

Nervous System Worksheet 1

1. The three basic functions of the nervous system are: sensory input, integration, and motor output.
2. The nervous system has two major parts:
 - The central nervous system consists of the brain and spinal cords.
 - The peripheral nervous system contains all of the nerves that branch off from the brain and spine.
3. The peripheral nervous system also has two parts:
 - The sensory division picks up sensory stimuli.
 - The motor division sends directions from the brain to the muscles and glands.
4. The motor division is further broken down into:
 - The somatic nervous system which controls your skeletal muscles.
 - The autonomic nervous system which controls your involuntary functions (heartbeat, breathing, etc.).
5. The autonomic system is broken down further still:
 - The sympathetic division mobilizes the body into action.
 - The parasympathetic division calms the body down.
6. Neurons are the longest lived cells in your body and cannot be replaced.
7. All neurons have the same basic structure: cell body, dendrites, and axons.
8. Sensory neurons carry messages from sensory receptors and sends them to the central nervous system.
9. Motor neurons carry messages away from the central nervous system and out to the rest of the body.

10. Interneurons transmit messages between the central and peripheral nervous systems.
11. When a neuron is stimulated enough, it fires an electrical impulse down its axon to its neighboring neurons.
12. A resting neuron has more negative charges on the inside of it than in the extracellular space around it.
13. Neurons have a resting membrane potential because outside there are a bunch of positively charged sodium ions. Inside there are positively charged potassium ions, but also bigger, negatively charged proteins. Since there are more positive charges inside than outside, the neuron is negatively charged, or polarized. This is all orchestrated by the sodium-potassium pump.
14. When an axon is in the middle of an action potential, it can't respond to any other stimulus, no matter how strong. This is called the refractory period.
15. The strength of an action potential is always the same. What does change is the frequency.
16. The synapse is the meeting point between two neurons.
17. There are somewhere around 1000 trillion synapses in your brain.
18. Your nerve cells have two main settings for communicating: electrical (immediate) and chemical (take more time to be read).
19. Electrical synapses send an ion current directly from one neuron to another through gap junctions. The signal is never converted into another form.
20. Chemical synapses are slower and more abundant. They use neurotransmitters that diffuse across synaptic gaps. They can convert the signal, allowing for ways to control it.