid, rushes through the protein channels creating a negative charge in the extracellular fluid and a positive charge in the intracellular fluid.*

6. Describe what occurs during the repolarization phase of the action potential. *Just split seconds after the opening of the sodium channels, the potassium channels in the axon membrane open. Since potassium is found in greater concentration within the cell, potassium ions rush outward. This flow of positively charged ions restores the positive charge outside of the cell and the negative charge inside of the cell.*

7. Describe what occurs during the refractory period. *During this period of time, no nerve impulses (action potentials can be sent). The sodium-potassium pump (using ATP) functions to restore the ion concentration of the polarized cell by pumping sodium ions out of the cell and bringing potassium ions into the cell.*