Unit #2: Biopsychology

Content Area: **Social Studies**
Course(s): **Psychology I, Psychology II**
Time Period: **First Marking Period**
Length: **5 Weeks**
Status: **Published**

Unit Overview

Biopsychology focuses on the biological aspects of our being, which provide the physical basis for behavior and mental processes. Before understanding why people think and act the way they do the students must first be exposed to how the human brain and body functions.

STAGE 1- DESIRED RESULTS

The College, Career, and Civic Life (C3) Framework for Social Studies

D2.Psy.2.9-12. Investigate human behavior from biological, cognitive, behavioral, and sociocultural perspectives.

D2.Psy.9.9-12. Describe biological, psychological, and sociocultural factors that influence individuals' cognition, perception, and behavior.

D2.Psy.14.9-12. Use information from different psychological sources to generate research questions.

D2.Psy.15.9-12. Use existing evidence and formulate conclusions about psychological phenomena.

D2.Psy.16.9-12. Use critical thinking skills to become better consumers of psychological knowledge.

D2.Psy.17.9-12. Acknowledge the interconnected- ness of knowledge in the discipline of psychology.

D2.Psy.18.9-12. Apply psychological knowledge to their daily lives.

D2.Psy.19.9-12. Apply the major theoretical approaches in psychology to educational, emotional, political, ethical, motivational, organizational, personal, and social issues.

D2.Psy.20.9-12. Suggest psychologically based ethical solutions to actual problems including, but not limited to, those encountered in education, business and industry, and the environment.

D2.Psy.21.9-12. Discuss ways in which the applications of psychological science can address domestic and global issues.

D2.Psy.22.9-12. Use psychological knowledge to promote healthy lifestyle choices.

D2.Psy.23.9-12. Apply psychological knowledge to civic engagement.

Essential Questions

- How does your brain work?
- How do our brains change over a lifetime?
- How is the teenage brain different from an adult brain?
- What are neurons and what do they do?
- How do biochemicals affect my mood?
- How can my hormones help me in a crisis?

Enduring Understanding

- Structure and function of the nervous system in human and non-human animals
- Structure and function of the endocrine system
- The interaction between biological factors and experience
- Methods and issues related to biological advances
- The processes of sensation and perception
- The capabilities and limitations of sensory processes
- Interaction of the person and the environment in determining perception
- The relationship between conscious and unconscious processes
- Characteristics of sleep and theories that explain why we sleep and dream
- Categories of psychoactive drugs and their effects
- Other states of consciousness

Students will know…

I, Key Ideas / Concepts

II. Possible Misunderstandings

III. Key Terms and Content Vocabulary

biological perspective, neuron, dendrites, axon, myelin sheath, action potential, threshold, synapse, neurotransmitters, reuptake, endorphins, nervous system, central nervous system (CNS), peripheral nervous system (PNS), nerves, sensory neurons, motor neurons, interneurons, somatic nervous system, autonomic nervous sys- tem (ANS), sympathetic nervous system, parasympathetic nervous system, reflex, endocrine system, hormones, adrenal glands, pituitary gland, lesion, electroencephalogram (EEG), PET (positron emission tomography) scan, MRI (magnetic resonance imaging), fMRI (functional magnetic resonance imaging), brainstem, medulla, thalamus, reticular formation, cerebellum, limbic system, amygdala, hypothalamus, cerebral cortex, glial cells (glia), frontal lobes, parietal lobes, occipital lobes, temporal lobes, motor cortex, sensory cortex, association areas, plasticity, neurogenesis, corpus callosum, split brain

Students will be able to...

1.1 Identify the major divisions and subdivisions of the human nervous system.

1.2 Identify the parts of the neuron and describe the basic process of neural transmission.

1.3 Differentiate between the structures and functions of the various parts of the central nervous system.

1.4 Describe lateralization of brain functions.

1.5 Discuss the mechanisms of, and the importance of, plasticity of the nervous system.

2.1 Describe how the endocrine glands are linked to the nervous system.

2.2 Describe the effects of hormones on behavior and mental processes.

2.3 Describe hormone effects on the immune system.

3.1 Describe concepts in genetic transmission.

3.2 Describe the interactive effects of heredity and environment.

3.3 Explain how evolved tendencies influence behavior.

4.1 Identify tools used to study the nervous system.

4.2 Describe advances made in neuroscience.

4.3 Discuss issues related to scientific advances in neuroscience and genetics.

5.1 Discuss processes of sensation and perception and how they interact.

5.2 Explain the concepts of threshold and adaptation.

6.1 List forms of physical energy for which humans and non-human animals do and do not have sensory receptors.

6.2 Describe the visual sensory system.

6.3 Describe the auditory sensory system.

6.4 Describe other sensory systems, such as olfaction, and gustation

7.1 Explain Gestalt principles of perception.

7.2 Describe binocular and monocular depth cues.

7.3 Describe the importance of perceptual constancies.

7.4 Describe perceptual illusions.

7.5 Describe the nature of attention.

7.6 Explain how experiences and expectations influence perception.

8.1 Identify states of consciousness.

8.2 Distinguish between processing which is conscious (i.e., explicit) and other processing which happens without conscious awareness (i.e., implicit).

9.1 Describe the circadian rhythm and its relation to sleep.

9.2 Describe the sleep cycle.

9.3 Compare theories about the functions of sleep.

9.4 Describe types of sleep disorders.

9.5 Compare theories about the functions of dreams.

10.1 Characterize the major categories of psychoactive drugs and their effects.

10.2 Describe how psychoactive drugs act at the synaptic level.

10.3 Evaluate the biological and psychological effects of psychoactive drugs.

10.4 Explain how culture and expectations influence the use and experience of drugs.

11.1 Describe meditation and relaxation and their effects.

11.2 Describe hypnosis and controversies surrounding its nature and use.

11.3 Describe flow states.

STAGE 2- EVIDENCE OF LEARNING

Authentic Assessments

- Diagram of the brain labeled by student
- Analytical presentation of one behavior that has evolved over millennia.
- Student run "seminar" on different "physical loopholes" of the human mind
- Create a graph outlining the intensity of specific sensations
- Keep a sleep journal
- Students will lead a meditation exercise
- Watch various, appropriate, episodes of *Brain Games* and recreate experiments in class.
- A write-up on a documentary on the teenage transformations
- Student will act as a psychology magazine column writer and answer a reader's question about how best to stimulate their infant's brain.
- Students will bring in multiple dishes after assigned a taste sensation. (Sweet, Spicy, Sour) Each student will then taste test the various dishes and do a write up of the sensation.
- A box will be covered from view and have a hand hole. Inside will be chosen touch sensations. (Fuzzy, Slimy, Soft, Hard) The student will describe the sensation to a partner and the partner must guess what is in the box.
- Students will be responsible for researching a brain injury similar to H.M.'s in various portions of the brain and describe the symptoms of the trauma.
- Using a model of a brain and past presentations, students will create a map of the brain, its sections, and their specialties.
- Students will spend a day without the sense of sight (using a blindfold) and develop a journal of their experience.
- Students will spend a day without the sense of hearing and keep a journal of their experience.
- Students will split into groups (or multiple classes), one will watch a clip of a calm movie, and the other will watch a clip of an action movie. After watching the clip both will complete a worksheet designed to assess their willingness to fight. Results will be shared the next day.
- Students will be asked to rate activities (of similar rigor) in order of difficulty. They will then perform these activities. Some they perform regularly and others not. They will then rate the activities again to find that their unconscious made completing some of the activities easier than others.
- Various anomalies in physical ability in humans will be examined and discussed. (Nerves in the forearm, peripheral vision, optical illusions, balance)

Traditional / Benchmark Assessments

- Critical Thinking Do Nows
- Reflection- A write-up on a documentary on the teenage transformations
- Writing- Student will act as a psychology magazine column writer and answer a reader's question about how best to stimulate their infant's brain
- Test/Quizzes

Formative Assessment During Lesson

- 3- Minute Pause
- A-B-C Summaries
- Analogy Prompt
- Choral Response
- Debriefing
- Exit Card / Ticket
- Hand Signals
- Idea Spinner
- Index Card Summaries
- Inside-Outside Circle Discussion (Fishbowl)
- Journal Entry
- Misconception Check
- Observation
- One Minute Essay
- One Word Summary
- Portfolio Check
- Questions & Answers
- Quiz
- Self-Assessment
- Student Conference
- Think-Pair-Share
- Web or Concept Map

STAGE 3- LEARNING PLAN

Instructional Map

Modifications/Differentiation of Instruction

Enter specific modifications for:

ELL

Special Needs

Reaching Level

Challenge

Modification Strategies

- Extended Time
- Frequent Breaks
- Highlighted Text
- Interactive Notebook
- Modified Test
- Oral Directions
- Peer Tutoring
- Preferential Seating
- Re-Direct
- Repeated Drill / Practice
- Shortened Assignments
- Teacher Notes
- Tutorials
- Use of Additional Reference Material
- Use of Audio Resources

Differentiation Strategies

High Preparation Differentiation

- Alternative Assessments
- Choice Boards
- Games and Tournaments
- Group Investigations
- Guided Reading
- Independent Research / Project
- Interest Groups
- Learning Contracts
- Leveled Rubrics
- Literature Circles
- Multiple Intelligence Options
- Multiple Texts
- Personal Agendas
- Project Based Learning (PBL)
- Stations / Centers
- Think-Tac-Toe
- Tiered Activities / Assignments
- Varying Graphic Organizers

Low Preparation Differentiation

- Choice of Book / Activity
- Cubing Activities
- Exploration by Interest (using interest inventories)
- Flexible Grouping
- Goal Setting With Student
- Homework Options
- Jigsaw
- Mini Workshops to Re-teach or Extend Skills
- Open-ended Activities
- Think-Pair-Share by Readiness, Interest, or Learning Style
- Use of Collaboration
- Use of Reading Buddies
- Varied Journal Prompts
- Varied Product Choice
- Varied Supplemental Materials
- Work Alone / Together

Horizontal Integration- Interdisciplinary Connections

Vertical Integration- Discipline Mapping

Additional Materials

- Myers Psychology 9th Edition In Modules
- Various teacher created PowerPoint presentations
- Self recorded lectures with the goal of flipping the classroom
- *Brain Games* Series (Various Episodes)
- Case Study: *Phineas Gage*
- *Case Study*: H.M.'s Seizure surgery
- Case Study: Apartheid *Aversion Study* 1979-'89
- Case Study*: Monkey Drug Trials* 1969
- Various Subject Appropriate Case Studies found in multiple publications.
- Current Event APA (and other) publications