Unit #1: Biological Level of Analysis (Core)

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

Unit Overview

At the most basic level of analysis, human beings are biological systems. Our cognitions, emotions and behaviors are products of the anatomy and physiology of our nervous and endocrine systems. Since the 1960s, with the invention and development of brain imaging technologies it has become possible to directly study living brains in action as various tasks are performed, and to correlate specific areas of brain damage with specific changes in a person's personality or cognitive abilities.

STAGE 1- DESIRED RESULTS

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

PSY.9-12.1	Psychological Perspectives and Methods of Inquiry
PSY.9-12.1.D2.Psy.1.9-12	Demonstrate a basic understanding of the scientific methods that are at the core of psychology.
PSY.9-12.1.D2.Psy.2.9-12	Investigate human behavior from biological, cognitive, behavioral, and sociocultural perspectives.
PSY.9-12.1.D2.Psy.3.9-12	Discuss theories, methodologies, and empirical findings necessary to plan, conduct, and especially interpret research results.
PSY.9-12.1.D2.Psy.4.9-12	Adhere to and consider the impact of American Psychological Association and federal guidelines for the ethical treatment of human and nonhuman research participants.
PSY.9-12.1.D2.Psy.5.9-12	Explain how the validity and reliability of observations and measurements relate to data analysis.
PSY.9-12.1.D2.Psy.6.9-12	Collect and analyze data designed to answer a psychological question using basic descriptive and inferential statistics.
PSY.9-12.1.D2.Psy.7.9-12	Explore multicultural and global perspectives that recognize how diversity is important to explaining human behavior.
PSY.9-12.2	Influences on Thought and Behavior
PSY.9-12.2.D2.Psy.8.9-12	Explain the complexities of human thought and behavior, as well as the factors related to the individual differences among people.
PSY.9-12.2.D2.Psy.9.9-12	Describe biological, psychological, and sociocultural factors that influence individuals' cognition, perception, and behavior.
PSY.9-12.2.D2.Psy.10.9-12	Explain the interaction of biology and experience (i.e., nature and nurture) and its influence on behavior.

PSY.9-12.2.D2.Psy.11.9-12	Identify the role psychological science can play in helping us understand differences in individual cognitive and physical abilities.
PSY.9-12.2.D2.Psy.12.9-12	Explain how social, cultural, gender, and economic factors influence behavior and human interactions in societies around the world.
PSY.9-12.3	Critical Thinking: Themes, Sources, and Evidence
PSY.9-12.3.D2.Psy.13.9-12	Explain common themes across the field of psychological science, including ethical issues, diversity, developmental issues, and concerns about health and well being.
PSY.9-12.3.D2.Psy.14.9-12	Use information from different psychological sources to generate research questions.
PSY.9-12.3.D2.Psy.15.9-12	Use existing evidence and formulate conclusions about psychological phenomena.
PSY.9-12.3.D2.Psy.16.9-12	Use critical thinking skills to become better consumers of psychological knowledge.
PSY.9-12.3.D2.Psy.17.9-12	Acknowledge the interconnectedness of knowledge in the discipline of psychology.
PSY.9-12.4	Applications of Psychological Knowledge
PSY.9-12.4.D2.Psy.18.9-12	Apply psychological knowledge to their daily lives.
PSY.9-12.4.D2.Psy.19.9-12	Apply the major theoretical approaches in psychology to educational, emotional, political, ethical, motivational, organizational, personal, and social issues.
PSY.9-12.4.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.
PSY.9-12.4.D2.Psy.21.9-12	Discuss ways in which the applications of psychological science can address domestic and global issues.
PSY.9-12.4.D2.Psy.22.9-12	Use psychological knowledge to promote healthy lifestyle choices.
PSY.9-12.4.D2.Psy.23.9-12	Apply psychological knowledge to civic engagement.

Essential Questions

- How does brain chemistry and structure influence behavior?
- How does genetic inheritance influence behavior?
- 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

- Aphasia, Axon, Brain Imaging Techniques, Brainstem, Cerebral Cortex, CNS, Corpus Callosum, Dendrites, Endocrine System, Frontal Lobe, Glands, Hormones, Interneurons, Limbic System, Motor Neuron, Myelin Sheath, Neuron, Neurotransmitters, Occipital Lobe, Parietal Lobe, Plasticity, PNS, Reflex Arc, Sensory Neuron, Split Brain, Synapse, Temporal Lobe

Students will be able to…

General learning outcomes:

1. Outline principles that define the biological level of analysis (for example, patterns of behavior can be inherited; animal research may inform our understanding of human behavior; cognitions, emotions and behaviors are products of the anatomy and physiology of our nervous and endocrine systems).

2. Explain how principles that define the biological level of analysis may be demonstrated in research (that is, theories and/or studies).
3. Discuss how and why particular research methods are used at the biological level of analysis (for example, experiments, observations, correlational studies).
4. Discuss ethical considerations related to research studies at the biological level of analysis.

Physiology and behavior learning outcomes:

1. Explain one study related to localization of function in the brain (for example, Wernicke, Broca,
2. Gazzaniga and Sperry).
3. Using one or more examples, explain effects of neurotransmission on human behavior (for example, the effect of noradrenaline on depression).
4. Using one or more examples, explain functions of two hormones in human behavior.
5. Discuss two effects of the environment on physiological processes (for example, effects of jet lag on bodily rhythms, effects of deprivation on neuroplasticity, effects of environmental stressors on reproductive mechanisms).
6. Examine one interaction between cognition and physiology in terms of behavior (for example, agnosia, anosognosia, prosapagnosia, amnesia). Evaluate two relevant studies.
7. Discuss the use of brain imaging technologies (for example, CAT, PET, fMRI) in investigating the relationship between biological factors and behavior.

Genetics and behavior learning outcomes:

1. With reference to relevant research studies, to what extent does genetic inheritance influence behavior?
2. Examine one evolutionary explanation of behavior.
3. Discuss ethical considerations in research into genetic influences on behavior.

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

- Create a brain diagram or brain mobile
- Conduct a class demonstration of the nervous system by holding hands to send signals
- Watch baby/teen brain videos – PBS
- Create a Play-Doh Brain
- Perform neurotransmitter skits
- Watch Phineas Gage Video Clip or read an article about his story

Traditional / Benchmark Assessments

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

Connections with Sociology and Anatomy

Vertical Integration- Discipline Mapping

This is a high school elective course

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