Unit 2: Human Behavioral Biology

Content Area: **Social Studies**
Course(s):
Time Period: **Marking Period 1**
Length: **6 weeks**
Status: **Published**

Summary

Students in the Introduction to Psychology course study behavior and mental processes in both humans and animals. Beginning with a firm understanding of the pillars of psychology and the importance of the scientific method and research processes, students explore various psychological topics, including behavioral biology, learning theory, personality theories, cognition, and clinical psychology. The semester course ends with the timely mental health and mindfulness topic to reduce stigma, while shedding light on common misconceptions to bring about awareness in the brave spaces of our classroom community and beyond.

This unit is part of the larger aforementioned course sequence and specifically focuses on the biological underpinnings of human behavior and consciousness. By the end of this unit, students will be able to describe the major biological systems impacting human behavior and apply the function of the systems to everyday life of both humans and animals.

Standards

6.1.12.HistorySE.14.a: Explore the various ways women, racial and ethnic minorities, the LGBTQ community, and individuals with disabilities have contributed to the American economy, politics and society.

6.2.12.HistoryUP.2.a: Analyze the impact of new intellectual, philosophical, and scientific ideas on how humans viewed themselves and how they viewed their physical and spiritual worlds.

6.2.12.CivicsPI.6.a: Use historic case studies or a current event to assess the effectiveness of multinational organizations in attempting to solve global issues.

6.2.12.EconET.3.a: Determine how, and the extent to which, scientific and technological changes, transportation, and new forms of energy brought about social, economic, and cultural changes in the world.

RI.11-12.1. Accurately cite strong and thorough textual evidence, (e.g., via discussion, written response, etc.), to support analysis of what the text says explicitly as well as inferentially, including determining where the

text leaves matters uncertain.

RI.11-12.2. Determine two or more central ideas of a text, and analyze their development and how they interact to provide a complex analysis; provide an objective summary of the text.

RI.11-12.3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.

NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

NJSLSA.W5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

APA Standards for High School Psychology Curricula- BIOLOGY CONTENT STANDARD 1

Structure and function of the nervous system and endocrine system in human and non-human animals

Students are able to (learning targets):

- 1.1. Identify the major divisions and subdivisions of the human nervous system and their functions
- 1.2. Identify the parts of the neuron and describe the basic process of neural transmission
- 1.3. Describe the structures and functions of the various parts of the central nervous system
- 1.4. Explain the importance of plasticity of the nervous system
- 1.5. Describe the function of the endocrine glands and their interaction with the nervous system
- 1.6. Identify methods and tools used to study the nervous system

APA Standards for High School Psychology Curricula- BIOLOGY CONTENT STANDARD 2

The interaction between biological factors and experiences

Students are able to (learning targets):

- 2.1. Describe concepts in behavioral genetics and epigenetics
- 2.2. Describe the interactive effects of heredity and environment
- 2.3. Explain general principles of evolutionary psychology

APA Standards for High School Psychology Curricula- CONSCIOUSNESS CONTENT STANDARD 1

The different states and levels of consciousness

Students are able to (learning targets):

- 1.1. Identify states of consciousness
- 1.2. Distinguish between processing that is conscious (i.e., explicit) and other processing that happens without conscious awareness (i.e., implicit)
- 1.3. Identify the effects of meditation, mindfulness and relaxation
- 1.4. Describe characteristics of and current conceptions about hypnosis

APA Standards for High School Psychology Curricula- CONSCIOUSNESS CONTENT STANDARD 3

Categories of psychoactive drugs and their effects

Students are able to (learning targets):

- 3.1. Characterize the major categories of psychoactive drugs and their effects
- 3.2. Describe how psychoactive drugs work in the brain
- 3.3. Describe the physiological and psychological effects of psychoactive drugs

This unit further reflects the goals of the Holocaust Education mandate where students are able to identify and analyze applicable theories concerning human nature and behavior; understand that genocide is a consequence of prejudice and discrimination; understand that issues of moral dilemma and conscience have a profound impact on life; and understand the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

This unit includes instructional materials that highlight the history and contributions of Asian Americans and Pacific Islanders in accordance with the New Jersey Student Learning Standards in Social Studies.

This unit also reflects the goals of the Department of Education and the Amistad Commission including the infusion of the history of Africans and African-Americans into the curriculum in order to provide an accurate, complete, and inclusive history regarding the importance of of African-Americans to the growth and development of American society in a global context.

This unit is aligned to the English Language Development (ELD) standards for kindergarten through grade 12 since multilingual learners develop content and language concurrently, with academic content in a classroom where the language of instruction is English. As a result, language learning and language as a means for learning academic content are interchangeable. The following ELD standards are relevant for this unit and course of study:

- Standard 1: Language for Social and Instructional Purposes: English language learners communicate for social and instructional purposes within the school setting.
- Standard 5: Language for Social Studies: English language learners communicate information, ideas and concepts necessary for academic success in the content area of Social Studies.

The standards in this unit reflect a developmental progression across grade levels and make interdisciplinary connections across content areas including the humanities, technology, career readiness, cultural awareness, and global citizenship.

Essential Questions and Enduring Understandings

Essential Questions:

- To what extent is the mind controlled by the body?
- Is nature or nurture more influential in determining human behavior?

Enduring Understandings:

- The structure and function of the nervous endocrine systems in human and non-human animals play major roles in our everyday thinking, feeling, and acting.
- The interaction between biological factors and experiences tells us that no behavior is strictly

biologically driven.

Objectives

Students will know:

- Basic processes and systems in the biological bases of behavior, including parts of the neuron and the process of transmission of a signal between neurons.
- The influence of drugs on neurotransmitters (e.g., reuptake mechanisms).
- The effect of the endocrine system on behavior.
- The nervous system and its subdivisions and functions.
- The effects of the development and maturation of biological systems and mechanisms on social and emotional functioning.
- Historic and contemporary research strategies and technologies that support research (e.g., case studies, split-brain research, imaging techniques).
- Psychology's abiding interest in how heredity, environment, and evolution work together to shape behavior.
- How traits and behavior can be selected for their adaptive value.
- Various states of consciousness and their impact on behavior.
- The major psychoactive drug categories (e.g., depressants, stimulants) and classify specific drugs, including their psychological and physiological effects.
- The relationship between drug dependence, addiction, tolerance, and withdrawal.

Students will be skilled at:

- Developing models of internal body systems
- Interpreting diagrams of biological structures
- Recognizing how philosophical and psychological perspectives have shaped the development of psychological thought.
- Comparing and contrasting the different domains of Psychology.
- Differentiating theoretical approaches in explaining behavior.

- Recognizing the strengths and limitations of applying psychological theories to explain behavior.
- Evaluating how major historical unfoldings influenced subsequent events in the field of Psychology.
- Differentiating types of research, both quantitative and qualitative, and evaluating the strengths and weaknesses of each.
- Examining the function of specific parts of the body in authentic contexts.
- Predicting the validity of behavioral explanations based on the quality of research design and related alignment (e.g., confounding variables limit confidence in research conclusions).
- Applying relevant theories and perspectives from the unit in authentic contexts.
- Analyzing the design and conclusions of relevant studies from the unit.
- Discussing the value of reliance on operational definitions and measurements in behavioral research.

Learning Plan

This unit plan includes but is not limited to the following strategies:

The Zombie Menu Project: Students design a menu for a restaurant for zombies linking brain parts to the menu. Link

Beautiful 3-D Brain Scans Show Every Synapse: Students observe a video and then class discussion in group ensues dispelling myths about the brain. Link

TED-ED Brain Videos/jigsaw: Students watch one of four TED-ED videos about the brain. Each TED- ED video is between 4-5 minutes, is creatively depicted, and contains both multiple choice and short answer questions. Jigsaw group activity follows. Link

"Mr. Split Brainy": Students will work in pairs to complete the activity "Mr. Split Brainy" to conisder the possible outcomes for a split-brain patient. Link

"The Mysterious Workings of the Adolescent Brain": Students will watch Dr. Blackmore's talk and then complete a discussion question assignment in groups. Link

"Cupid's Disease": Students will read the story "Cupid's Disease" from The Man Who Mistook His Wife For a Hat by Dr. Oliver Sacks. The instructor will then facilitate a discussion about how the connections between our bodies and our brains work. "Cupid's Disease" can also be retrieved from here: Link

Brain Hats: Students are given students a blank paper hat with a diagram of the brain and encourage them to take them home, draw on them, label the parts, color code them, and use them as a reference when discussing the parts of the brain. Link

Brain Valentines: Students will randomly draw a brain part, and then create a Valentine's card (of some sort) that demonstrates their understanding of their assigned part's function. Link

Brain Mnemonics: Students are paired together and given 10-15 minutes to use the mnemonics, followed by a brief oral review. Students then develop one of their own - www.thepsychfiles.com

Phineas Gage – From a Story of Loss to One of Reinvention: The video clip is shown of the recreation of Phineas Gage's accident from the TV series The Brain. The video (found at https://www.learner.org/resources/series142.html) often leaves students with the impression that "Gage was no longer Gage" after his accident. Students then review an alternative explanation from https://www.uakron.edu/gage/ and discuss why there might be such a difference between the accounts.

Mouse Party: Instruct students to use the Mouse Party interactive website http://learn.genetics.utah.edu/content/addiction/mouse/ from the University of Utah Genetic Science Learning Center to explore effects of each of the drugs listed in the chart provided, reviewing the structure and functions of neurons and neurotransmitters along the way.

Neuron Models: Students create model neurons in class using a variety of supplies such as pipe cleaners, play dough, or candy. The website Neuroscience for Kids http://faculty.washington.edu/chudler/neurok.html provides instructions for a variety of student- created neuron models, including a working room size rope model.

Note: Other strategies to address the learning objectives may include, but are not limited to direct instruction, primary and secondary source analysis (including annotations, critique, questioning and close reading strategies), self and peer review, think-pair-share activities, creating visual representations, debates, film analysis, Socratic seminars, small group discussions, simulations, mapping activities, jigsaw activities, gallery walks, web quests, and/or inquiry or problem based learning projects.

Assessments

When taking a Social Studies course, students demonstrate differentiated proficiency according to their ability to answer the essential questions through formative and summative assessments. Many of the performance tasks below can be implemented as formative and/or summative assessments. As teachers strive for students to demonstrate proficiency, they will need to create additional or alternative assessments based on demonstration or absence of skill.

Formative Assessments:

- Do Nows/ Exit Slips
- Class Activities
- Brain part function wrap around
- Class Jeopardy Review

Summative Assessments:

- Unit test including multiple choice and analytical free response questions
- Research Study Analysis Question (RAQ) Responses
- Concept Application free response questions
- Lab Reports: Students, after completing an exercise experiencing research in Psychology, complete a write up in a standardized laboratory format.

Alternative Assessments:

- Creation of brain/neuron model, as described in activities above
- Completion of brain hat activity, as described above
- Notebook Check: Students submit portions of class notebook/notes guide at conclusion of unit to promote organizational skills
- Careers Presentation: In groups, students research a specific career in Psychology and present the steps to achieving it to the class.

Materials

The design of this course allows for the integration of a variety of instructional, supplemental, and intervention materials that support student learners at all levels in the school and home environments. Associated web content and media sources are infused into the unit as applicable and available In addition to the materials below, the following link connects to district approved textbooks and resources utilized in this course: Core Book List.

The following are approved resources that teachers can include to further unit related objectives:

Additional recommended hard copy resource texts for instructors:

Forty Studies that Changed Psychology: (Roger R. Hock, 7th Edition)

Activities Handbook for the Teaching of Psychology (Ludy T. Benjamin, all volumes)

Handbook of Activities and Demonstrations in the Teaching of Psychology (Ware & Johnson, all volumes)

The Critical Thinking Companion for Introductory Psychology (Halonen, 2nd Ed.).

50 great Myths of Popular Psychology: Shattering widespread misconceptions about human behavior

Media:

Discovering Psychology Telecourse w/Phil Zimbardo- "The Behaving Brain, The Responsive Brain, Cognitive Neuroscience, The Mind: Awake and Asleep, The Mind: Hidden and Divided" units via Annenberg: Annenberg Learner

Secrets of the Mind - documentary (PBS) Link

The Brain: Via Annenberg Annenberg

Inside Out- Introductory Psychology Video Series Link

Secret Life of the Brain Documentary Link

Secrets of Sleep Documentary Link

Worth Publishers Psychology Teachers Video Toolkit series Link

Scientific American Frontiers Introductory Psychology Series Link

Promoting Psychological Science: A Compendium of Laboratory Exercises for Teachers of

High School Psychology: Link

Psychology Teacher's Toolkit: Link

A Guide for Beginning Teachers of Psychology: Link

CROW Psychology Teaching Resources: Link

APA Videos for Classroom Use: Link

Other:

TOPSS Biology and Consciousness Unit Plans: Plan, Plan

TOPSS 2 Day Activity Plan: Link

Any additional resources that are not included in this list will be presented to and reviewed by the supervisor before being included in lesson plans. This ensures resources are reviewed and vetted for relevance and appropriateness prior to implementation.

Suggested Strategies for Modification

This link includes content specific accommodations and modifications for all populations:

https://docs.google.com/spreadsheets/d/1Pp6EJOCsFz5o4-opzsXpQDQoa6aClW-bkRGPDRHXVrk/edit?usp=sharing

These additional strategies are helpful when learning Psychology content and skills:

- Highlighter for close reading and annotation strategies
- Bolded terms in directions
- Reading texts aloud for students to assist in comprehension and analysis
- Providing opportunities for text-to-speech for written responses.
- Using visual presentations of all materials and including graphic organizers for writing.
- Repeating directions and presenting directions in multiple ways