Unit 4: Biological Basis of Behavior

Content Area: **Social Studies**
Course(s): **Psychology, Human Behavior**
Time Period: **Semester 1 & 2**
Length: **3 weeks**
Status: **Published**

Standards

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.1.3.1	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.2.2.2	Describe the visual sensory system
SCI.9-12.B.2.2.3	Describe the auditory sensory system
SCI.9-12.B.2.2.4	Describe other sensory systems, such as olfaction, gustation, and somesthesis (e.g., skin senses, kinesthesis, and vestibular sense)
SCI.9-12.SI.2.1.1	Describe the scientific method and its role in psychology
SCI.9-12.SI.2.1.3	Define systematic procedures used to improve the validity of research findings, such as external validity
SCI.9-12.SI.2.3.3	Define correlation coefficients and explain their appropriate interpretation
SCI.9-12.SI.2.3.4	Interpret graphical representations of data as used in both quantitative and qualitative methods
SCI.9-12.SI.2.3.5	Explain other statistical concepts, such as statistical significance and effect size
SCI.9-12.SI.2.3.6	Explain how validity and reliability of observations and measurements relate to data analysis

Enduring Understandings

The students will understand that:

1. Behavior consistently found in a species is likely to have a genetic basis that evolved because the behavior has been adaptive.
2. The body's two communication systems, the nervous system and endocrine system, both use chemical messengers to communicate with targets throughout the body.
3. The brain is composed of many specialized and interconnected modules that work together to create min and behavior.
4. Genetics plays a very critical role in both who and what we are, but not without influences from the environment.
5. Advances have been made in science and technology that allow us to see specific genetic traits along with specific brain function and activity.

6. The basic building blocks and structure and communication systems that allow humans to live and function in society.
7. The impact that a variety of injuries, chemicals, drugs and additional environmental factors have on brain function and development.
8. The nature verses nurture argument remains complex and controversial in regards to neuroscience.

Essential Questions

1. What behaviors appear to be influenced by nature selection?

2. To what extent is our behavior predetermined by our genetics?

3. To what extent is making designer children ethical?

4. How does cloning impact identity?

5. To what extent can people really recover from a major brain injury?

6. Why do genetic diseases and brain injuries appear to impact people so differently?

7. How can we determine if it is a good idea to take substances like psychoactive that influence our neural commination?

8. To what extent do we really need two different communication systems for our body to operate (endocrine and nervous systems)?

9. How are we impacted by the fact that we only use ten percent of our brain?

10. To what extent is it ethical for neuroscientists to read our minds using modern technology?

11. How is it possible that drugs created to help improve specific symptoms affect people so differently with a variety of side effects?

Knowledge and Skills

Learning Objectives (SWBAT)

-Explain the process of neural communication.

-Explain how neurotransmitters work.

-Delineate the different steps of the neural chain.

-Analyze the difference between the neural and hormonal systems.

-Identify the parts of the brain and the functions of each.

-Describe the different types of brain scans.

Content

1. Physiological Techniques (e.g., imaging, surgical)

2. Neuroanatomy

3. Functional Organization of Nervous System

4. Neural Transmission

5. Endocrine System

6. Genetics

7. Evolutionary Psychology

Transfer Goals

Students will be able to independently apply their knowledge about the human nervous system and brain structure to their understanding of human behavior and disorders.

Students will be able to independently distinguish between correlation and causation when interpreting biological research findings, especially in studies linking brain activity to specific behaviors.

Resources

Textbook Reading: Chapter 3 Biopsychology and the Foundations of Neuroscience (60-107)

Primary Student Textbook: Zimbardo, Philip G., Johnson, Robert L., Weber, Ann L., Gruber, Craig W. (2010). Psychology: AP edition with discovering psychology. New York: Allyn & Bacon.

Course Resources:

1. Benjamin, Ludy T. Jr., eds. Favorite Activities for the Teaching of Psychology. Washington, D.C.: American Psychological Association, 2008.

2. Bensley, D. Alan. *Critical Thinking in Psychology: A Unified Skills Approach*. Pacific Grove, Calif.: Brooks/Cole, 1998.

3. Hock, Roger R. Forty Studies that Changed Psychology: Explorations into the History of Psychological Research. 5th ed. Upper Saddle River, N.J.: Pearson/Prentice Hall, 2005.

4. Rolls, Geoff. Classic Case Studies in Psychology. London: Hodder Arnold, 2005.

5. 3D Brain app

6. The Human Brain Book by Rita Carter

7. Brain Games

8. Nova Special: The Brain

Additional Resources from WH databases, and articles connected to the content, including primary readings, historiography, and secondary sources.

Web-based resources including but not limited to digital media (SIFT method), primary sources, peer reviews, historical documents and writings of historians

AI - Copilot, Gemini, etc.

Links

http://psychcentral.com/

http://www.psychologytoday.com/

http://www.apa.org/

http://www.scientificamerican.com/section/lateststories/

http://www.psychologicalscience.org/

http://www.sciencedaily.com/news

http://www.alleydog.com/

http://www.apa.org/research/action/glossary.aspx

http://allpsych.com/psychology101/index.html

http://www.simplypsychology.org/perspective.html

Assessments

https://docs.google.com/document/d/1mKgdwpriGuRcVHIVCJUdBEk7lih12Q0ckKSTC4TMUXs/edit

Modifications

https://docs.google.com/document/d/1ODqaPP69YkcFiyG72fIT8XsUIe3K1VSG7nxuc4CpCec/edit