Book Reviews (updated May 7, 2019)

Books for Elementary School Students

The Brain: Our Nervous System by Seymour Simon, New York: William Morrow, 1997, ISBN: 0-6881-4641-4.
(Reviewed by Dr. Daisy Lu; Music Specialist and Neuroscience for Kids Consultant)
For ages 6 and up.

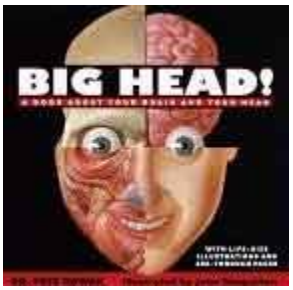
When you have a clever idea, do you feel brainy? On the other hand, do you feel brainless when you forget something you obviously should not? As Simon says, "The brain is really what makes you, YOU." With a collection of eye-catching photographs, models, and diagrams, Simon explains how the brain works together with other parts of the nervous system. Parts of the brain are discussed in terms of their sizes, locations, and functions. Questions are addressed clearly. For example, when describing the cerebral cortex, Simon gives readers a sense of its size by bridging the unknown with the known. In his words, "If it was flattened out, it would take up as much space as the top of a kitchen table." Although the book introduces many new vocabulary words (neurons, glial cells, dendrites, cerebrum, cerebellum, brain stem, etc.), the overall message is one of wonder and power, interwoven with a presentation of the brain's complexity in the human body. Students will appreciate exploring the brain further after reading this book.

It's All in Your Head: A Guide to Understanding Your Brain and Boosting Your Brain Power by Susan L. Barrett, Minneapolis: Free Spirit Publishing, 1992, ISBN: 0-9157-9345-8.
(Reviewed by Dr. Daisy Lu; Music Specialist and Neuroscience for Kids Consultant)
For ages 10 and up

Have you ever read a book that reads as if the author is talking directly to you? Susan Barrett has drawn from several disciplines to bring brain facts and statistics to the young and curious reader. Each chapter presents a topic in a logical sequence with introductory quotes from astronauts, physicists, songwriters, physicians, educators, authors, and poets. Their wisdom sets the perspective from which to draw inquiry and to respond to questions at the end of each chapter. As readers move through the book with brilliant illustrations, a "dance" between art and science, they will take multiple steps back into the book using both print and cartoon-like pictures. Barrett also encourages readers to examine the power of their own brains as she writes about the mind, intelligence, dreams, memory, learning and creativity.

The book ends with a chapter titled "Mysteries of the Mind." The text is well-balanced with informative and at times comical illustrations that will trigger any student to make further inquiries. The book's content, organization, and humor make "It's All in Your Head" a thoroughly absorbing and enlightening experience.

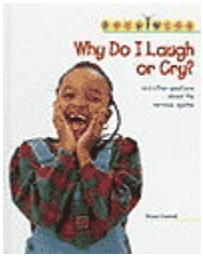
Big Head! A Book About Your Brain and Your Head by Pete Rowan, New York: Alfred A. Knopf, 1998, 48 pages, ISBN: 0-6798-9018-1.
(Reviewed by Dr. Daisy Lu; Music Specialist and Neuroscience for Kids Consultant)
For ages 10 and up



Big Head is a visual treat with its rich informative content about the scientific aspects of the brain. Dr. Rowan, a physician, uses a unique artistic approach to illustrate this book with life-sized and see-through realistic pages. The cover's inner flap poses questions to the reader to stimulate interest. The journey begins through the discovery of the different parts of the brain and the functions they control. Lift-off acetate pages and hands-on experiments enhance the basic information.

Each topic is discussed on two information-filled pages highlighted by colored boxes with facts related to the main text. Photographs of a child also appear on each main section to portray the ratio of specific brain parts to the whole head. Colorful detailed illustrations enhance the interaction between the reader and the author. Dr. Rowan goes beyond neuroanatomy and includes such information as the importance of dreams and their relationship to the subconscious. For readers who are curious about the brain's functions, this is a good introduction and an engaging start.

Why Do I Laugh or Cry? And Other Questions About The Nervous System (Bodywise series) by Sharon Cromwell, Des Plaines (IL): Rigby Interactive Library, 1998, 24 pages, ISBN: 1-5757-2161-9.
For ages 5 to 10

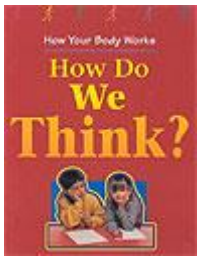


This book is an excellent introduction to the nervous system for students in early elementary grades. Each two-page section features an interesting question (such as "Why does my face feel hot and turn a darker color when I'm embarrassed?"), a simple but accurate answer, a photograph of a child in middle elementary years illustrating the key idea and a health fact related to the question. Boys and girls of various cultural backgrounds are shown in the photographs. Three ideas for experiments related to the nervous system are described at the end of the book: short-term versus long-term memory, smells, and dreams. An index, a three-item glossary and five suggestions under "More Books to Read" are also included. I shared the book with my niece, a 3rd grader with good reading ability. She enjoyed the book and felt that most of her classmates could read it easily and learn a lot from it. She especially liked the health facts. I highly recommend this book for any elementary school library.

The Drug Library Series of books on Drugs, Enslow Publishers, Inc.
For ages 10 and up

I have a mixed review for this series of books. These books provide overviews of commonly abused drugs including cocaine, heroin, marijuana, alcohol, LSD, nicotine, inhalants, PCP, and steroids. The books are intended for middle school students and provide extensive historical background on each drug. There are also sections about the behavioral effects and dangers of drug use, treatment of various addictions, and the legal consequences of using and possessing drugs. However, the books lack detail on how the drugs affect the nervous system. Also, the authors rely heavily on second-hand sources for information, such as newspaper and magazine articles, rather than science publications. Nevertheless, these books provide a good introduction to the basic behavioral and legal consequences of drug abuse.

How Do We Think? by Carol Ballard (How Your Body Works series), Austin (TX): Raintree Steck-Vaughn Publishers, 1998, 32 pages, ISBN: 0-8172-4740-8.
For ages 8-12



This book is full of neuroscience-related information written at a middle-elementary school reading level. Sample topics include: "What is the Brain Made Of?" and "Awake and Asleep." There are good photographs of people of all ages including a boy with cerebral palsy and a nice electron micrograph of a neuron. The book also features attractive cartoon drawings including one of a Stegosaurus (which had two "brains," one in the head and one in the tail). There is more information in this book than in "Why Do I Laugh or Cry?"; this is reflected in the 13-item glossary. There is also a full-page index and a list of four suggested books to read. My niece and I agreed that the experiment idea "How Quick Are You?" sounded like a lot of fun. We both felt that "Why Do I Laugh or Cry?" was actually more interesting to read overall, probably because of the question-and-answer format which made it feel less like a textbook. However, "How Do We Think?" is still a very good book and would be an excellent addition to an elementary school library or classroom.

Brain: Our Body's Nerve Center by Richard Walker, Danbury: Grolier Educational, 1998, 48 pages, ISBN: 0-7172-9267-3. Part of the "Under the Microscope" series published by Grolier Educational.
For ages 6 to 12

They are most appropriate for students in grades K-6, although anyone with an interest in the nervous system will appreciate the vivid photographs in these books. "Brain" starts by comparing the nervous system to a country with the brain as the body's government. The book continues with a discussion of the anatomy of neurons, nerves, spinal cord and brain. Each topic is illustrated with low and high magnification photographs and detailed, colorful drawings. Although all of the functions of the brain cannot be covered in such a short book, Walker does discuss personality, memory, balance and sleep. A few pages are also devoted to the endocrine system and hormones.

I cannot say enough about the excellent photographs contained within the 48 pages of these books. Many of the photographs were taken using microscopes, including an electron microscope. These graphics provide a view of the nervous system not often seen in books for young students. Each book also contains a glossary and an extensive index. In addition to these books about the brain and the senses, the "Under the Microscope" series contains books about the heart, skeleton, digestion, reproduction, breathing and muscles.

Senses: How We Connect With The World by Francesca Baines, Danbury: Grolier Educational, 1998, 48 pages, ISBN: 0-7172-9270-3. Part of the "Under the Microscope" series published by Grolier Educational.
For ages 6-12

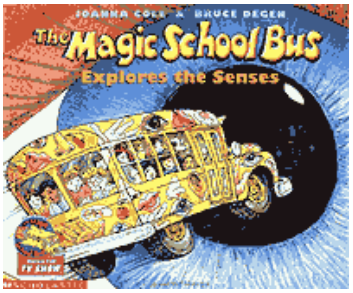
They are most appropriate for students in grades K-6, although anyone with an interest in the nervous system will appreciate the vivid photographs in these books. Like "Brain," "Senses" includes photographs and drawings to illustrate concepts. After a brief introduction to the senses and nervous system, Baines discusses 1) the skin and touch; 2) the tongue and taste; 3) the nose and smell; 4) the ear, hearing and balance and 5) the eye, light and vision. I cannot say enough about the excellent photographs contained within the 48 pages of these books. Many of the photographs were taken using microscopes, including an electron microscope. These graphics provide a view of the nervous system not often seen in books for young students. Each book also contains a glossary and an extensive index. In addition to these books on the brain and the senses, the "Under the Microscope" series contains books about the heart, skeleton, digestion, reproduction, breathing and muscles.

Hello, Red Fox by Eric Carle, 1998, New York: Simon & Schuster, ISBN: 0689817754.
(Reviewed by Lynne Bleeker, science teacher)
For ages 4-8

"Hello, Red Fox" is a delightful book of colorfulvisual illusions that should interest children and adults. Included in the book is a demonstration of color afterimages: the reader is instructed to stare at a dot in the middle of a red heart, then move his or her gaze over to a dot in the middle of a plain white page. The heart appears green on the white page! It is rather amazing. In the story by Eric Carle, the little frog invites several friends to his birthday party: a red fox, a purple butterfly, an orange cat, a green snake, a yellow bird, a blue fish and a white dog with black spots. The Eric Carle pictures are of a green fox, a yellow butterfly, etc. and the reader must change the color of each picture to match the story. It really is fun!

"Hello, Red Fox" would be a lovely addition to any home or school library. How about giving a copy to your Valentine, along with a bouquet of green roses?! For more interactive afterimages and an explanation of why afterimages occur, please see the Neuroscience for Kids vision experiment page.

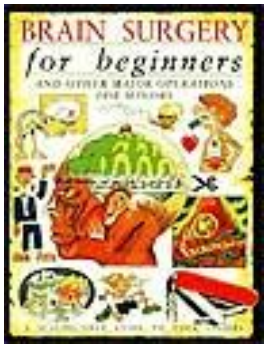
The Magic School Bus Explores the Senses by Joanna Cole and Bruce Degen, New York: Scholastic, 1999, 48 pages, ISBN: 0-590-44698-3.
(Reviewed by Lynne Bleeker, science teacher)
For ages 6-12



The Magic School Bus book series is extremely popular with teachers and young students alike, and with good reason. The plots are imaginative, the cartoon characters interesting, and the scientific information accurate. "The Magic School Bus Explores the Senses" does not disappoint. In this story, Ms. Frizzle's class jumps into the bus to return some lecture notes about the five senses to Ms. Frizzle. However, the driver pushes the "shrink" button accidentally and they end up in the eye of a police officer. The bus travels through the officer's eye and optic nerve to the brain. No sooner does the bus return from that perilous journey than it falls into an ear, through the eardrum, along the auditory nerve and to a hearing area of the brain. The bus falls back out of the ear and is sniffed up by a dog. After a discussion of the sense of smell and some comparisons among the smelling abilities of different animals, the dog sneezes the bus onto Ms. Frizzle's pizza. The bus is eaten along with a bite of pizza, and the students take refuge in a gap between taste buds on the tongue...where they follow a receptor cell's path to the brain. In a desperate attempt to get away from the taste area of the brain (which was registering anchovies!), they move to parts of the brain that interpret "touch" messages. From there, they travel along a nerve to Ms. Frizzle's skin, and out a pore. An accidental slip into a cat's ear allows for a review of the sense of hearing and also a discussion of balance before they arrive safely back at school and the bus returns to its original size.

The book includes a huge amount of information about the five senses, yet it is done in such a wacky and interesting way that the reader does not even notice how much he or she is learning! I thought the diagrams for "hearing" and "taste" were particularly well done and the "punny" summary of the five senses on the last page brings a smile. I highly recommend this book to both students and adults. (My four-year-old even learned a few things about how his ears work!)

Brain Surgery for Beginners and Other Major Operations for Minors: A Scalpel-Free Guide to Your Insides by Steve Parker, designed and illustrated by David West. New York: Scholastic, Inc., 1993, ISBN: 1-562-94895-4.
(Reviewed by Mera Stewart, Neuroscience for Kids Consultant.)
Level: Upper Elementary.

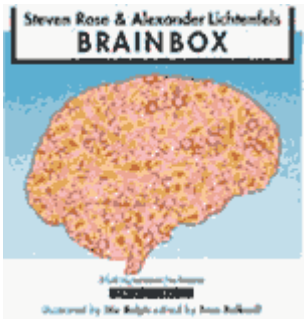


Not your average "This is Your Body" book, "Brain Surgery for Beginners..." contains whimsical facts combined with well-drawn anatomical diagrams that highlight the text in a delightful as well as informative manner. Your main guide is Brainy, a small purple brain-person who illustrates concepts and indicates areas of the brain involved in each section. "Spare-part Frankie" tells of replacement parts and techniques available. "Spies on the Inside" details imaging techniques used with each system.

Wonderfully illustrated, this book is sure to attract and hold students' attention. Colorful (Purple Brain - no, NOT the song by Prince), imaginative (green jello salad brain with whip cream and cherry) and cute (sick lion awaiting treatment from Galen) depictions of the brain and other organs provide a visual feast around which the text is organized. However, several opportunities were missed in the book's stated goal of describing the brain's role in control of body systems, for example when discussing the circulatory and respiratory systems. Also, Brainy needs a better diagram of the medial view of the brain - an "X" on the cerebellum intended for brainstem autonomic centers or on the anterior temporal lobe for olfactory cortex does not adequately convey the location of these centers.

Other fixes to add before turning this over to your students: cerebellum has three pairs of stalks, not one (p. 13); nerves appear white due to their myelin sheaths, not only because they are nerve fibers (p. 18, top); arrows and lines indicating speech centers (esp. Broca's area) are offset (p. 28); lines indicating iliac vein (p. 31) and marrow cavity and fibula (both on p. 51) need to be extended to be accurate. Lastly, change "hair follicle" to "sebaceous pore" in the "In-Skin Blemishes" section (p. 57). If the highest ideal of education is to enthrall as well as to inform, this book succeeds wonderfully. It only requires more careful editing. By all means fix it and give it to your students, after you enjoy it first, of course. Overall rating: Information presentation: A, Information content: B

Brainbox by Steven Rose and Alexander Lichtenfels, London: Portland Press, 1997, ISBN: 1855780968.
For elementary school students



Last year at the Society for Neuroscience meeting I bought "Brainbox," a book written by Steven Rose and Alexander Lichtenfels. Rose is a professor of biology and director of the Brain and Behavior Research Group at the Open University. Lichtenfels is described as "a Leeds schoolboy who edited his primary school magazine for 4 years..."

"Brainbox" is intended for elementary school children interested in learning about the brain. Although students may enjoy this book with its many colorful drawings, there are a few factual errors that should be noted. For example, on page 6 in a discussion of how an axon splits into threads like roots, the authors write, "Each of these roots gently touches a dendrite of another nerve cell." As you may know, within a chemical synapse, two neurons do not actually "touch." Rather, there is a small space between neurons. The authors also incorrectly define the electroencephalogram as a machine that can read your brain waves. Actually, the electroencephalograph is the machine and the electroencephalogram is the record of brain wave activity.

Another misconception is in the discussion of the response to stepping on a pin (pages 10-11). The authors imply that after a person steps on a pin, the brain sends a signal to move the foot off the pin. Actually, the brain is not needed for this response; a built-in spinal cord reflex (flexion-withdrawal reflex) takes care of this job before the brain is aware of the pin. In fact, this response is performed even if the spinal cord is cut, completely isolating the brain from the spinal cord! The speed with which messages can travel within an axon is also reported in the book to be 50 meters per second. Actually, messages can travel at speeds ranging from 0.2 to 120 meters per second.

I wanted to like this book. I think it was a great idea for a neuroscientist to team with a student about this kind of project. However, the factual errors and lack of photographs in "Brainbox" prevent me from recommending the book.

Now You See It, Now You Don't (The Amazing World of Optical Illusions) by Seymour Simon, New York: Scholastic Books, 1976, 1998, ISBN: 0-439-10484. (Reviewed by Ms. Lynne Bleeker, a Neuroscience for Kids teacher/collaborator.)
For elementary school students

"Now You See It, Now You Don't" is a wonderful book of optical illusions! Author Seymour Simon includes all of the popular optical illusions found in most science books. The explanations about why the illusions work to "fool" the brain are especially interesting and useful. Simon's writing is accurate and understandable and he goes into only as much detail as is needed for the reader to follow his main points. The background chapter on "How You See" is clear and easy to read. In the "Optical Illusions in Art" chapter, artist M.C. Escher and three other artists who use light, color and perspective to communicate their messages are discussed. The book is appropriate for students in grade 4 and up to read alone, and sections of it could be used as a read-aloud for younger children. I highly recommend the book for home and school libraries and science or art classrooms; it is a "must-have" for anyone who teaches about the sense of sight.

EyeOpeners! by Monika and Hans D. Dossenbach, Woodbridge: Blackbirch Press, 1999, 32 pages, ISBN: 1-56711-216-1.
For elementary school students

How many eyes does a wolf spider have? What animal can move each eye independently? These and other questions are answered in "EyeOpeners!," a book filled with many colorful photographs to illustrate the world of animal eyes and vision. The amazing eyes of insects, crabs, spiders, fish, snakes, birds, cats, and monkeys are all discussed in this book intended for elementary school-aged children.

Unseen Rainbows, Silent Songs: The World Beyond Your Senses by Susan E. Goodman, illustrated by Beverly Duncan, New York: Atheneum Books for Young Readers, 1995, 40 pages, ISBN: 0-689-31892-8.
Reading level: Grades 2-5

It's a sunny day in the country. You feel a light breeze on your skin and hear birds singing in the distance. You see fluffy white clouds drift across the blue sky and smell freshly cut grass. That is what you experience. But what about other animals? Do they feel, hear, see and smell the same things that you do? In "Unseen Rainbow, Silent Songs," author Beverly Duncan explores the senses by comparing the abilities of a young boy in the country with those of the animals around him.

During his day in the country, the boy takes in the sights, sounds and smells of the countryside. However, there is much that he does not see, hear and smell. For example, his dog can hear a rabbit far in the distance and an owl can hear a small mouse in the fallen leaves. Bats send out and hear sounds that have frequencies too high for the boy to hear. Many animals can detect other signals that are beyond the reach of humans.

Duncan provides a few specific facts for each sense. Although older readers may want more details about the senses, young readers will find "Unseen Rainbows, Silent Songs" an excellent book that raises many questions about the animals they see every day. For more about the amazing senses of animals, see: http://faculty.washington.edu/chudler/amaze.html

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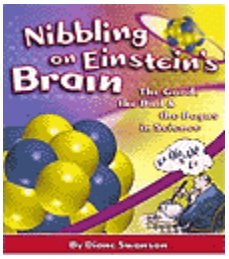
How Do I Know It's Yucky? And Other Questions About the Senses by Sharon Cromwell, New York: Heineman Library, 1998, pp. 24, ISBN: 1575721600.
(Reviewed by science writer Mike Selby.)
Recommended for children 4 to 8.

"How Do I Know It's Yucky?" is one of those rare books that appeals to younger and older children alike. The book's illustrations are bright and cheerful, and the explanations are easy to grasp. Each page of the book engages the reader with an interesting question, starting with the title page. Cromwell has written a basic guided tour of the human nervous system, focusing on topics such as brain messages, receptor cells, and sound waves. The many illustrations and graphics will assist younger readers. Older readers will appreciate fact boxes, labeled diagrams, and a helpful glossary. Using humor to educate has never been a bad thing, and this book has an abundance of it. Although readers may know that they dislike smelly socks, now they will know why.

Nibbling on Einstein's Brain: The Good, the Bad and the Bogus in Science by Diane Swanson (Illustrated by Warren Clark), Toronto: Annick Press, 2001, 112 pages. ISBN: 1550376861.
For ages 10 and up.



It was impossible for me to pass up a book titled *Nibbling on Einstein's Brain.* Although "Nibbling on Einstein's Brain" does not focus specifically on neuroscience, it is an excellent introduction to understanding the difference between good science and bad science.

Swanson divides her book into five chapters: 1) Beware of Bad Science, 2) Science Watch, 3) Media Watch, 4) Mind Watch and 5) Winning Strategies. The first chapter introduces readers to the proper way to evaluate scientific articles. Science Watch contains a list of 21 "Baloney Busters" with tips on how to evaluate research with a critical eye. Media Watch lists 11 "Media Alerts" that show how news reports often sensationalize and misrepresent science. Mind Watch lists 18 "Mind Traps" that show how our minds interpret science news we hear and read. The last chapter, Winning Strategies, provides readers with three ways to promote good scientific thinking: question new scientific findings, learn about science and let people know what you think about science. Do you wonder how Swanson came up with the name of her book? She explains that experiments done in the 1950s and 1960s investigated "edible memories." Some scientists thought that if one animal ate another animal's brain that memories could be passed to the diner. In fact, one laboratory reported that they could transfer memories this way using flatworms, rats and goldfish. However, this line of research stopped when many other researchers were unable to produce similar results.

The Great Good Thing by Roderick Townley, Scholastic paperback, 2001, 216 pages, ISBN: 0-439-39784-7.
(Reviewed by Lynne Bleeker, middle school science teacher and NFK consultant.)
This book is suitable for upper elementary students to adults.

I found this book in the Scholastic book orders this spring and found it is a wonderful story! It will be of interest to anyone who enjoys a good fairy tale or a creative approach to storytelling. So what's the connection to neuroscience? The book explores themes related to dreams, memory, and the storage of memories in the brain. The approach is more literary than scientific, but some interesting ideas are proposed. The "Literature Circle Questions" at back of the book could easily be expanded to include some questions more directly related to brain function. The book would be a fantastic introduction to a unit about the brain. Questions raised in the book could be researched on the Neuroscience for Kids web site, especially those pages on sleep and dreaming.

The Graduation of Jake Moon by Barbara Park, New York: Simon & Schuster, 2000, ISBN:0-689-83912
(Reviewed by Kelly S. Chudler; 11 years old, Grade 6.)

"The Graduation of Jake Moon" is the story of a boy named Jake Moon whose grandfather Skelly is diagnosed with Alzheimer's disease (AD). At first, Jake thinks the diagnosis is no big deal because AD is just something that makes old people forget things. He's wrong. Jake's whole life changes. Jake can't invite friends over anymore because he is afraid Skelly will embarrass him or do something strange. It seems as if Jake's relationship with Skelly is turned around so that Jake is the adult and Skelly is the kid. Jake finds out that AD is a big deal.

I think "The Graduation of Jake Moon" is a good book for kids between 10 and 14 years old. While reading the book, you might feel as if you are Jake Moon. There are many descriptions and thoughts through his eyes. However, some kids might find the book a bit slow in some parts. Some kids may think that a book about AD would be so boring. I found that AD is very interesting. If you put yourself into the shoes of a person who needs to take care of a person with AD, you would see how difficult it is and how your life could change.

Hidden Worlds: Looking Through a Scientist's Microscope by Stephen Kramer, photographs by Dennis Kunkel, Boston: Houghton Mifflin Co., 2001, ISBN: 0618055460.
For elementary school students

Get up close to a carpet beetle, tsetse fly and dust mite! These and other microscopic animals are enlarged and made visible through the photographs of Dennis Kunkel, a scientist who uses a microscope to see things most of us never see.

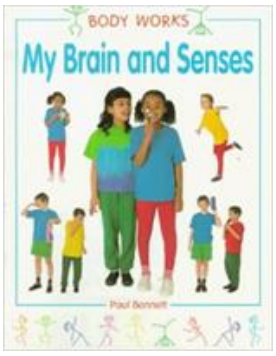
Dennis teamed with author Stephen Kramer to create "Hidden Worlds." Together they take you on the journey of Dennis's career as a scientist. We learn how Dennis became interested in science and about his work inside and outside the laboratory. The book is filled with photographs of plants and animals that Dennis has taken using different types of microscopes including a dissecting microscope, compound microscope and electron microscope.

I think that Dennis is an artist and a scientist. His photographs are bright and colorful; some are abstract (the butterfly wing), others are scary (the carpet beetle and dog flea). All of his photographs are beautiful and I see them as pieces of art.

I knew Dennis when we were both graduate students at the University of Washington in the early 1980s. Dennis worked in the Department of Neurological Surgery, three floors above where I worked. Although our research focused on different topics, we played softball on the same graduate student team. (If I remember correctly, our team name was the "Axonal Aces.") I've also enjoyed seeing many of Dennis's photographs that are currently on display at the University of Washington Health Sciences Library. You can enjoy Dennis's work by visiting his great web site at:
http://www.denniskunkel.com/

I wrote to Dennis, who now lives in Hawaii, and asked him to give us an update about his work:
"Life has changed dramatically for me but all for the better. I have moved away from direct University research since funding became so difficult to obtain. In 2000, I started my own scientific stock photo agency and am licensing images to various publishers. I am continuing my microscopy with more vigor and am enjoying the time to be able to do this. In addition, I am working with all types of researchers (and some commercial clients) in photographing biological specimens. It is exciting to be involved with many areas of biology and to be able to direct my microscopy expertise. Biology is so diversified that I have only begun to fully explore organisms with different types of microscopy. I have always been curious at visualizing the small worlds around us and now I have the time to do it. I am also involved in two other books but they have not been finalized with the publishers at this time. I work with many clients from film and TV to major magazines such as National Geographic. My images are used in textbooks, magazines, educational programs and museums."

My Brain and Senses by Paul Bennett, Parsippany (NJ): Silver Press, 1998, ISBN: 0-382-39783-5, 32 pages.
For students in kindergarten to third grade.



Author Paul Bennett provides a basic introduction to the nervous system and senses in "My Brain and Senses." After a brief (4-page) discussion of the brain and spinal cord, the book explores the five senses. Unfortunately, there is only one use of the term "nerve cells" and it is made in relation to the eye. Bennett also makes a common mistake and states that "You see with your eyes." and "You hear with your ears." Yes, you use your eyes to see and your ears to hear, but it is your brain that is the organ of perception. A picture of the "tongue map" that supposedly shows where bitter, sour, salt and sweet are tasted is also used. This tongue map, which is reproduced in many other books, is not accurate for several reasons (see the link below).

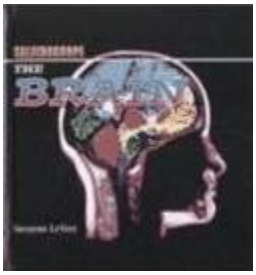
"My Brain and Senses" has short chapters on reflexes, learning and memory, balance and sleep, as well as a short glossary and index. The many colorful photographs throughout the book should help maintain reader interest in the subject.

Why I Sneeze, Shiver, Hiccup, and Yawn by Melvin Berger, New York: HarperCollins Publishers, 2000, 33 pages, ISBN: 0-06-028144-8] and *What Makes You Cough, Sneeze, Burp, Hiccup, Blink, Yawn, Sweat and Shiver* by Jean Stangl, New York: Franklin Watts, 2000, 48 pages, 0-531-20382-4.
For students in grades 1-4.

Both of these books could have been titled "Your Reflexes" because they introduce readers to the causes of common reflexes. Authors Berger and Stangl point out that reflexes are automatic, involuntary behaviors. Some reflexes, such as the quick withdrawal action when a person touches a hot stove, protect us from injury. The purposes of other reflexes, such as hiccups and yawning, are not known.

The authors do a good job explaining reflexes, although their explanation of yawning is probably incorrect. Berger writes, "Yawning is your body's way of getting more oxygen" and Stangl says, "A yawn begins when the lungs have too little oxygen in them." Experiments performed by Dr. Robert Provine at the University of Maryland have shown that the number of times a person yawns is not affected by the amount of oxygen that people breathe. Therefore, yawning may have nothing to with getting more oxygen to the body.
Despite this error, both books provide a good introduction to reflexes. Berger's book includes color illustrations and a short list of experiments to do. Stangl uses drawings and photographs in her book and also includes a glossary, index, and list of recommended books and web sites.

The Brain by Suzanne LeVert, Tarrytown (NY): Benchmark Books, 2002, 48 pages, ISBN: 0-7614-1308-1.
For students in first to fourth grade.

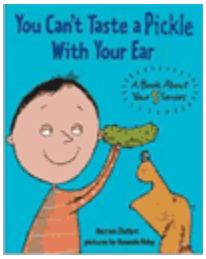


Writing a book for young students about the anatomy of the nervous system is a difficult job. What parts of the brain should be included in the book? How much detail should be included? Author LeVert, in her book "The Brain," divides the nervous system into its two main parts: the central nervous system (brain and spinal cord) and peripheral nervous system (nerves extending to and from the brain and spinal cord). LeVert goes on to divide the brain into the cerebrum, cerebellum, brain stem and limbic system. The book does a good job of explaining the major structures and functions of each of these areas. The many large, colorful drawings and photographs in the book help illustrate these ideas. One important theme throughout the book is that different parts of the brain function together.

In addition to sections about basic brain anatomy, the book discusses the structure and function of nerve cells (neurons). There are also brief sections about head injury, headaches, epilepsy and strokes. However, there is no discussion of the

senses, glial cells or reflexes. Nevertheless, "The Brain" is a good book that introduces young students to the complex world of the nervous system.

You Can't Taste a Pickle With Your Ear by Harriet Ziefert, illustrated by Amanda Haley, New York: Blue Apple Books, 2002, 34 pages, ISBN: 1-929766-68-8
For students in first to third grade.



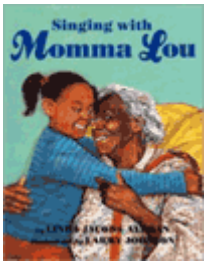
Your senses never stop working. They bring information to your brain to tell you about the outside world. Author Harriet Ziefert gives each sense (smell, touch, hearing, vision and taste) its own chapter in her book "You Can't Taste a Pickle With Your Ear." Each chapter starts with a list of facts about a sense. This list is followed by funny poems, such as this one about smell:

"My nose knows
When Spot walks by,
If his fur is
Wet or dry."

Each chapter ends with a list of questions that can be used to start discussions. Every page of the book is filled with colorful illustrations by Amanda Haley. The book should hold the interest of young readers, but a few scientific errors should be noted. First, Ziefert shows a picture of a "tongue map." She states, "There are groups of taste buds on different parts of the tongue" and shows a picture of the tongue labeled with sweet, sour, salty and bitter. Although many books show this tongue map, it is incorrect and not based on scientific fact. Taste buds that respond to all basic tastes can be found on all areas of the tongue. Second, Ziefert gives receptors in the skin too much credit. She states, "Receptors tell you when someone presses hard, or gently, on your feet." Actually, receptors in skin respond to hard or gentle pressure, but they don't tell anything about what caused the response. It is the brain that interprets the information sent by receptors.

Ziefert's book is a good choice for those who want a brief introduction to the senses. Older students who want more details about the senses might prefer *The Magic School Bus Explores the Senses* by Joanna Cole and Bruce Degen.

Singing with Momma Lou by Linda Jacobs Altman (illustrated by Larry Johnson), New York: Lee & Low Books, Inc., 2002 ISBN: 1-58430-040-X and *Remember Me?: Alzheimer's Through the Eyes of a Child* by Sue Glass (illustrated by W. Yunker), Green Bay (WI): Raven Tree Press, 2003, ISBN: 0-9720192-5-1.
Reading Level: Grades 2-3; "Remember Me?" is written in English and Spanish on each page.



What would you do if one of your grandparents could not remember you? This is a question that children in the books "Singing with Momma Lou" and "Remember Me?" explore. These books show how two children cope when their grandparents show symptoms of Alzheimer's disease.

Tamika, the young girl in "Singing with Momma Lou," notices that her grandmother, Momma Lou, has trouble remembering her. She decides to give memories back to her grandmother by sharing pictures and other items from Momma Lou's past. One week she brings a baby picture of herself to Momma Lou. On other visits, Tamika brings yearbooks, newspaper clippings, pressed corsages and ticket stubs. Together, Tamika and Momma Lou share each memento.

In "Remember Me?," a young girl doesn't understand why her grandfather cannot remember her. She feels responsible for his memory loss because she thinks her grandfather is mad at her. By discussing her feelings with her mother, the girl finds out that her grandfather has Alzheimer's disease. Knowing that her grandfather's memory loss is not her fault, the girl decides to be her grandfather's "new memory" by talking to him about all of the things they did together.

Both books should help children understand the effects of Alzheimer's disease. The stories should also help reduce fears of children who believe that they are responsible for the changes in their grandparent's behavior.

Lou Gehrig. The Luckiest Man by David A. Adler, illustrated by Terry Widener, Orlando (FL): Harcourt Brace & Company, 1997, ISBN: 0152005234.
Reading Level: K - Grade 3

Author David Adler tells the story of Lou Gehrig, perhaps the greatest baseball player of all time. During the 1920s and 1930s, Gehrig played for the New York Yankees in 2,130 consecutive games and was voted the American League's Most Valuable Player twice. However, in 1939, Gehrig's batting skill declined and he had trouble fielding the ball. A trip to the Mayo Clinic in Minnesota revealed that Gehrig had a neurological disorder called amyotrophic lateral sclerosis (ALS). Over the next year or so, Gehrig became weak and bedridden. On June 2, 1941, Gehrig died.

Adler's book is an excellent way to teach young children about neurological illness. The book starts with Gehrig's childhood and then his baseball career. Gehrig's symptoms and the course of his disease are described accurately and add to the description of his life. The colorful acrylic images created by Terry Widener bring the story to life.

For more about ALS, see: http://faculty.washington.edu/chudler/als.html

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"Hearing," "Seeing," "Smelling," "Tasting," and "Touching" by Rebecca Olien, Mankato (MN): Capstone Press, 2006 (each book is 24 pages).
Reading level: Grades 1-3
[Note: I was the scientific consultant for each of these books. However, I do not receive any payment for any books that are sold.]

Capstone Press has recently published a series of five books about the senses for young children (grades 1-3). Each book is filled with large, colorful photographs and illustrations. "Fun Fact" boxes throughout the books provide readers with interesting bits of trivia about the different senses. Each book ends with a simple experiment that can be done to show how the senses work.

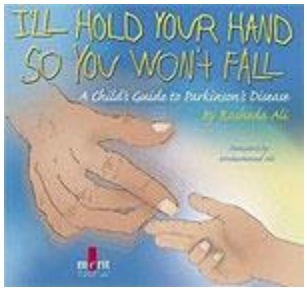
The difference in these books from other books about the senses for young readers is the emphasis on how the sense organs work with the brain. Many other books of this type do not even mention the brain. Rather, they state, for example, that the eye "knows" that an apple is red. The eye does not know anything about the shape, size, or color of an object. It is the brain that receives information about an object from the eye. The brain creates a perception of the object from this information. Author Rebecca Olien emphasizes the importance of the brain in each of her new books.

The Longest Yawn by Jennifer Dussling, illustrated by Blanche Sims, New York: Kane Press, 2005, ISBN: 1575651602.
Reading Level: Kindergarten - Grade 3
[Note: I was a consultant for this book and am listed in the acknowledgements, but do not receive any payment for any books that are sold.]

"The Longest Yawn" tells the fictional story of Barry Moore, a young boy who goes to the Sunny Day Camp. Barry expects to swim, play games and make arts and crafts at camp. Little did he know that he would also learn about reflexes such as sneezing and yawning.

Barry upsets his drama teacher, Mr. Zane, by yawning. Mr. Zane thinks that Barry is bored. Barry explains that he could not help yawning. Barry's sneeze and his hiccups the following days during play practice do not help matters. Mr. Zane does not understand Barry's explanation that yawning, sneezing and hiccups are involuntary reflexes and thinks that Barry should control himself. Mr. Zane finally understands what has been happening to Barry when he has his own involuntary reflex. (You will have to read the book to find out which reflex affects Mr. Zane.)

I'll Hold Your Hand So You Won't Fall. A Child's Guide to Parkinson's Disease by Rasheda Ali, West Palm Beach (FL): Merit Publishing, 2005, ISBN: 1-873413-13-0.
Reading Level: Intended to be read by children with adults.

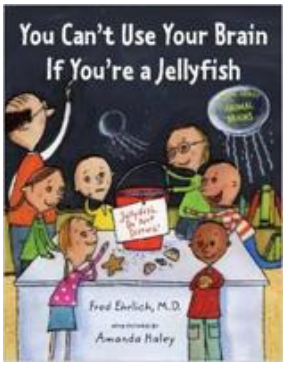


Neurological disorders affect not only the person with the disease, but the person's family and friends too. Children of people with such illnesses may become confused when their parents have trouble moving and speaking or show changes in their personalities. To help explain Parkinson's disease to children, Rasheda Ali wrote the book "I'll Hold Your Hand So You Won't Fall. A Child's Guide to Parkinson's Disease."

Rasheda Ali is the daughter of legendary boxer Muhammad Ali. In the forward to the book, Muhammad Ali mentions that he has had Parkinson's disease for more than 20 years and that he has found it difficult to talk to his grandchildren about his condition. Rasheda Ali's book is a great way for people with Parkinson's disease to discuss their condition with their children and grandchildren.

The book is meant to be read with children. Different symptoms of Parkinson's disease are discussed with 1) text written from a child's perspective, 2) illustrations of a symptom, 3) questions to ask a child and 4) facts about a symptom. Rasheda Ali summarizes the purpose of the book this way:
"Children want to understand why their loved ones behave a certain way. By encouraging communication between them and your loved one with Parkinson's disease, you are not only educating them, you are also bringing them closer together."

You Can't Use Your Brain If You're a Jellyfish by Fred Ehrlich (illustrations by Amanda Haley), Maplewood (NJ): Blue Apple Books, 2005, ISBN: 1-59354-090-6.
Reading level: Grade 3-6

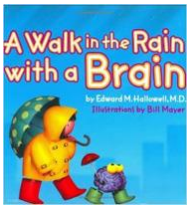


The library I use at the University of Washington has many books with impressive titles such as "Principles of Neural Science" and "The Central Nervous System of Vertebrates." These massive textbooks discuss the anatomy and physiology of the brains of different animals in exquisite detail. To someone just beginning to study the nervous system, however, these books are not very useful. It was with great surprise that I discovered a neuroanatomy book at my local public library that young students would enjoy: *You Can't Use Your Brain If You're a Jellyfish* by Dr. Fred Ehrlich.

Dr. Ehlich's book is the only comparative neuroanatomy book for young readers that I have ever seen. He starts the book by discussing which animal has the "best" brain. Ehlich correctly points out that each animal has the proper brain for the things that it does. The brains and abilities of invertebrates (worms, mosquitoes, cockroaches) and vertebrates (birds, cats, dogs, monkeys, apes, humans) are then compared and contrasted.

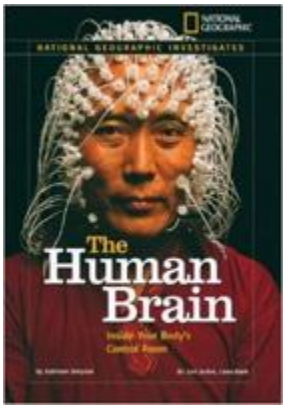
Poems at the end of each chapter and the many colorful, cartoon illustrations by Amanda Haley reinforce the ideas that Dr. Ehrlich presents. Although the book is not detailed enough to be used for research, it is an excellent introduction to the field of neuroanatomy.

A Walk in the Rain with a Brain by Edward M. Hallowell, M.D., (illustrated by Bill Mayer), New York: HarperCollins Publishers, Inc., 2004, ISBN: 0-06-000731-1.
Reading Level: Kindergarten through grade 3



Lucy is a young girl who meets Manfred, a brain who has lost his head. Together, Lucy and Manfred (or "Fred" for short) go on a search for Fred's head. Along the way, Fred teaches Lucy that everyone is smart in their own way and that there is no "best" brain. The last five pages of the book provide a discussion guide for parents and teachers to help children learn about the power and uniqueness of their brains.

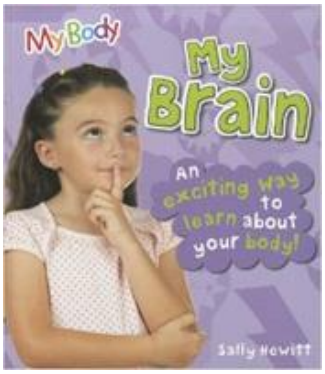
The Human Brain: Inside Your Body's Control Room, by Kathleen Simpson, Washington, D.C.: National Geographic, 2009, ISBN: 9781426304200.
Reading level: Grade 5 and up



National Geographic publishes one of my favorite magazines. The stories in National Geographic are always interesting and the photographs are incredible. The magazine occasionally has medical related articles, some about the brain and nervous system. In addition to the magazine, National Geographic publishes books about various topics, so it was just a matter of time before they created one about the brain.

The Human Brain: Inside Your Body's Control Room is a new book with sharp, colorful photographs and illustrations that you expect from National Geographic. I even recognize the book's cover photograph as one from the magazine. I recommend this new book to anyone interested in an introduction to the structure and function of the nervous system. It is organized into short chapters and answers questions about brain development, neuroplasticity (brain changes, memory), sleep/dreams, emotions and brain surgery. At only 64 pages, the book cannot cover every topic, but it is a good overview. Author Kathleen Simpson ends her book with a glossary, bibliography and resources for further information -- she even mentions the Neuroscience for Kids Web site!

My Brain. My Body, by Sally Hewitt, QEB Publishing, 2008, 24 pages, ISBNL 9781595665539.
Reading Level: Kindergarten to Grade 3

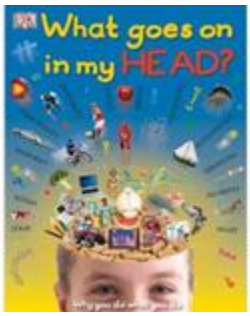


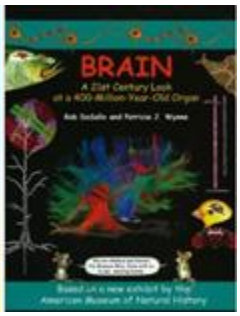
Science books for children are difficult to write. Authors of these books must take a difficult subject and create a book that young readers can understand and enjoy. Writers must also consider how much detail to include and what topics to leave out. "My Body. My Brain" does a decent job introducing the nervous system to children, but it is not without problems.

Author Sally Hewitt divides her book into two page sections each discussing a different topic: nerves, senses, reflexes, memory, learning, emotions, and brain health. There are plenty of colorful photographs and drawings to illustrate each topic. Unfortunately, there are a few factual errors. For example, the brain is said to be the color gray. The brain is not gray. Rather, the brain is a pinkish-white color. Also, Hewitt mentions that "...all animals have brains." This is not true. Some animals, such as jellyfish and sea stars, do not have a brain. As long as these errors are pointed out, I would still recommend this book for young children. Mistakes can sometimes be the best teachers.

You've Got Nerve. The Secrets of the Brain and Nerves by Melissa Stewart, New York: Marshall Cavendish, 2011, 48 pages, ISBN: 978-0-7614-4157-1.
What Goes On In My Head? by Robert Winston, New York: DK Publishing, 2010, 96 pages, ISBN: 978-0-7566-6885-3.
Brain. A 21st Century Look at a 400-million-year-old Organ by Rob DeSalle and Patricia J. Wynne, Piermont (NH): Bunker Hill Publishing, Inc., 48 pages, ISBN: 9781593730857.

Reading Level: Grades 2-5



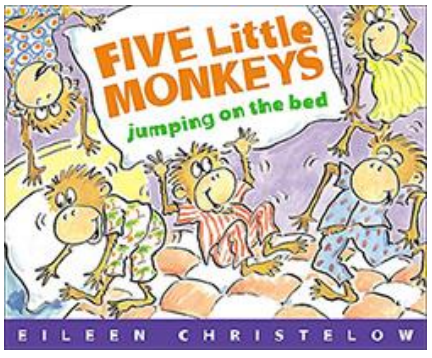


As you look at the covers and flip through the pages of these three books, you are sure to be attracted to the many bright and colorful illustrations and photographs. All of the books cover the basics of the nervous system, but in different ways. *You've Got Nerve* is written for younger students and discusses different aspects of the brain in 2-page sections. A glossary at the end of the book defines some of the more difficult words and terms. *What Goes On In My Head*, written for older readers, is a bit busier, discussing more topics including perception, personality, reward systems and brain injury. *Brain. A 21st Century Look...* is the most unusual of the three books and is based on the exhibit currently at the American Museum of Natural History in New York City. In this book, two museum mice act as guides as they take readers on a tour of the nervous system. The books all contain boxes filled with fascinating facts and trivia about the nervous system.
Although the books contain a few factual errors or mislabeled pictures, I would still recommend them to young neuroscientists interested in learning about the brain.

Inside the Brain, by Karin Halvorson Minneapolis: ABDO Publishing Co., 2013.
Reading Level: Kindergarten to Grade 3

Inside the Brain is a new entry in the Super Simple Body book series by the ABDO Publishing Company. Author Karin Halvorson takes on the brain by with easy to understand chapters about the senses, nerves, reflexes, involuntary responses, balance, thought, emotion and personality. Some of the topics have experiments and demonstrations to reinforce concepts such as the blink reflex, knee jerk reflex, Stroop effect, and a brain cap. Unfortunately, the book also contains some errors and misconceptions. For example, Halvorson states that the adult brain is about the size of a grapefruit. I have never seen a three pound grapefruit! Grapefruits weigh about 0.5 lb and the brain weighs about 3.0 lb. Readers learn correctly that everyone uses both sides of their brain, but then readers are asked to find out if they are "right-brained" or "left-brained." Nevertheless, with the many bright and colorful images and simple explanations, "Inside the Brain" is sure to appeal to young scientists.

Five Little Monkeys Jumping on the Bed by Eileen Christelow, New York: Clarion Books, 1989.
Reading Level: Kindergarten to Grade 2



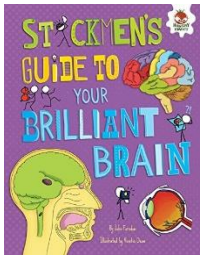
Five Little Monkeys Jumping on the Bed is a favorite book of many children. In the story, one by one, small monkeys fall off a bed and bump their heads. And each time this happens, the mother monkey calls the doctor. The only advice the doctor provides: "No more monkeys jumping on the bed!"

People could not believe that I did not like this book. Kids loved the story. It's all in good fun. What could be wrong? First, you would think the mother monkey would learn that jumping on the bed poses a health risk to her little monkeys. Perhaps after the second or third injury, she should take some steps to prevent further injuries. But no, she continues to let the monkeys jump on the bed oblivious to the fact that head injuries can be very dangerous.

And what about the doctor? The doctor might want to examine the little monkeys to ensure they did not suffer a concussion. From the look of the bandages on the little monkeys' heads, the injuries look serious.

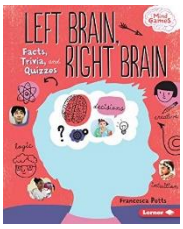
Most medical experts believe that it is fine to let someone with a concussion sleep as long as the patient does not have other serious symptoms. Nevertheless, it is still a good idea to check on the person during the night. Let's hope that the mother monkey checks on her little ones after she goes to sleep herself.

Stickmen's Guide to Your Brilliant Brain by John Farndon, Minneapolis (MN): Hungry Tomato Ltd. 2017. Reading Level: Grades 3-5



Stickmen's Guide to Your Brilliant Brain is a brief introduction to the nervous system. The book is written in short paragraphs and covers nerve cell, the senses, memory and the history of the neuroscientific discoveries. However, the book does contain some factual errors such as "Every creature has a brainâ..." (actually, the jellyfish, for example does not have a brain). Also, the author attempts to explain how signals are sent within a neuron and even mentions how "gates" open and close. Although such an explanation is not usually provide for young readers, the explanation is not quite accurate. The descriptions of the senses are adequate and when vision is explained the LGN is even mentioned as a place where visual information is processed. Unfortuantely, the LGN is never defined as the lateral geniculate nucleus. The book is filled with colorful illustrations that are sure to attract the attention of the reader.

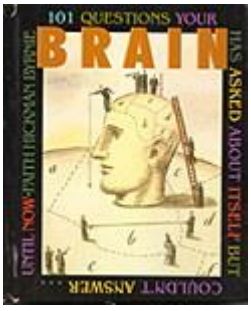
Left Brain, Right Brainn by Francesca Potts, Minneapolis (MN): Lerner Publications Company, 2018. Reading Level: Grades 3-5



Left Brain Right Brain is a confusing book. On one hand, the book correctly dispels the myth that there is such a thing a right brained ("creative") people and left brain ("logical") people. But on the other hand, it includes a left-brained/right-brained test and many descriptions about being right- or left-brained.

Books for Middle School Students

101 Questions Your Brain Has Asked About Itself but Couldn't Answer ... Until Now by Faith Hickman Brynie, Brookfield (CT): The Millbrook Press, 1998, 176 pages, ISBN: 0-7613-0400-2.
(Reviewed by Lynne Bleeker, science teacher)
For ages 12 and up
(Note: before reading this book review by Ms. Bleeker, you should know that I proofread this book prior to its publication and am listed in the acknowledgments. However, I did not and will not receive any payment for this work and have no financial interest in this book - Eric H. Chudler, Ph.D.)



This is a wonderful book! The 101 interesting and thought-provoking questions come from real students. Faith Hickman Brynie obviously spent a great deal of time researching the answers; each chapter has extensive notes and sources listed at the end of the book. Her answers are clear, accurate, and well-written. The "Feature" sections at the end of each chapter contain historical information about real people and events related to the chapter's topics. The line drawings are nicely done and come at just the right point to answer questions about subjects including neurotransmitter function and brain anatomy. However, I was disappointed that there were not more photographs. My only concern about the book involves one of the rare photographs, a photo of a sculpture of a nude male with exaggerated body parts. Librarians and teachers wishing to make this excellent book a part of their classroom collections should decide how to deal with this concern before putting the book in students' hands.

This book, though, is sure to be a hit! The book contains three terrific tables about parts of the brain, neurotransmitters and addictive drugs as well as a complete glossary, index and suggestions for further reading about the subject. I especially appreciated Ms. Brynie's sensitive handling of the question "What's the Difference Between Brain and Mind?"

and her concluding remarks in the section "More Questions than Answers." Though packed with information, this book was hard to put down once I started reading it!

When the Brain Dies First by Margaret O. Hyde and John F. Setaro, Danbury: Franklin Watts, 2000, pp. 144, ISBN: 0-531-11543-7.
Level: for middle school students and up

Margaret Hyde has written more than 80 books on subjects such as asthma, AIDS, outer space, drug abuse, genetics and mental illness. She has teamed with Dr. John F. Setaro to write her newest book called "When the Brain Dies First." In this book, Hyde and Setaro discuss the difficult topic of what happens when the brain dies before the body.

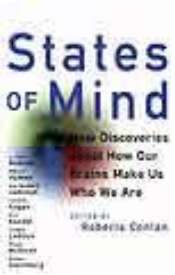
After a brief introduction to normal brain function, "When the Brain Dies First" covers various brain disorders and diseases including shaken baby syndrome, head trauma, brain infections, Alzheimer's disease, Parkinson's disease, Huntington's disease, Batten disease, multiple sclerosis and stroke. The effects of drug abuse and neurotoxins on the brain are also explained.

The many descriptions of patients in the emergency room and operating room help to illustrate disease processes and methods of treatment. Hyde and Setaro are to be congratulated for including recent events that have impacted neuroscience, such as the outbreak of West Nile encephalitis in 1999 and new research into the development of a vaccine for Alzheimer's disease. Although there is much research that holds the promise of cures for various brain disorders, Hyde and Setaro correctly caution readers about being overly optimistic. They detail the difficult and complex path that leads from the research laboratory to the drug store.

"When the Brain Dies First" does not shy away from difficult and controversial topics. Rather, the book presents a balanced view of euthanasia, brain death, gene therapy and caring for those with dementia. The last chapter of the book deals with keeping the brain healthy and the search for cures to neurological disorders. I was happy to see that Hyde and Setaro mentioned Brain Awareness Week as a time to highlight the progress and discoveries made in neuroscience. "When the Brain Dies First" will serve as a useful book for students in middle and high school who are researching specific neurological disorders and for anyone else interested in what happens when the brain dies before the body.
I asked Margaret Hyde for some background on her new book. Here is her reply:

"John Setaro and I were expressing our concern about several friends and relatives who were suffering from Alzheimer's and Pick's disease and he suggested we write a book on the subject. I was surprised to find so many different kinds of dementia and the large number of families who are affected. We hope the book will encourage young people to get involved in prevention, support for patients and families, and perhaps choose careers in which they do some much needed research toward finding cures."

States of Mind: New Discoveries About How Our Brains Make Us Who We Are edited by Roberta Conlan, New York: Dana Press, 1999, 214 pages, ISBN: 0-4712-9963-4.
For middle school students and up



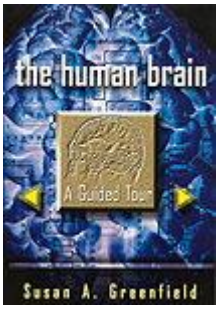
States of Mind is a collection of essays by eight leading neuroscientists. These essays were originally part of a 1997 lecture series sponsored by the Dana Alliance for Brain Initiatives and the Smithsonian Associates. Included in the book are the following:

1. Dr. Steven Hyman, National Institute of Mental Health: genes, environment and mental illness
2. Dr. Jerome Kagan, Harvard University: genes, environment and behavior
3. Dr. Kay Redfield Jamison, Johns Hopkins School of Medicine: manic- depression
4. Dr. Bruce McEwen, Rockefeller University: stress and the brain
5. Dr. Esther Sternberg, National Institute of Mental Health: the brain and the immune system
6. Dr. Joseph LeDoux, New York University: emotions, memories and the brain
7. Dr. Eric Kandel, Columbia University: memory, learning, genes and the brain

8. Dr. J. Allan Hobson, Harvard Medical School: sleep and dreams

Each essay is written in language that high school students should understand. There are several drawings and photographs in each chapter that help illustrate concepts and ideas. Although "States of Mind" could use a few more photographs and drawings to explain various theories and ideas, it is a first-rate introduction to current findings in brain research.

The Human Brain: A Guided Tour by Susan A. Greenfield, Science Masters series, New York: Basic Books, 1997, 160 pages, ISBN: 0-4650-0726-0.
(Reviewed by Ms. Lynne Bleeker, Middle School Science Teacher consultant.)
For middle school students and up



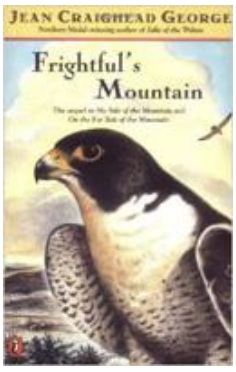
The Human Brain is a thin little book packed with information about this mysterious and amazing three-pound organ. Greenfield's descriptions of disorders of the brain, such as Alzheimer's Disease, Parkinson's Disease and amnesia, are excellent. Her discussion about addictive drugs and the neurotransmitters they mimic and those they affect is also very clear. I especially appreciated her explanation of action potentials and synapses. For example, to describe chemical neurotransmission, she uses the analogy of a boat which has to be brought to water, cross and dock on the other side. After reading the book I felt I had a more thorough understanding of the electrical and chemical components of an action potential.

Additional diagrams and pictures would have been helpful; I often found myself mentally reviewing the locations of parts of the brain and wishing that there were labeled diagrams for reference. I counted only four photographs and seven diagrams in the 160-page book.

In addition to the careful descriptions of what is known about the brain, Dr. Greenfield's discussions of the riddles of consciousness, mind and memory were greatly appreciated. The relation of the physical brain to the mind and a person's individuality is still mostly a mystery to science, and as she says in her concluding remarks, "We have seen astounding progress but the adventure is only really just beginning." This positive approach to what is still not known left this reader feeling invigorated rather than overwhelmed by the book.

I would highly recommend the entire book to college students and adults, and would use sections of it with middle school and high school students. It would be an excellent addition to the home or school library, both for its neuroscience content and for its descriptions of the processes and frontiers of scientific study.

Frightful's Mountain by Jean Craighead George, Scholastic, September 2000.
Reading Level: Children and adults.
(Book review by Lynne Bleeker, middle school teacher and science education specialist.)

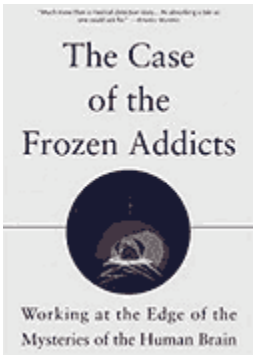


Are you looking for a great book to read over the summer? Check out "Frightful's Mountain," a sequel to the classic "My Side of the Mountain." Frightful is a peregrine falcon who is imprinted on a human boy, Sam. The story is told from the falcon's perspective. Does that sound boring? It's not! The story of Frightful's survival when Sam goes back to town is full of peril and danger, new adventures and new experiences. I literally could not put the book down once I started reading it.

So what does a book about a falcon have to do with neuroscience? A great deal, I discovered. A major theme of the book is bird migration. For example, how do birds know when it is time to go south for the winter? The book explores how the angle of sun above the earth affects the physical responses in a bird's brain. A quote: "She took a reading on the sun's rays, listened to her internal compass, and started south." Jean Craighead George's understanding of zoology shines through on every page of the book. The book got me so interested in questions about how bird brains know when it is time to fly south that I picked up another book, "How Do Birds Find their Way?" by Roma Gans. Typical of the Let's-Read-and- Find-Out-Science series of which it is a part, the book is full of information and pictures, and it answered

a lot of my questions (as well as raised some new ones!). Still, it didn't hold me on the edge of my seat the way "Frightful's Mountain" did.

The Case of the Frozen Addicts by J. William Langston and Jon Palfreman, New York: Pantheon Books, 1995, 309 pages, ISBN: 0-679-42465-2.
Reading level: middle school to adult.

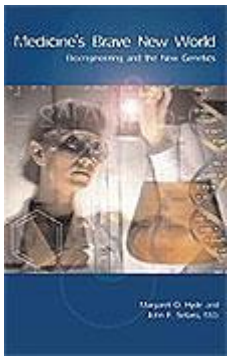


Part medical mystery, part political drama and part crime story, "The Case of the Frozen Addicts" chronicles 10 years in the life of neurologist J. William Langston as he unravels the cause of a disorder that has frozen a handful of heroin addicts. The story begins in 1982 when six heroin addicts inject themselves with a bad batch of synthetic heroin. A few days later, these people find themselves unable to move. Although their ability to think, see and feel are unaffected, they cannot move their muscles. These people are frozen, with symptoms similar to those of Parkinson's disease.

Sadly, "The Case of the Frozen Addicts" is a true story. Langston describes his journey to discover why these people are unable to move. Along the way he encounters a chemical that holds the potential to revolutionize the study of Parkinson's disease. The road he takes is not smooth: competition from other laboratories, professional jealousy and research problems all impede his progress. Nevertheless, Langston's discoveries start new research to investigate the causes and potential treatments for Parkinson's disease and send Langston down a new career path.

Authors Langston and Jon Palfreman make the 309 pages of "The Case of the Frozen Addicts" turn quickly. The book has just enough technical information to provide readers who do not have a neuroscience background with an understanding of the science. I highly recommend "The Case of the Frozen Addicts" to anyone looking for a well-written mystery with a neuroscientific twist.

Medicine's Brave New World by Margaret O. Hyde and John F. Setaro, Brookfield (CT): Twenty-First Century Books, 2001, 143 pages, ISBN: 0-7613-1706-16.
Reading level: middle school to adult.

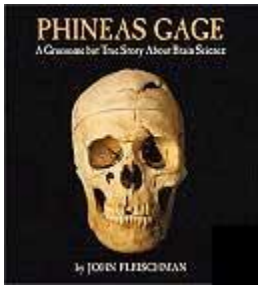


Authors Hyde and Setaro have done it again. Following the publication of their book "When The Brain Dies First" in 2000, they have another winner in their new book titled "Medicine's Brave New World." This new book takes on recent technological advances in medicine: test-tube babies, spinal cord repair, organ transplants, stem cells, cloning, and gene therapy. Hyde and Setaro do a fantastic job explaining new medical discoveries in language that people without much background in science can understand. All of the topics discussed in the book are filled with scientific, ethical and moral dilemmas. For example, should animals be used to provide spare parts for humans? Should employers be allowed to perform genetic tests on workers to screen for risks of mental and physical disorders? The book provides arguments from all sides of the controversies and raises many important questions about the future of medicine. Readers must use their own judgment to decide where they stand on each issue.

I asked Margaret Hyde why she wrote the book. She replied:

"We wrote this book in response to requests for easy to understand information about stem cells, the genome, and other medical advances that are so important to everyone and need intelligent responses from citizens of today and tomorrow."

Phineas Gage: A Gruesome but True Story About Brain Science by John Fleischman, Boston: Houghton Mifflin Co., 2002, 86 pages, ISBN:0-618-05252-6.
For ages 10 and up.



He is one of the most famous people in neuroscience. He is not a brain researcher or a physician. Rather, he is a patient. He is Phineas Gage. In 1848, Mr. Gage was a foreman working on the railroad. On September 13, 1848, a iron rod (weight = 13.5 pounds, length = 3 feet, 7 inches) was shot accidentally up through Mr. Gage's cheek, through his brain and out of his skull. Miraculously, Mr. Gage lived to tell his story.

John Fleischman, a writer for the American Society for Cell Biology, retells the story of Phineas Gage in a new book called *Phineas Gage: A Gruesome but True Story About Brain Science*. Fleischman's book starts by describing the accident that took place in Cavendish, Vermont. He traces the steps that led up to the accident and follows poor Mr. Gage as he is treated by the town's doctors. We learn that Mr. Gage recovers physically from his injury, but mentally, he is a changed man. After the accident, he has a new personality: gruff, unreliable, nasty, unsociable.

Fleischman discusses how the case of Phineas Gage influenced how people thought about the brain. Was the brain like a bowl of Jell-O with each part capable of all functions or were functions localized to particular brain structures? The evidence provided by Phineas Gage's accident seemed to favor the localization theory because specific functions, such as rational thought, were affected by damage to the frontal lobe.

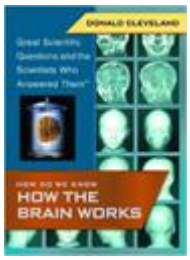
The book follows Mr. Gage until his death on May 21, 1860, in San Francisco, California. However, the story is not over. Mr. Fleischman describes how researchers have used modern imaging devices to learn more about Mr. Gage and to provide more information about frontal lobe function.

Phineas Gage: A Gruesome but True Story About Brain Science is filled with excellent drawings and photographs. These images permit readers to better understand what happened to Phineas Gage 150 years ago. I highly recommend this remarkable book to ANYONE who has an interest in neuroscience.

I asked John Fleischman for some behind-the-scenes information about his book. He sent me some comments from a press release:

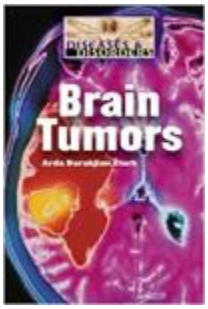
"Everyone at Harvard--and in brain science--knows the story. At the time, my office was about a hundred yards away from the skull. When my editor at Houghton Mifflin, Amy Flynn, accepted the book, the people in public affairs were amazed that a children's publisher would take on such a subject. I was too. But I knew that kids of a certain age were fascinated by this kind of thing. I call them kids with 'healthy morbid interests.' I'm still in awe of the enthusiasm that Phineas seems to attract from all sorts of people, from kids to neuroscientists."
For more information about Phineas Gage, please see the Phineas Gage Information Page.

How Do We Know How the Brain Works by Donald Cleveland, New York: Rosen Publishing Group, Inc., 2005, 112 pages, ISBN: 1-4042-0078-9.
For middle school students



Dr. Donald Cleveland, a professor in the School of Library and Information Sciences at the University of North Texas, has written a book that takes a historical view of the brain. Dr. Cleveland divides his book into three main themes: neuroscience, psychology and cognitive science. Many black-and-white drawings and photographs help illustrate the book, but the list of suggested books and bibliography could be improved. (The listed URL to Internet links also does not work.) Nevertheless, *How the Brain Works*is a excellent resource for students who want to learn about the discoveries that have advanced the field of brain research.

Brain Tumors by Arda Darakjian Clark, Farmington Hills (MI): Lucent Books, 2006, 112 pages, ISBN: 1-59018-671-0. Reading level: middle school students and up



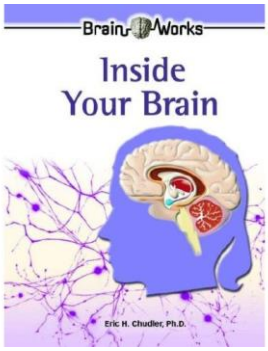
Arda Darakjian Clark has written about one of the most frightening diagnoses a person can hear: brain tumors. Brain tumors occur when cells grow out of control. The tumor forms a mass within the brain that can put pressure on nearby normal tissue and take energy resources away from areas that need them. Although there are treatments for brain tumors, the outcome is often fatal.

Clark starts the book by defining the types of brain tumors and how they grow. She then discusses the symptoms of brain tumors (e.g., headaches, nausea, vomiting, seizures, movement problems) and how they are diagnosed (e.g., with brain imaging methods such as CAT, MRI and by biopsy). The author is careful to point out that other conditions have many of the same symptoms caused by brain tumors.

The remainder of the book focuses on the treatment and care of people with brain tumors. Together with a team of doctors, patients must decide among the treatment options including surgery (removal of the tumor by a neurosurgeon), radiotherapy (damaging the tumor cells with radiation) and chemotherapy (using anticancer drugs to stop tumor growth). A few new therapies are also described. Clark provides a good description of the benefits and disadvantages and possible side effects of each treatment.

I highly recommend this book for people who are researching brain tumors for school projects, who may have a friend or relative with a brain tumor or who just want to learn more about neurological disorders.

Inside the Brain by Eric H. Chudler, New York: Chelsea House Publishers, 2007, 128 pages, ISBN: 0791089444. Reading level: middle school students and up



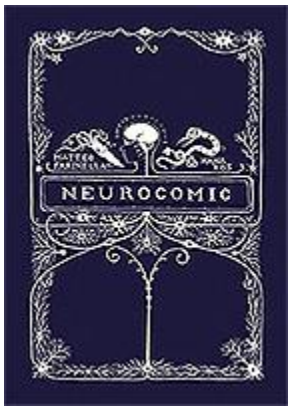
Every once in a while I get an email from someone asking when I will write a book about the brain. I am happy to say my book is finished and has been published by Chelsea House Publishing Company. The title of the book is *Inside Your Brain* and it is part of a book series called "Brain Works." Other books in the series (I am the series editor), by other authors, include *A Day in the Life of the Brain, How the Brain Grows, Seeing, Hearing, and Smelling the World* and *The Brain and Love.*

I wrote the book as an introduction to the brain with many activities and demonstrations to help reinforce concepts about how the nervous system works. Chelsea House Publishing Company did a nice job summarizing *Inside Your Brain* as:

"Ideal for anyone interested in learning about the nervous system, this helpful "road map" of the brain explains various brain structures and pinpoints their locations and particular functions. Each chapter offers background information about a specific neuroscience topic, including the senses, sleep and dreaming, memory and learning, sidedness, and biological rhythms. The engaging experiments, games, and demonstrations help guide readers to an understanding of these concepts. The activities suggested meet national science education standards."

Neurocomic by Matteo Farinella and Hanna Ros, London: Nobrow Ltd., 2013.
Reading level: middle school students and up "Neurocomic" was once selected as the

Neuroscience for Kids "Site of the Month." Now, Neurocomic is a comic book.



In "Neurocomic," authors Matteo Farinella and Hanna Ros tell the story of a man who is transported inside his own brain. In his journey to escape and get back outside, the man meets famous neuroscientists who explain the structure and function of the brain.

In chapter one, Morphology, the man meets neuroanatomist Santiago Ramon y Cajal who explains the structure of neurons. They are met by Camillo Golgi who starts an argument about how neurons are connected. When the man is swallowed by a neuron in chapter two, Pharmacology, he meets Charles Scott Sherrington who explains the synapse. Later on, the man is packaged into a vesicle by Bernard Katz and sent into the synaptic cleft where he meets several neurotransmitters and drugs that affect receptors.

Inside a neuron in chapter 3, Electrophysiology, the man meets Alan Hodgkin and Andrew Huxley who talk about how neurons generate electrical currents and send signals using action potentials. After escaping from inside a neuron, the man washes up on a beach where he meets Eric Kandel and they discuss memory and neuroplasticity (chapter four, Plasticity). They also meet up with Ivan Pavlov who demonstrates his work on conditioned responses.

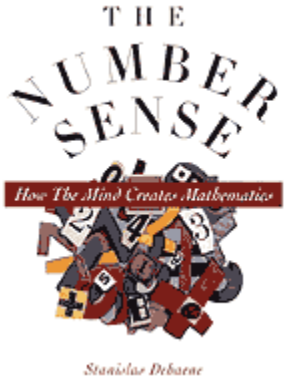
The man continues his journey up a mountain in chapter 5, Synchronicity, and runs into Hans Berger, the first person to record human brain waves. Their discussions lead to questions about consciousness, perception and the location of the mind.

I highly recommend Neurocomic: it is a fun introduction to neuroscience with plenty of interesting characters to keep readers engaged.

Books for High School Students

The Number Sense. How the Mind Creates Mathematics by Stanislas Dehaene, New York: Oxford University Press, 1997, 274 pages, ISBN: 0195110048.
For high school students and up

When a Neuroscience for Kids Newsletter reader recommended a book called "The Number Sense. How the Mind Creates Mathematics" by Stanislas Dehaene, I immediately connected to the online catalog of my local library, found the book and placed it on hold. One week later, the book was in my hands.



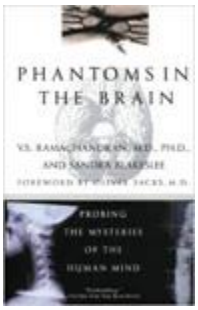
Author Dehaene is a mathematician/cognitive neuropsychologist who has written this fascinating book about math, language, education and the brain. Although he draws heavily on research papers, Dehaene has written the book for a wide audience, not just scientists. Many of the research findings in "The Number Sense" will surprise you and you may not always agree with Dehaene's interpretation of the data. That's fine. A good book should make you think and ask questions. Some of the topics discussed:

- Can animals count and do math?
- Do infants have the ability to count?
- What are the origins of numbers?
- How does language affect math and memory?
- Why do students in China and Japan score best on math tests?
- What is the best way to teach math?
- What are "idiot savants" and math geniuses? What can and can't they do?

- How do brain injuries affect mathematical ability?
- What parts of the brain are involved with mathematics and numbers?

When you add up all the interesting facts in this book, the results are sure to surprise you.

Phantoms in the Brain: Probing the Mysteries of the Human Mind by V. S. Ramachandran and Sandra Blakeslee, New York: William Morrow & Company, 1998, 320 pages, ISBN: 0-6881-5247-3.
(Reviewed by Ira Surolia, second-year medical student, B.R. Ambedkar Medical College, Bangalore, India)
For high school students and up



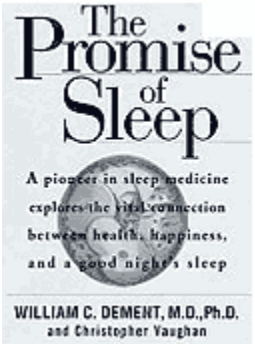
Ramachandran, a neurologist from the University of California, San Diego, has written a highly readable book about the human brain. In my opinion, "Phantoms in the Brain" is most appropriate for high school students and adults who are not experts in neurology. The book, written in a clear, story-like style, starts with an introduction to the brain and continues with stories of people who have unusual neurological conditions. These conditions include phantom limbs (people feel the presence of a body part that has been amputated), false pregnancies (women feel sure they are pregnant when they are not), scotomas (people are blind only in parts of their visual field), neglect (people ignore parts of their bodies), denial (people refuse to believe something is wrong with them), and epilepsy (people have seizures).

Ramachandran starts each chapter with the description of a particular problem, then follows with ideas about the underlying cause of the disorder. These theories are then supported or thrown out, depending on the evidence that doctors find when examining the patients or by doing experiments. Throughout the book, readers are treated to Ramachandran's clever ways of thinking about neurology, including:

A. You don't always need expensive or state-of-the-art equipment to make important discoveries. Rather, keen observation and questioning of patients often help to solve some neurological puzzles.

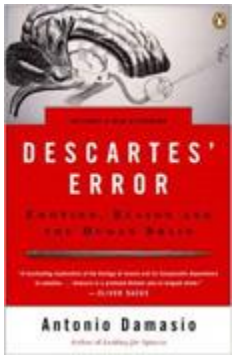
B. If you study the normal functioning of the brain and then figure out what can happen if this is interrupted, you will see how neurological disorders come about. For example, in a chapter called "Knowing Where To Scratch," Ramachandran suggests an explanation for pain or sensation in arms and legs that have been amputated ("phantom limbs"). He describes how changes in the normal structure and nerve connections in the cerebral cortex could cause such sensations. In a chapter called "God and The Limbic System," he discusses how some people with epilepsy become overly involved in religion. This may be explained by neurological problems in the temporal lobe, which is involved in emotions and is often damaged or abnormal in people with epilepsy.

The Promise of Sleep: A Pioneer in Sleep Medicine Explains the Vital Connection Between Health, Happiness, and a Good Night's Sleep by William C. Dement, M.D., Ph.D. and Christopher Vaughan, New York: Delacorte Press, 1999, 447 pages, ISBN: 0-3853-2008-6.
(Reviewed by Barbara Shoup, Assistant to Dr. William Dement)
For high school students and up



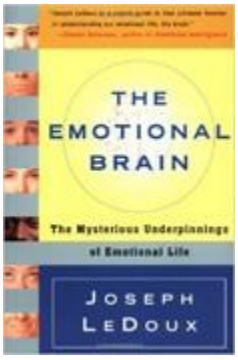
In this book published in 1999, world-renowned sleep researcher Dr. William Dement recounts his many experiences, sometimes humorous, sometimes sobering, through four decades of work in the sleep field. He takes us through the fascinating world of sleep and cleverly shows us the inner workings of sleep and wakefulness. He reveals practical information on sleep disorders and their cures, the terrible costs of sleep deprivation to our society and how sleep affects our immune system, mood, productivity and longevity. Dement shares with us the principles of healthy sleep, how much sleep you need and how to get the sleep you need by managing your sleep and lifestyle. "The Promise of Sleep" is a must-read for high school students and teachers. The book provides the background of sleep medicine and plenty of basic facts about sleep. At a length of 447 pages, the book may seem intimidating, but it is written in an easy-to-read, yet entertaining manner, while still stressing the importance of healthy sleep in everyone's life.

Descartes' Error: Emotion, Reason and the Human Brain by Antonio R. Damasio, New York: G.P. Putnam, 1994, pp. 312, ISBN: 0-3991-3894-3.
(Reviewed by Dr. Daisy Lu, Neuroscience for Kids Consultant)
For high school students and up



Damasio lays out a provocative theory - that emotion is part of cognition. His lucid demonstration that human emotions are worthy of scientific investigation poses a challenge to neuroscience which has long theorized that emotions interfere with reasoning. The heart is, after all, in the head! This fascinating journey into the process of feeling is introduced by the case of a severely brain damaged patient, Phineas Gage. This case demonstrates that certain brain regions are responsible for reasoning and decision-making. Throughout the book, Damasio illustrates his points with other intriguing case histories, attempting to synthesize what is already known about the human brain with the endeavor to link mind and body, emotion and reason. Laid out in organized chapters with underlined topics in each chapter, Damasio's ideas about intelligence, memory, creativity and passion offer sound, accessible and reliable information about the organization and functions of the forebrain. This book makes a huge and enlightening contribution to ongoing debates about emotion and rationality and between physiological and psychological bases of feelings. A few illustrations also help the reader understand the physiology of the brain in relation to emotions. The title, Descartes' Error, leads us to question the mind, the brain, and the body. A postscript presents the human heart in conflict, offering a note on the limits of neurobiology. Ingenious and wide ranging, this book should catch the interest of many people - physicians, psychologists, neurologists, anthropologists, lay people, educators, and students. The writing itself is delightful and intellectually stimulating - a passionately penetrating tour of the human mind in relation to feeling and emotion.

The Emotional Brain: The Mysterious Underpinnings of Emotional Life by Joseph LeDoux, New York: Touchstone Books, 1998, pp. 384, ISBN: 0684836559.
(Reviewed by Mike Selby, a science writer.)
Recommended for high school and older students.

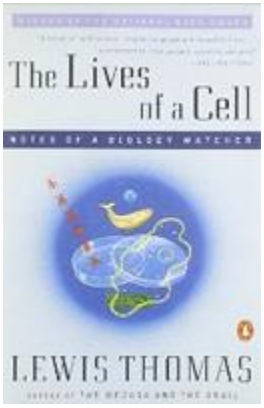


It was the Irish poet William Yeats who wrote that the sole function of the brain was to bow down to the desires and whims of the heart. Joseph LeDoux disagrees with him. Drawing on 20 years of research at the New York University Center for Neural Science, LeDoux offers his findings in his latest book, "The Emotional Brain: The Mysterious Underpinnings of Emotional Life."

Beginning with a brief history of emotion research, LeDoux quickly introduces the structural and chemical components of the brain, specifically the ones responsible for human emotion. The main focus of the book is on the emotion of fear, which is natural because fear has been the thrust of LeDoux's research. Believing fear to be a byproduct of evolution, LeDoux challenges many long standing beliefs held by many cognitive scientists and psychologists. To his credit, LeDoux backs up his claims with powerful research data.

The real strength of this book is its eagerness to be understood. Aimed at both academic and general audiences, the book avoids complex explanations or dry statistics. Just as a reader's mind begins to spin at words such as androendritic, acetylcholinesterase, and subcortical, along comes an easy to understand sketch or photo to aid non-scientists. Anyone interested in exploring the why and how of emotions will find this book to be an engaging and rewarding read.

The Lives of a Cell; Notes of a Biology Watcher by Lewis Thomas, New York: Penguin Books, 1978, ISBN: 0140047433. Suitable for high school students and older. (Reviewed by Ira Surolia, a third-year medical student at B.R. Ambedkar Medical College, Bangalore, India.)

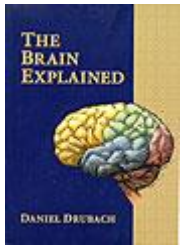


Did you know that the leader of a school of catfish has a different odor than the rest of the fish in the school? Did you know that the word "leech" is derived from an old term for "doctor?" Although "The Lives of a Cell" provides these facts, it is not just a book of trivia. Rather, the book shows you how to look at biology with a new, wonderful perspective. Subtitled "The Notes of a Biology Watcher," the book brings alive the world of bees, leeches, ants, gorillas, and of course, humans. Often, the book gives readers new ways to look at organisms by examining attitudes toward pathogenic organisms such as bacteria. For example, Thomas characterizes some bacteria as innocent wanderers who stumble upon humans and attempt to colonize their new found hosts. This sometimes results in havoc as the host's immune system reacts to these "guests."

Lewis Thomas excels when he examines human feelings, interactions, behaviors and fears. Two outstanding chapters in this regard are "The Iks" and "Death In The Open." In "The Iks" he narrates the seemingly bizarre behavior of a tribe in Uganda whose members fight and laugh at their neighbors' misfortune. "Death In The Open" is an objective, and yet touching treatment of the subject of death. It tells how we are spared the images of death, because most living things die "behind things, under things," but never in the open. It talks about death as a constant recycling process in which each cell comes alive in exchange for the death of another. Thomas argues that we need to stop treating death as a tragedy, an anomaly, and a catastrophe and that death is only the end of "the long habit" we have of living.

"The Lives Of A Cell" is not a "new, just arrived" book of layman science. In my opinion, it is a masterpiece of science writing that should be read by anyone seeking to renew or reinforce their sense of wonder of biology. This book is sheer poetry as demonstrated by how Thomas begins the book by comparing the earth to a single cell and by ending with the earth as an organism that breathes, lives and functions like a complex organism. In more ways than one, it reminds me of the childhood classic "The Little Prince."

The Brain Explained by Daniel Drubach, Upper Saddle River (NJ): Prentice Hall, 2000, 168 pages, ISBN: 0137961944. For high school students and older



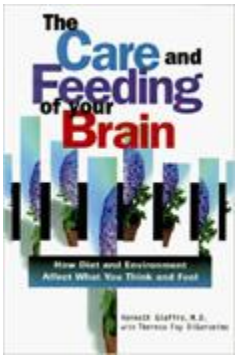
The back cover of "The Brain Explained" states that the book is "Not your typical neuroscience textbook!" I would have to agree. Neurologist Daniel Drubach has written a neuroscience textbook unlike any other I have read. Filled with clinical cases, analogies, and cartoon drawings, "The Brain Explained" is a textbook that does not read like a textbook. Drubach writes with humor and easy-to-understand language to provide readers with an overview of the structure and function of the nervous system.

The twelve chapters in the book include discussions of neurons and glia, neuroanatomy, brain plasticity, language, attention, consciousness, sleep, nutrition, drug abuse, aggression, body-brain interactions and neurological disorders. Drubach draws on his experiences as a neurologist to provide readers with examples to illustrate points. For example, to illustrate "disconnection syndromes" where connections between brain areas are damaged, Drubach tells the story of one of his patients who had damage to her corpus callosum (the fiber pathway connecting the right and left cerebral hemispheres). The patient was unable to make her right and left hands work together. Drubach describes a time when the patient petted her cat with her right hand, but tried to get rid of the cat with her left hand.
If you have found other neuroscience texts difficult to follow, "The Brain Explained" is for you. I have only a few critical comments. There are no photographs or color drawings in the book. Although the black and white drawings are good, you will have to go to other sources for detailed images. There are also a few errors in the text. For example, Drubach writes that black widow spider venom prevents the release of acetylcholine into the synapse. Actually, this toxin does just the opposite: it causes a massive release of acetylcholine. Drubach also seems to have forgotten several synapses (and the

thalamus) in his diagram (Figure 2-30) of nerve pathways from the spinal cord to the cerebral cortex. He does correctly describe this pathway in the text, but the absence of the synapses in the figure may be confusing.

Although the book contains a few errors, I highly recommend "The Brain Explained" as a text or even as a book for anyone interested in the brain. Drubach's style and use of humor make learning neuroscience fun!

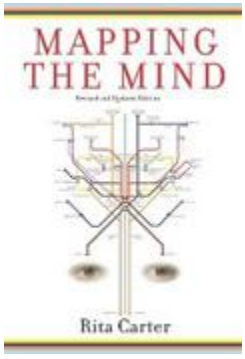
The Care and Feeding of Your Brain, Kenneth Giuffre, with Theresa Foy, Franklin Lakes (NJ): Geronimo Career Press, 1999, 255 pages, ISBN: 1564143805.
Reading level: high school students and general public
(Reviewed by Dr. Daisy Lu, Neuroscience for Kids Consultant.)



The book title is descriptive of the book's contents: it focuses on how diet and the environment affect what we think and feel. It offers reasonable advice on choosing what to do for our brain based on work ranging from the neurosciences to traditional Chinese medicine. Dr. Giuffre synthesizes concepts from many fields including physics, biology, philosophy, art, and medicine to construct a set of recommendations that influences the "weather patterns" in our brains. He writes from personal experiences and scientific research to highlight how the brain reacts to the environment.

The text is divided into ten chapters, each listing a specific vitamin and supplement. The big picture of the physical health of the brain is always in focus. The book echoes the message that we are what we are because of the way our brains are wired, and how the food we eat or don't eat affects how the brain functions. The author dispels some popular myths such as the brain being likened to a computer which can be switched on and off readily and predictably. Instead, he compares the brain to the Earth's complex weather patterns, ever changing as influenced by various unpredictable phenomena. Many common issues about the brain and general health are covered in layman's language. Some of these examples are memory and stress, fear/anxiety, pain, and sleep. A comprehensive bibliography follows the text, as well as a useful index.

Mapping the Mind by Rita Carter, Berkeley: University of California Press, 1998, pp. 224, ISBN: 0520219376.
Reading Level: Appropriate for high school students to adult and highly motivated middle school students.
(Reviewed by Trez Buckland, Director of the Making Connections and Addiction and the Brain Programs at the University of Washington.)



Rita Carter has worked as a medical and science writer for the last ten years and has twice received the Medical Journalists Association Award. Carter is now pursuing a number of art-science projects intended to increase public knowledge of the brain. Her book, "Mapping the Mind," is an elegantly illustrated story of brain exploration. She invites readers to join her journey to look at the social implications of the discoveries of neuroscience. Along the way, questions arise regarding the meaning of the mind as well as the creation of memory, the development of language, the complexities of sensations, the genesis of emotions and the occurrence of behavioral eccentricities. These questions are addressed using 1) clearly labeled and explained graphics that are almost three dimensional in character, 2) thoughtfully laid out text, 3) fascinating sidebars and 4) excerpts from the authors of recent research efforts. The book is both thought-provoking and entertaining. Carter readily admits that, "...these are the early days of mind exploration and the vision of the human brain we have now is probably no more complete or accurate than a sixteenth century map of the world." However, in spite of that limitation, there is so much covered in such a delightful manner that it would be a shame not to join her in the trip.

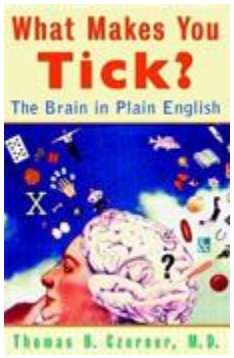
The Scientific American Book of the Brain. The Best Writing on Consciousness, Disorders of the Mind, and Much More, compiled by the editors of Scientific American, New York: Lyons Press, 340 pages, ISBN 155821965.
(Reviewed by Dr. Daisy Lu, Neuroscience for Kids consultant.)

Reading Level: Appropriate for high school students to adult and highly motivated middle school students.
Thirty-two of the world's most respected neuroscientists explore the profound mystery of the human brain in 26 remarkable essays in one outstanding volume. The nature of thought and feeling will inspire all readers and fascinate those who thirst for a deeper understanding of the brain.

The table of contents is organized into six broad topics: 1) Mapping the Brain, 2) Reasoning and Intelligence, 3) Memory and Learning, 4) Behavior, 5) Disease of the Brain and Disorder of the Mind, and 6) Consciousness. With illustrations throughout, the book discusses each topic with three to five articles that provide different perspectives. An introduction by Dr. Antonio Damasio offers intriguing insights about the human brain and mind.

One can open this book and select any article randomly without feeling lost. Each chapter is written in language that can be understood by anyone without a technical background. Neurology and psychology, blended in a combination of theoretical and technological advances, show the reader what lies beneath emotion, memory and language. There are also articles on new treatments for Parkinson's disease and new drugs to manage depression and other neurological disorders. The book concludes with three chapters about consciousness that should stimulate readers to think about what it means to be human. An extensive index helps readers locate specific information quickly. "The Scientific American Book of the Brain" is truly a "gem" of a book for everyone.

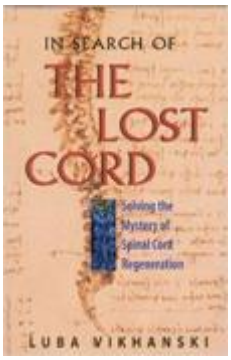
What Makes You Tick? The Brain in Plain English by Thomas B. Czerner, M.D, New York: John Wiley and Sons, 2001, 228 pages, ISBN: 0471371009.
(Reviewed by Dr. Daisy Lu, Neuroscience for Kids consultant.)
Reading level: appropriate for high school students to adults.



Ophthalmologist-author Thomas Czerner explores consciousness and free will by connecting the physiology of the brain to the mind. In a scientific yet highly readable introduction to brain research, Czerner presents recent breakthroughs in neuroscience such as moveable brain parts, the daily arrival of new neurons in the frontal lobes, and brain changes brought about by everyday experiences. These new discoveries hold amazing promise for future research and the cure of neurological disorders. The book is written in a style that blends a historical detective story with a journey to the stars. From "Off to the Wizard: Exploring a Recently Discovered Galaxy" to "The Final Chord", the gifts of science unfold with a theme: understanding content changes the way you think about thinking.

Appropriate for middle school students through high school, the 13 chapters in this book take readers on an astonishing expedition to a galaxy fueled by science, technology and philosophy. The journey tells the story of brain explorers including molecular biologists, computer scientists, evolutionary psychologists, and all other neuro-type scientists. The book draws from various disciplines and discusses methods that may lead to cures and prevention of neurological diseases. Not only does this book provide scientific knowledge, it teaches that knowing how we learn can change the way we teach.

In Search Of The Lost Cord - Solving the Mystery Of Spinal Cord Regeneration by Luba Vikhanski, Washington, D.C.: Joseph Henry Press, 2001, ISBN 0-309-07437-1.
(Reviewed by Ira Surolia, a resident at St. Martha's Hospital, Bangalore, India.)
Reading level: appropriate for high school students to adults.

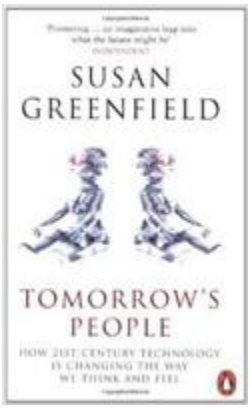


Luba Vikhanski, a science journalist working at the Weizmann Institute of Science (Rehovot, Israel), chronicles the past, present and future of spinal cord regeneration in her new book. The spinal cord, which together with the brain makes up the central nervous system, does not regenerate itself after injury. Therefore, when the spinal cord is injured, a person may lose the function of part of his body. The quest to find successful methods to repair and regenerate the spinal cord has become the "Holy Grail" of neurobiology. In recent years, such efforts have been brought to the public's attention by "Superman" Christopher Reeve, who suffered a spinal cord injury in a horse riding accident.

"In Search Of The Lost Cord" is divided into three parts: 1) the history of spinal cord injury research, 2) current spinal cord research and 3) an appendix, explaining the biology of the spinal cord. I would suggest that you read the appendix first to understand the basics of spinal cord injury. My next stop would be the beginning of the book to learn the history of spinal cord injury, including what was known to the ancient Egyptians and legendary neuroscientists Ramon y Cajal and Camillo Golgi. In the second section, Vikhanski includes material about some of the most promising approaches to spinal cord repair and discusses the biology behind each approach, the labs involved and the extent to which these have been successful. The author does an excellent job explaining this research in layman terms without being too simplistic. Additional illustrations of the concepts would greatly improve the book.

This book is suitable for readers in high school and beyond who are interested in learning more about spinal cord injuries and the relationships between the central nervous system and other body systems.

Tomorrow's People: How 21st-Century Technology Is Changing the Way We Think and Feel by Susan Greenfield, London: Allen Lane, 2003, 304 pages, ISBN: 0713996315.
(Reviewed by Victoria Gill for Neuroscience for Kids)
Reading level: appropriate for high school students to adults.



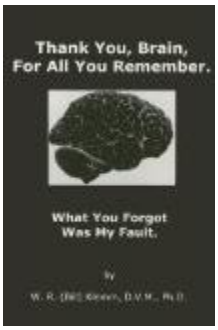
Professor Susan Greenfield, Director of the Royal Institute, is renowned for her media-friendly approach to science and has glamorized the image of neuroscience research to the point where she has been accused of "dumbing down." To these criticisms she answers that "it is more challenging to make complex, salient points sound simple." In her new book, "Tomorrow's People," she meets this challenge and tackles the issue of how the progression of science and technology could affect human culture, consciousness and even free will by fundamentally altering our minds.
The book is structured to provide discussions of each aspect of human life and provides clear links between them in the manner of a well constructed seminar. Yet despite the sheer volume of facts, Professor Greenfield manages to make the content sufficiently intriguing and concise so that the reader is not bombarded by information. The style is on occasion conversational, but her passion for her subject matter is truly engaging.

From the outset of the book, Greenfield combines vivid imagery of a possible future with descriptions of the pioneering research that may make these images plausible. The science is beautifully simplified and described with the reverence of a researcher passionate about her work and that of others in neuroscience, artificial intelligence and genetics. She discusses the emotive subjects of cloning and terrorism with candor, avoiding any hint of paranoia. Her main fear appears to be of a future where the ever more realistic cyber world may rob us of our human ability to interact. It is here that the book takes on a philosophical tone.

Professor Greenfield succeeds in providing an inspiring and thought- provoking account of the incredible changes that have already altered our way of thinking and how further changes, although seemingly far fetched, could blend just as imperceptibly into our future. The book is an interesting narrative aimed at nonexpert readers of popular science.

Painstakingly accurate references to several pioneering studies are blended into a compelling vision of how differing areas of research combine to form a vision of the future. It is the same riveting read that has already propelled Greenfield to the best seller list. Her new book is popular science at its best and a good recreational read.

Thank You, Brain, For All You Remember. What You Forgot Was My Fault by W.R. (Bill) Klemm, Bryan (TX): Benecton Press, 2004, 312 pages, ISBN: 1-930648-82-0.
Reading level: appropriate for high school students to adults.

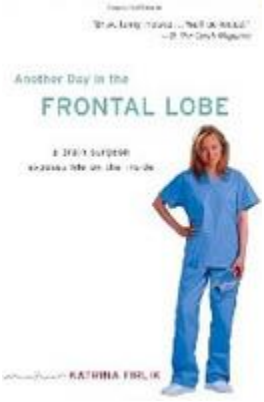


Memory: what is it, where is it and how do we improve it? Dr. W.R. (Bill) Klemm tackles these questions and more in his new book titled *Thank You, Brain, For All You Remember. What You Forgot Was My Fault.* Klemm references original research studies as he reviews the process of memory.

Many popular theories and controversies surrounding memory are discussed in detail. For example, Klemm writes about false memories, the education system and memory, memory pills, stress, aging and sleep. By piecing together this original research studies, Klemm provides readers with convincing evidence about how memory works and gives practical methods to make memory better. I asked Dr. Klemm why he wrote his book. He replied:

"There are two reasons I wrote the book: 1) I have always been interested in memory and have even done some of the memory research discussed in the book, and 2) as a professor for 40 years, I have concluded that the biggest handicap most students have is not having a good memory. Everybody can remember better if they know how."

Another Day in the Frontal Lobe: A Brain Surgeon Exposes Life On The Inside by Katrina Firlik, New York: Random House, 2006, 271 pages, ISBN: 1400063205.
Reading level: appropriate for high school students to adults.



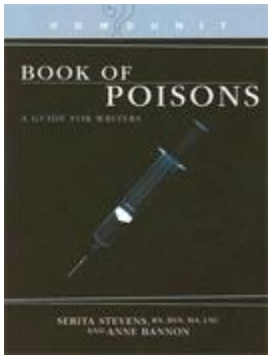
Do you want to be a neurosurgeon? Would you like to know how to become a neurosurgeon and what it feels like to be in the operating room? If your answer to any of these questions is "YES," then the book *Another Day in the Frontal Lobe: A Brain Surgeon Exposes Life on the Inside* by Dr. Katrina Firlik is for you.

Dr. Firlik was the first woman admitted to neurosurgery residency program at the University of Pittsburgh Medical Center. She wrote her book using notes she took while she was a young neurosurgeon. Although most of the book is devoted to the years she spent soon after she graduated from medical school, she does briefly discuss her life before medical school and after her residency.

Throughout the book, Dr. Firlik describes some of the interesting patients she has treated. From a man shot accidentally in the head with a nail gun to trauma patients with head injuries to people with brain tumors, infections and diseases -- Firlik has seen it all and she takes readers on a journey through the care she has given to help each person.

In the words of Dr. Firlik (page 3): "I am a neurosurgeon. The brain is my business."

Book of Poisons. A Guide for Writers by Serita Stevens and Anne Bannon, Cincinnati (OH): Writer's Digest Books, 2007, ISBN: 978-1-58297-456-9
Reading level: appropriate for high school students to adults.



Writers must use their imaginations as they develop the plots of their stories. Mystery writers often find creative ways to "eliminate" characters, but if they struggle to find a way to poison a character, there is help for them in the "Book of Poisons. A Guide for Writers."

The "Book of Poisons" is divided into chapters that cover classic poisons (e.g., arsenic, cyanide and strychnine), household poisons (e.g., ammonia, chlorine), poisonous plants (e.g., hemlock, rhododendron), fungi (e.g., various mushrooms), snakex, spiders and other living things (e.g., cobra, black widow spider), medical poisons (e.g., morphine, valium), pesticides, industrial poisons (e.g., copper, lead), street drugs, and biological, chemical and radiological weapons. One appendix in the book lists more than 70 different poisons that target the nervous system! For each of the many poisons, you learn its scientific name, the level of toxicity, how fast the poison works, and antidotes and treatments. Many listings also include a case history to show how a poison was used in a book or movie.

So, if you need a creative way to knock off a character in your next novel, look to the "Book of Poisons."

So You Want to Be a Scientist? by Philip A. Schwartzkroin, New York: Oxford University Press, 2009, 192 pages.
Reading level: appropriate for high school students to adults.

"So You Want to Be a Scientist?" is the best book I have ever read that provides information to people considering a career in science. The author, Dr. Schwartzkroin, a neuroscientist at the University of California (Davis), provides readers with the inside story of becoming a scientist and he details the challenges and rewards of being a scientist. The book is filled with practical advice about getting the right education, choosing the proper graduate school and laboratory, how to think like a scientist, writing research papers and grant applications and giving talks. The book also discusses ethical issues that new and established scientists are likely to face as they work in different research environments and the role that scientists play in society. Each chapter ends with "Real-Life Problem" boxes that pose a dilemma; Dr. Schwartzkroin then considers several possible solutions to the problem.

If you are thinking about becoming a scientist, then "So You Want to Be A Scientist" is a book you must read.

The Tell-Tale Brain: A Neuroscientist's Quest for What Makes Us Human by V. S. Ramachandran, New York: W.W. Norton, 2012.
Book review by Sahana G., a freshman student at The Early College at Guilford (Greensboro, NC).
Reading level: appropriate for high school students to adults.

The Tell Tale Brain by V.S. Ramachandran attempts to reveal the workings of the mind through an explanation of malfunctions of the brain. Throughout the book, readers are presented with intriguing cases of these strange malfunctions. Some examples include:

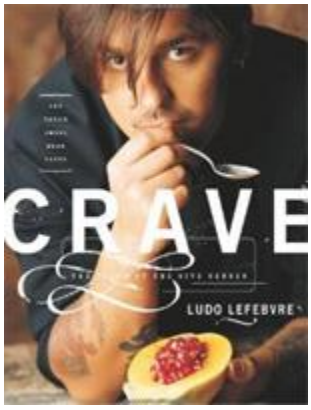
- Patients who believe that people who are close to them are actually imposters (Capgras syndrome)
- A woman who laughs when she should be yelling in pain
- A man who cannot recognize or respond to people when he sees them, but can chat happily with them on the phone

Ramachandran uses these anecdotes to draw a picture of the brain's neural networks and explain how different types of damage correspond to mental deficits. He proves a key point that many of these delusions result from neural signals gone haywire. For example, for many patients that recognize people close to them as imposters, Ramachandran believes that

there was damage to a neural route that takes visual information to the amygdala (a part of the brain involved with emotional significance). As a result, the sight of a loved one does not produce its regular response and the brain copes with this anomaly by imagining it as the presence of someone who looked like a loved one, but is not.
I was engaged with the book because it was filled with many visuals that helped to see Ramachandran's hypotheses about neural networks better. He strays off his main thesis when he discusses evolutionary explanations, and the book can be quite hard to follow during these intervals. Other than that, however, his inventiveness of new hypotheses are quite believable because they are substantiated with solid evidence. One example of this is Ramachandran's theory that mirror neurons, or networks of brain cells, played a uniquely important part in human evolution. These cells appear to become active when an organism not only performs certain actions, but sees those actions being performed. Ramachandran theorizes that these cells enable us to understand others, and learn by imitation and empathy.

I definitely recommend this book to high school students and up, as it is quite comprehensible and certainly enjoyable to anyone who does not have a background in neuroscience.

"Crave: The Feast of the 5ive Senses by Ludovic Lefebvre, New York: Regan Books, 2005, 252 pages, ISBN: 0060012854
Reading level: appropriate for high school students to adults.



The public library in my neighborhood sees a lot of me. I like to walk to the library on the weekends and browse the magazine and book shelves. Most of the times when I go to library I am not looking for anything in particular. Last month I found myself in the cookbook section of the library where one book, "Crave: The Feast of the 5ive Senses" by Ludovic Lefebvre, caught my eye. (Yes, he uses a "5" in the book title.) Author Lefebvre is a classically trained French chef. He started his career by doing simple tasks in the kitchens of various restaurants in France, ascended the ranks quickly to become one a premier chefs in the world, and then moved to the United States.

After a brief autobiography, Lefebvre writes in his book about food preparation and spicing, but most of the book is devoted to more than 100 recipes in chapters that fit each of the five senses: see, touch smell, hear, taste. It may be obvious how a cookbook would have recipes that appeal to the senses of taste and smell, but how would a dish appeal to the senses of sight, touch and hearing?

I must admit that the recipes are a bit fancy and many of the ingredients are difficult to find, but here are examples from each sense chapter:

SEE: Fillet of sole with sea urchin, toasted bread crumbs, and red onion compote
TOUCH: Ice-cold broth with shellfish and ginger
SMELL: Sauteed vegetables with curry
HEAR: Crispy soft-shell crabs with butter noisette and aged balsamic vinegar
TASTE: Cod crusted with ginger, almonds, and sesame seeds with baby tomatoes and candied ginger.

Crave is probably the only book I have reviewed for this newsletter that never uses the word "brain" anywhere in the text. But it is the book that makes me the hungriest.