Name _____

Unit 2: Biological Psychology

HONORS Psychology

Biological Psychology

Big Question: Is our brain and our mind the same thing? How does the brain function to create the "human experience?"

Biological Psychology Objectives:

- *Describe the structure and types of neurons and explain how neural impulses are generated.*
- *Describe how nerve cells communicate and discuss the impact of neurotransmitters and drugs on human behavior.*
- *Identify the major divisions of the nervous system.*
- *Identify the methods used to study the brain.*
- *Describe the overall organization of the brain.*
- *Describe the functions served by the various structures within the brainstem.*
- *Describe the structure and functions of the limbic systems and explain the relationship between the hypothalamus and the endocrine system.*
- *Describe the structure and functions of the cerebral cortex and discuss how damage to different cortical areas can impair language functioning.*
- *Discuss the capacity of the brain to reorganize following injury or illness.*
- *Describe research on the split brain and discuss what it reveals regarding normal brain functioning.*

Biological Psychology Overview

Neuroscience is concerned with the functions of the brain, its component neural systems, and their genetic blueprints, which provide the basis for all human behavior. Under the direction of the brain, the nervous and endocrine systems coordinate a variety of voluntary and involuntary behaviors and serve as the body's mechanisms for communication with the external environment.

The brain consists of the brainstem, the limbic system, and the cerebral cortex. Knowledge of the workings of the brain has increased with recent advances in neuroscientific methods. Studies of split-brain patients have also given researchers a great deal of information about the specialized functions of the brain's right and left hemispheres.

The chapter concludes with a discussion of how psychologists use evolutionary principles to answer universal questions about human behavior and specific questions about individual differences.

Many students find the technical material in this chapter difficult to master. Not only are there many terms for you to remember, but you must also know the organization and function of the various divisions of the nervous system. Learning this material will require a great deal of rehearsal. Working the chapter review several times, drawing and labeling brain diagrams, and mentally reciting terms are all useful techniques for rehearsing this type of material.

Key Terms

Using your own words, write a brief definition or explanation of each of the following. Feel free to be as succinct as possible as long as the definition makes sense to you. Do this after or while reading the assigned pages for class.

1. biological psychology –

2. neuron –

    a. dendrites –

    b. axon –

    c. myelin sheath –

    d. cell body –

    e. axon terminal branches -

    f. action potential –

    g. threshold –

    h. synapse –

3. neurotransmitters –
    a. acetylcholine (Ach) –
    b. dopamine -
    c. serotonin -
    d. endorphins –
4. nervous system –
    a. central nervous system (CNS) –
    b. peripheral nervous system (PNS) –
        i. somatic (skeletal) nervous system –
        ii. autonomic nervous system –
            1. sympathetic nervous system –
            2. parasympathetic nervous system –
5. sensory neurons –
6. interneurons –
7. motor neurons –
8. reflex –
9. left-Brain functions –
10. right-Brain functions –
11. corpus callosum –
12. brainstem –
    a. medulla –
    b. pons –
    c. reticular formation -
    d. thalamus -
    e. cerebellum -
13. limbic system –
    a. amygdala -
    b. hypothalamus -
    c. hippocampus -
    d. pituitary Gland -

14. cerebral cortex -
    a. frontal lobe –
    b. parietal lobe -
    c. occipital lobe -
    d. temporal lobe –
    e. motor Cortex -
    f. sensory Cortex -
    g. association Areas -
15. brain study methods -
    a. accidents -
    b. lesions -
    c. electroencephalogram (EEG) -
    d. computed tomography (CT) -
    e. positron emission tomography (PET) -
    f. magnetic resonance imaging (MRI) -
16. plasticity -
17. neural Networks -
18. glial cells -
19. aphasia -
    a. Broca's Area -
    b. Wernicke's Area -
20. angular gyrus -
21. endocrine system -
    a. pituitary gland -
    b. hormones -
    c. adrenal glands -