

E5: Biological Basis of Behavior - Chapter 3

Content Area: **Social Studies**
Course(s): **Psychology**
Time Period: **Semester 1**
Length: **2.5 weeks**
Status: **Published**

Standards

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|-------------------|---|
| SCI.9-12.B | Biopsychology |
| SCI.9-12.B.1 | Biological Bases of Behavior |
| SCI.9-12.B.1.1 | Structure and function of the nervous system in human and non-human animals |
| SCI.9-12.B.1.1.4 | Describe lateralization of brain functions |
| SCI.9-12.DL | Development and Learning |
| SCI.9-12.DL.1 | Life Span Development |
| SCI.9-12.DL.1.1 | Methods and issues in life span development |
| SCI.9-12.DL.1.1.1 | Explain the interaction of environmental and biological factors in development, including the role of the brain in all aspects of development |
| SCI.9-12.DL.3 | Language Development |
| SCI.9-12.DL.3.3 | Language and the brain |
| SCI.9-12.DL.3.3.1 | Identify the brain structures associated with language |
| SCI.9-12.DL.3.3.2 | Discuss how damage to the brain may affect language |

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 mind and behavior - including mental disabilities.****
- 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

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- 1. What behaviors appear to be influenced by nature selection?**
- 2. To what extent is our behavior predetermined by our genetics?**
- 3. What ethical arguments should we use in the debate over designer children?**
- 4. How would 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 good of an idea is it to take substances like psychoactive that influence our neural communication?**
- 8. To what extent do we really need two different communication systems for our body to operate (endocrine and nervous systems)?**
- 9. How is using only ten percent of our brain impacting our abilities?**
- 10. How ethical is it that/if neuroscientists 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.

Resources

Textbook Reading:

Primary Student Textbook: Myers Psychology for AP

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.

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>

Modfications

<https://docs.google.com/document/d/1XtUWvYfqhUpgTH9A995xZIQ64jsDH2LtXo1yBo7zxDw/edit>