# 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

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| 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 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**

## 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

## 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.**

## Assessments

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

## Modifications

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