Unit 2: Biological Bases of Behavior

Content Area: **Social Studies**
Course(s): **AP Psychology**
Time Period: **October**
Length: **10 Blocks**
Status: **Published**

Neuroanatomy, nervous systems and neural transmission, and genetics

Students will learn the basis of psychological theory as the study of human and animal behavior and mental processes and learn how psychologists design and conduct research.

Enduring Understandings

- There are interactions between inherited traits, environment, and evolution in shaping behavior
- Critical structures exist within biological systems, including the endocrine system and nervous system
- Brain functions relate to neural firing and can be influenced by medication
- There are various ways to study the brain and research techniques to utilize for investigating its structure and function
- Consciousness exists in a variety of states, including sleeping and dreaming
- Addiction and drug dependence begins at the neuronal level

Essential Questions

1. What are the major divisions and subdivisions of the nervous system and their respective functions?
2. How does the structure relate to the function of the major regions of the brain?
3. What are the specific functions centered in specific lobes of the cerebral cortex?
4. How do the endocrine glands link to the nervous system?
5. What are the effects of heredity and the environment on human and animal behavior?

Content

Topics will include:

- The interaction of inherited traits, environment, and evolution in shaping behavior
- Structures and functions of biological systems, including the endocrine system and nervous system
- Brain function, neural firing, and the influence of medication
- The study of the brain and research techniques for studying its structure and function
- States of consciousness, including sleeping and dreaming
- Addiction and drug dependence

Vocabulary

Neuron, dendrite, soma, axon, resting potential, action potential, all-or-none principle, synapse, terminal buttons, synaptic transmission, neurotransmitters, dopamine, serotonin, norepinephrine, acetylcholine, GABA, glutamate, endorphins, synapse, central nervous system, reflex, peripheral nervous system, somatic nervous system, autonomic nervous system, sympathetic division, parasympathetic division, endocrine system, hormones, EEG, CT, PET, MRI, fMRI, brain stem, spinal cord, cerebellum, hippocampus, limbic system, cerebrum, cerebral cortex, hypothalamus, amygdala, pituitary gland, frontal lobe, temporal lobe, occipital lobe, parietal lobe

Important People

Paul Broca, Karl Wernicke, Phineas Gage, Roger Sperry, Michael Gazzaniga, "Genie"

Student Expectations

I. Biological Bases of Behavior

AP students in psychology will be able to:

- Differentiate between the structures and functions of the various parts of the central nervous system
- Describe the relationship between the nervous system and endocrine system
- Evaluate the influence of genetics on individual behavior

II. States of Consciousness

AP students in psychology will be able to:

- Describe various states of consciousness and distinguish their differences
- Provide a detailed explanation of “sleep” and describe its biological importance
- Explain why people sleep and dream

Standards

LA.RI.9-10.2	Determine a central idea of a text and analyze how it is developed and refined by specific details; provide an objective summary of the text.

LA.RI.9-10.8	Describe and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and reasoning.
LA.W.9-10.9	Draw evidence from literary or nonfiction informational texts to support analysis, reflection, and research.
LA.W.9-10.9.B	Apply grades 9–10 Reading standards to nonfiction informational (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).
SCI.9-12.B	Biopsychology
SCI.9-12.B.1	Biological Bases of Behavior
SCI.9-12.B.1.1	Structure and function of the nervous system in human and non-human animals
SCI.9-12.B.1.1.1	Identify the major divisions and subdivisions of the human nervous system
SCI.9-12.B.1.1.2	Identify the parts of the neuron and describe the basic process of neural transmission
SCI.9-12.B.1.1.3	Differentiate between the structures and functions of the various parts of the central nervous system
SCI.9-12.B.1.1.4	Describe lateralization of brain functions
SCI.9-12.B.1.1.5	Discuss the mechanisms and the importance of plasticity of the nervous system
SCI.9-12.B.1.2	Structure and function of the endocrine system
SCI.9-12.B.1.2.1	Describe how the endocrine glands are linked to the nervous system
SCI.9-12.B.1.2.2	Describe the effects of hormones on behavior and mental processes
SCI.9-12.B.1.2.3	Describe hormone effects on the immune system
SCI.9-12.B.1.3	The interaction between biological factors and experience
SCI.9-12.B.1.3.1	Describe concepts in genetic transmission
SCI.9-12.B.1.3.2	Describe the interactive effects of heredity and environment
SCI.9-12.B.1.3.3	Explain how evolved tendencies influence behavior
SCI.9-12.B.1.4	Methods and issues related to biological advances
SCI.9-12.B.1.4.1	Identify tools used to study the nervous system
SCI.9-12.B.1.4.2	Describe advances made in neuroscience
SCI.9-12.B.1.4.3	Discuss issues related to scientific advances in neuroscience and genetics