

# BRAIN POWER NEWS

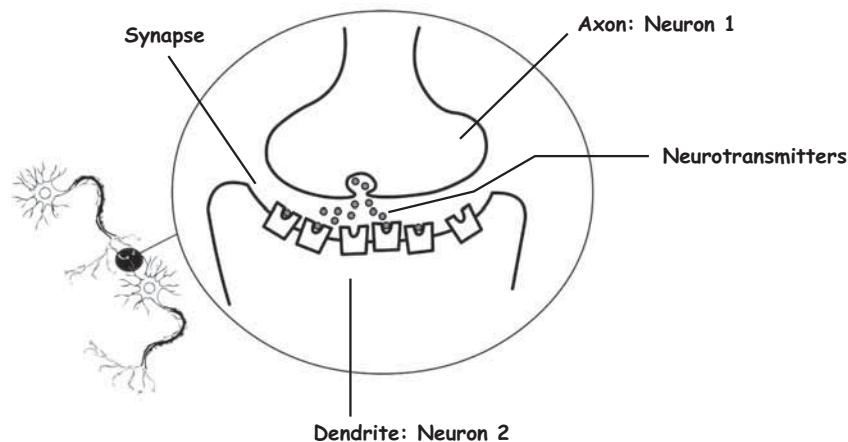
PARENT NEWSLETTER

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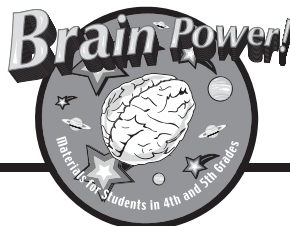
## Neurotransmission

*Module 3* focuses on neurotransmission. In *Module 2*, your child learned all about the brain and the functions of the brain. In this module, your child will learn more about the brain and how messages are sent and received. Neurotransmission is part of the process where information is transported to, from, and within the brain. A cell called a neuron is responsible for carrying information. The human brain is made up of 100 billion neurons. Neurons have different parts that carry out different functions.

The exchange of information from one neuron to another is accomplished through neurotransmission. Neurotransmission takes place when one neuron releases chemicals into the space between neurons (called the synapse). The chemicals then cross the synapse and bind to specific molecules on the second neuron. The molecules on the second neuron are called receptors. Once the chemicals attach to the receptors, they cause changes in the second neuron, and the message continues onward. This process is known as neurotransmission.



This activity aligns with the following standard identified in the National Science Education Standards: unifying concepts and processes. This mission adds key knowledge to what was learned in *Module 2* by showing how neurotransmission is essential to the function of the nervous system. The students develop an understanding of how the brain works with other parts of the nervous system to keep the entire human body functioning.



## Science at Home

Ask your child what he or she learned about neurotransmission. Discuss the parts of a neuron and the different steps of neurotransmission. Have your child draw neurons and label each part.

Have your child draw or write down five activities that require the process of neurotransmission. (Hint: Everything you do requires neurotransmission to take place.)

## Additional Resources

National Institute on Drug Abuse (NIDA) — [www.drugabuse.gov](http://www.drugabuse.gov)  
301-443-1124

This Web site contains information about drug abuse and a section designed specifically for parents, teachers, and students. Publications and other materials are available free of charge.

National Clearinghouse for Alcohol and Drug Information (NCADI) — [www.health.org](http://www.health.org)  
1-800-729-6686

NCADI is the world's largest resource for information and materials concerning substance abuse. Many free publications are available here.

Neuroscience for Kids — <http://faculty.washington.edu/chudler/neurok.html>

This site contains information on the brain and neurotransmission, activities, experiments, pictures, and other resources for the students and educators.

*Phineas Gage: A Gruesome but True Story About Brain Science.* [Fleischman, J.] Boston, MA: Houghton Mifflin Co., 2002. Written for ages 9 through 12, this book tells the story of a railroad employee who experienced personality changes after a 13-pound iron rod shot through his brain.

*Understanding Your Brain (Science for Beginners Series).* [Treays, R.] Newton, MA: EDC Publications, 1996. This book describes the parts of the brain and the process of neurotransmission.

*Focus on Drugs and the Brain.* [Friedman, D.] Frederick, MD: Twenty-First Century Books, 1990. This book, part of the "Drug-Alert Book" series, gives a good overview of the brain, neurotransmission, effects of drugs on the brain, and addiction.

*The Brain: Our Nervous System.* [Simon, S.] New York, NY: William Morrow, 1997. This book presents a simple, yet detailed, overview of the brain and neurotransmission.