

nervous system vocabulary words

nervous system vocabulary words are the building blocks for understanding one of the most complex and vital systems in the human body. From the intricate pathways of neurons to the chemical messengers that facilitate communication, grasping these terms is crucial for students, healthcare professionals, and anyone curious about biology. This comprehensive article delves into the essential nervous system vocabulary, breaking down complex concepts into understandable terms. We will explore the fundamental units of the nervous system, the different divisions, key structures, and the processes that enable thought, sensation, and movement. Prepare to build a robust vocabulary that unlocks the secrets of the nervous system.

Table of Contents

- Understanding the Basics: Neurons and Glia
- The Central Nervous System: Command and Control
- The Peripheral Nervous System: Connecting the Body
- Key Structures and Their Functions
- Processes of Neural Communication
- Sensory and Motor Pathways
- Disorders and Conditions

Understanding the Basics: Neurons and Glia

The nervous system's fundamental workhorses are the neurons, specialized cells designed for transmitting electrical and chemical signals. These remarkable cells are the basis of all nervous system function, enabling us to perceive the world, process information, and react to stimuli. Understanding the structure and roles of different neuron types is paramount to comprehending neural circuitry.

Neuron Structure

Each neuron possesses distinct components essential for its function. The cell body, or soma, houses the nucleus and other vital organelles. Dendrites are branching extensions that receive signals from other neurons. The axon is a long projection that transmits signals away from the cell body, often covered by a myelin sheath. Axon terminals, also known as synaptic boutons, are the points where neurons communicate with other cells.

Types of Neurons

Neurons can be categorized based on their function and structure. Sensory neurons, also called afferent neurons, transmit information from sensory receptors to the central nervous system. Motor neurons, or efferent neurons, carry signals from the CNS to muscles and glands. Interneurons, found within the CNS, connect neurons and are involved in processing and relaying information between sensory and motor pathways.

Glial Cells: The Support System

While neurons are the stars of the show, glial cells are their indispensable support network. These cells provide structural support, nourishment, and insulation to neurons. Astrocytes, a type of glial cell, regulate the chemical environment around neurons and contribute to the blood-brain barrier. Oligodendrocytes and Schwann cells produce myelin, a fatty substance that speeds up nerve impulse transmission. Microglia act as immune cells of the nervous system, defending against pathogens and clearing debris.

The Central Nervous System: Command and Control

The central nervous system (CNS) is the body's primary processing center, comprising the brain and the spinal cord. It's where sensory information is interpreted, thoughts are formed, and commands for action are generated. The intricate organization of the CNS allows for sophisticated cognitive functions and the coordination of bodily activities.

The Brain: The Master Controller

The brain is an incredibly complex organ responsible for a vast array of functions. The cerebrum, the largest part of the brain, is divided into two hemispheres and is responsible for higher-level functions like language, memory, and conscious thought. The cerebellum plays a crucial role in motor control, coordination, and balance. The brainstem connects the cerebrum and cerebellum to the spinal cord and controls essential life functions like breathing and heart rate.

The Spinal Cord: The Information Highway

The spinal cord is a long, cylindrical structure extending from the brainstem down the back. It serves as the primary pathway for transmitting signals between the brain and the rest of the body. The spinal cord also contains neural circuits that mediate reflexes, allowing for rapid responses to stimuli without direct brain involvement. Understanding spinal cord anatomy is key to comprehending the flow of nervous information.

The Peripheral Nervous System: Connecting the Body

The peripheral nervous system (PNS) encompasses all nervous tissue outside the CNS. Its primary role is to connect the CNS to the limbs and organs, relaying sensory information to the brain and carrying motor commands back to the body. The PNS is further divided into somatic and autonomic nervous systems, each with distinct functions.

The Somatic Nervous System: Voluntary Control

The somatic nervous system controls voluntary movements and transmits sensory information from the skin, muscles, and joints to the CNS. This system allows us to consciously move our limbs, feel pain, and perceive touch. Nerves originating from the spinal cord and brainstem form the somatic pathways.

The Autonomic Nervous System: Involuntary Regulation

The autonomic nervous system regulates involuntary bodily functions, such as heart rate, digestion, respiration, and pupil dilation. It operates largely unconsciously, maintaining homeostasis. The autonomic nervous system is divided into two branches: the sympathetic and parasympathetic nervous systems, which often have opposing effects.

The Sympathetic Nervous System: Fight or Flight

The sympathetic nervous system prepares the body for action in response to stress or perceived danger. It triggers the "fight or flight" response, increasing heart rate, blood pressure, and glucose levels, while diverting blood flow away from non-essential functions.

The Parasympathetic Nervous System: Rest and Digest

The parasympathetic nervous system promotes relaxation and energy conservation. It counteracts the effects of the sympathetic nervous system, slowing heart rate, stimulating digestion, and promoting rest. This division is crucial for recovery and maintaining bodily functions during periods of calm.

Key Structures and Their Functions

Beyond the major divisions, numerous specific structures within the nervous system perform specialized roles. Understanding these anatomical landmarks is essential for a comprehensive grasp of nervous system vocabulary.

Cerebral Cortex

The cerebral cortex is the outermost layer of the cerebrum, responsible for complex cognitive processes. It's divided into four lobes: the frontal lobe (executive functions, planning), the parietal lobe (sensory processing, spatial awareness), the temporal lobe (auditory processing, memory), and the occipital lobe (visual processing).

Hippocampus

Located within the temporal lobe, the hippocampus is critical for forming new memories and spatial navigation. Damage to the hippocampus can severely impair the ability to learn and recall information.

Amygdala

Also situated in the temporal lobe, the amygdala plays a central role in processing emotions, particularly fear and anxiety. It's involved in the formation of emotional memories.

Thalamus

The thalamus acts as a relay station for sensory information, processing and transmitting signals to the cerebral cortex. It also plays a role in consciousness, sleep, and alertness.

Hypothalamus

Located below the thalamus, the hypothalamus regulates essential bodily functions such as body temperature, hunger, thirst, sleep-wake cycles, and hormone release. It connects the nervous system to the endocrine system.

Processes of Neural Communication

The ability of the nervous system to function relies on its capacity for rapid and precise communication between neurons. This communication occurs through electrochemical signals transmitted across synapses.

Action Potential

An action potential is a brief, all-or-none electrical impulse that travels along the axon of a neuron. It's generated by the rapid influx and efflux of ions across the neuronal membrane. This electrical signal is the fundamental unit of neural information transmission.

Synapse

A synapse is the junction between two neurons, or between a neuron and an effector cell (like a muscle or gland). It's where information is transmitted from one neuron to another. Synapses can be electrical or chemical.

Neurotransmitters

Neurotransmitters are chemical messengers released from the axon terminal of one neuron into the synaptic cleft. They bind to receptors on the postsynaptic neuron, either exciting or inhibiting its activity. Examples include dopamine, serotonin, acetylcholine, and glutamate. Understanding neurotransmitter function is key to comprehending neural plasticity and behavior.

Synaptic Transmission

Synaptic transmission is the process by which a neuron communicates with another cell across a synapse. It involves the release of neurotransmitters, their binding to receptors, and the subsequent effect on the postsynaptic cell. This intricate process allows for complex information processing and modulation within neural circuits.

Sensory and Motor Pathways

The nervous system facilitates interaction with the environment through dedicated sensory and motor pathways. These pathways are complex networks that ensure efficient and accurate transmission of information.

Ascending Tracts

Ascending tracts are pathways within the spinal cord and brainstem that carry sensory information from the body upwards to the brain. These tracts are responsible for conveying sensations like touch, pain, temperature, and proprioception.

Descending Tracts

Descending tracts carry motor commands from the brain downwards to the spinal cord and then to muscles and glands. These pathways are responsible for initiating and controlling voluntary and involuntary movements.

Reflex Arc

A reflex arc is a neural pathway that mediates a reflex action. It typically involves a sensory receptor, an afferent neuron, an interneuron (in some cases), an efferent neuron, and an effector. Reflexes are rapid, involuntary responses that protect the body from harm and maintain posture.

Disorders and Conditions

Understanding nervous system vocabulary is also crucial for discussing and comprehending neurological disorders and conditions. These terms help describe the underlying mechanisms and clinical manifestations.

Neuropathy

Neuropathy refers to damage or dysfunction of one or more peripheral nerves, leading to pain, numbness, weakness, or tingling in the affected area.

Stroke

A stroke occurs when blood supply to a part of the brain is interrupted or reduced, depriving brain tissue of oxygen and nutrients. This can lead to brain cell death and a loss of function.

Epilepsy

Epilepsy is a neurological disorder characterized by recurrent seizures, which are caused by abnormal

electrical activity in the brain.

Alzheimer's Disease

Alzheimer's disease is a progressive neurodegenerative disorder that affects memory, thinking, and behavior. It is characterized by the buildup of abnormal protein plaques and tangles in the brain.

This exploration of nervous system vocabulary words provides a foundational understanding of this intricate biological system. From the basic cellular components to the complex pathways and disorders, each term contributes to a clearer picture of how our nervous system operates. Continuous learning and engagement with these terms will deepen comprehension and appreciation for the marvels of neuroscience.

Frequently Asked Questions

What is the primary role of a neuron in the nervous system, and what are its main components?

A neuron, or nerve cell, is the fundamental functional unit of the nervous system. Its primary role is to transmit electrical and chemical signals. The main components of a neuron include the cell body (soma), dendrites (which receive signals), and an axon (which transmits signals).

Explain the difference between the central nervous system (CNS) and the peripheral nervous system (PNS).

The Central Nervous System (CNS) consists of the brain and spinal cord, responsible for processing and coordinating information. The Peripheral Nervous System (PNS) comprises all the nerves outside the CNS, acting as a communication network between the CNS and the rest of the body.

What is a synapse, and why is it crucial for neural communication?

A synapse is the junction between two neurons (or a neuron and an effector cell) where information is transmitted from one neuron to another. It's crucial because it allows for the controlled and directed transfer of signals, often involving neurotransmitters, enabling complex neural circuits and functions.

Define neurotransmitter and provide an example of a common one and its

function.

A neurotransmitter is a chemical messenger released at the synapse that transmits signals from one neuron to another. An example is acetylcholine, which plays a vital role in muscle contraction, memory, and learning. Other examples include dopamine and serotonin.

What is myelin, and what is its significance in nerve impulse transmission?

Myelin is a fatty substance that forms an insulating sheath around the axons of many neurons. Its significance lies in its ability to greatly increase the speed of nerve impulse (action potential) transmission through a process called saltatory conduction, allowing for rapid communication throughout the nervous system.

Differentiate between afferent and efferent neurons and give an example of a reflex arc where both are involved.

Afferent neurons (sensory neurons) transmit signals from sensory receptors towards the CNS. Efferent neurons (motor neurons) transmit signals from the CNS to effectors (muscles or glands). In a reflex arc, like the knee-jerk reflex, an afferent neuron carries the sensory information from a tap on the knee to the spinal cord, and an efferent neuron carries the motor command back to the thigh muscles, causing them to contract.

Additional Resources

Here are 9 book titles related to nervous system vocabulary, with short descriptions:

1. Synapse Symphony

This novel explores the intricate communication network within the brain, akin to a conductor orchestrating a symphony. Follow a neuroscientist as they decipher the silent dialogues between neurons, revealing how fleeting connections form memories and emotions. The story delves into the delicate balance of neurotransmitters and the profound impact of their release. It's a journey into the unseen orchestra of our minds.

2. Axon's Journey

Immerse yourself in the electrifying path of an electrical impulse as it races through a single axon. This fictionalized account personifies a vital nerve fiber, illustrating its crucial role in transmitting signals from the brain to the body. Witness the myelinated sheath's protective insulation and the nodes of Ranvier's regenerative powers. The narrative highlights the sheer speed and precision required for every thought and movement.

3. *The Dendrite's Embrace*

Discover the world from the perspective of a dendrite, the branching receivers of neural information. This collection of interconnected short stories portrays the constant influx of signals, each one a potential catalyst for new understanding or action. It emphasizes how dendrites learn and adapt, forming the intricate web of neural pathways. The book celebrates the expansive and receptive nature of these crucial cellular extensions.

4. *Myelin's Shield*

Uncover the protective and insulating marvel that is myelin. This story follows the development and maintenance of this fatty substance around nerve fibers, explaining its vital role in efficient signal transmission. Witness the consequences when this vital shield is compromised, leading to disruptions in communication. It's a narrative that underscores the importance of insulation for healthy neurological function.

5. *Neuron's Chronicle*

Step into the life of a single neuron, charting its existence from birth to its role in a complex neural network. This biographical account details the neuron's structure, its responsibility to fire, and its interaction with countless other cells. Explore the concept of neural plasticity as the neuron adapts and rewires throughout its lifespan. The book offers a microscopic yet profound view of the building blocks of consciousness.

6. *Cerebellum's Dance*

Experience the world through the intricate coordination of the cerebellum. This adventurous tale follows characters whose every movement, from a delicate gesture to a complex athletic feat, relies on this brain region. The story highlights how the cerebellum refines motor skills and maintains balance, making the seemingly effortless possible. It's a celebration of the quiet director behind our physical grace.

7. *Neurotransmitter's Echo*

Explore the fascinating chemical messengers that bridge the gap between neurons. This collection of interwoven narratives follows various neurotransmitters – dopamine, serotonin, acetylcholine – and their profound impact on mood, motivation, and learning. Witness the delicate chemical balance and the ripple effects of imbalances. The book offers insight into the fundamental nature of our emotional and cognitive experiences.

8. *Ganglion's Heartbeat*

Delve into the concentrated clusters of nerve cell bodies known as ganglia. This collection of interwoven tales focuses on the critical roles these "mini-brains" play in regulating vital bodily functions. From the rhythmic beat of the heart to the unconscious rhythm of digestion, the story illustrates their essential control. The book emphasizes the decentralized intelligence that keeps our bodies running smoothly.

9. *The Glial Guardian*

Discover the often-overlooked but indispensable support cells of the nervous system: glia. This ensemble cast of glial cells – astrocytes, oligodendrocytes, and microglia – work tirelessly behind the scenes to

maintain neuronal health and function. The narrative showcases their roles in providing nutrients, clearing debris, and defending against threats. It's a testament to the unsung heroes that enable our nervous system to thrive.

Nervous System Vocabulary Words

Nervous System Vocabulary Words: A Comprehensive Guide

Ebook Title: Mastering the Nervous System: A Vocabulary and Concepts Guide

Outline:

Introduction: The Importance of Neurological Terminology

Chapter 1: Basic Neuroanatomy Vocabulary

Cells of the Nervous System (neurons, glial cells)

Brain Regions (cerebrum, cerebellum, brainstem, etc.)

Spinal Cord Anatomy

Chapter 2: Functional Neurological Vocabulary

Sensory and Motor Pathways

Neurotransmitters and Receptors

Neural Signaling (action potentials, synapses)

Chapter 3: Clinical Neurological Vocabulary

Neurological Disorders (Alzheimer's, Parkinson's, Epilepsy, etc.)

Diagnostic Tests and Procedures (EEG, MRI, CT scan)

Treatment Modalities (pharmaceuticals, therapy)

Chapter 4: Advanced Neurological Vocabulary (Optional - for a more in-depth ebook)

Neurophysiology concepts

Neuroplasticity

Neurodevelopmental disorders

Conclusion: Applying Neurological Terminology in Real-World Scenarios

Nervous System Vocabulary Words: A Comprehensive Guide

Understanding the nervous system requires mastering its specialized vocabulary. This guide provides a comprehensive overview of key terms, crucial for students, healthcare professionals, and anyone interested in the complexities of the human brain and body. From basic neuroanatomy to clinical applications, this resource will equip you with the language necessary to navigate the fascinating world of neurology.

Chapter 1: Basic Neuroanatomy Vocabulary

The nervous system's intricate structure forms the foundation of its function. Understanding its basic components is paramount.

Cells of the Nervous System:

Neurons: The fundamental units of the nervous system, responsible for transmitting information through electrical and chemical signals. Different types of neurons exist, including sensory neurons (transmitting information from the body to the central nervous system), motor neurons (transmitting information from the central nervous system to the body), and interneurons (connecting sensory and motor neurons within the central nervous system). Understanding the structure of a neuron – including the dendrites, soma (cell body), axon, and axon terminals – is crucial.

Glial Cells: Often overlooked, glial cells are equally important support cells. They provide structural support, insulation (myelin sheath), and nourishment to neurons. Different types of glial cells exist, including astrocytes, oligodendrocytes, and microglia, each with specific functions. Learning the roles of these cells helps to understand the overall health and function of the nervous system.

Brain Regions:

Cerebrum: The largest part of the brain, responsible for higher-level cognitive functions like thinking, learning, memory, and language. It's divided into two hemispheres (left and right) and four lobes (frontal, parietal, temporal, and occipital), each with specialized functions.

Cerebellum: Located at the back of the brain, the cerebellum plays a vital role in coordinating movement, balance, and posture. Damage to this area can result in ataxia (loss of coordination).

Brainstem: Connecting the cerebrum and cerebellum to the spinal cord, the brainstem controls essential life functions such as breathing, heart rate, and blood pressure. It consists of the midbrain, pons, and medulla oblongata.

Diencephalon: This region sits above the brainstem and includes the thalamus (relay station for sensory information) and hypothalamus (regulates body temperature, hunger, thirst, and sleep).

Spinal Cord Anatomy:

The spinal cord, a long, cylindrical structure, relays information between the brain and the rest of the body. Understanding its structure, including grey matter (containing neuron cell bodies) and white matter (containing myelinated axons), as well as dorsal and ventral roots (carrying sensory and motor information respectively), is essential for comprehending how signals are transmitted throughout the body.

Chapter 2: Functional Neurological Vocabulary

This chapter delves into the processes and mechanisms that enable the nervous system to function.

Sensory and Motor Pathways:

Sensory pathways transmit information from sensory receptors (e.g., in the skin, eyes, ears) to the central nervous system. Motor pathways transmit commands from the central nervous system to muscles and glands. Understanding the different types of sensory receptors (mechanoreceptors, thermoreceptors, nociceptors) and the pathways involved in processing different sensory modalities is crucial.

Neurotransmitters and Receptors:

Neurotransmitters are chemical messengers that transmit signals across synapses (the junctions between neurons). Key neurotransmitters include acetylcholine, dopamine, serotonin, GABA, and glutamate. Each neurotransmitter has specific receptors, proteins located on the postsynaptic neuron that bind to the neurotransmitter, triggering a response. Understanding the roles of these neurotransmitters in various neurological processes is essential.

Neural Signaling:

Action Potentials: The rapid electrical signals that travel down the axon of a neuron, transmitting information. Understanding the mechanisms of action potential generation and propagation is crucial for understanding how information is transmitted.

Synapses: The junctions between neurons where neurotransmitters are released and received. Understanding the processes of synaptic transmission, including neurotransmitter release, receptor binding, and postsynaptic potentials, is crucial.

Chapter 3: Clinical Neurological Vocabulary

This section focuses on the terminology used in the diagnosis and treatment of neurological disorders.

Neurological Disorders:

Alzheimer's Disease: A progressive neurodegenerative disease characterized by memory loss, cognitive decline, and behavioral changes.

Parkinson's Disease: A neurodegenerative disorder affecting movement, characterized by tremor, rigidity, bradykinesia (slow movement), and postural instability.

Epilepsy: A neurological disorder characterized by recurrent seizures, caused by abnormal electrical activity in the brain.

Multiple Sclerosis (MS): An autoimmune disease affecting the central nervous system, leading to demyelination and neurological dysfunction.

Stroke: Caused by interrupted blood flow to the brain, leading to neuronal damage and neurological deficits. Understanding ischemic (blood clot) and hemorrhagic (bleeding) strokes is crucial.

Diagnostic Tests and Procedures:

Electroencephalography (EEG): Measures electrical activity in the brain using electrodes placed on the scalp.

Magnetic Resonance Imaging (MRI): Uses magnetic fields and radio waves to create detailed images of the brain and spinal cord.

Computed Tomography (CT) scan: Uses X-rays to create cross-sectional images of the brain.

Lumbar Puncture: Involves removing cerebrospinal fluid (CSF) for analysis.

Treatment Modalities:

Treatment varies depending on the specific neurological disorder, but can include pharmaceuticals (e.g., anticonvulsants for epilepsy, dopamine agonists for Parkinson's disease), physical therapy, occupational therapy, and speech therapy.

Chapter 4: Advanced Neurological Vocabulary (Optional)

This section covers more complex concepts for a more in-depth understanding. (This section would be expanded upon in a longer ebook).

Neurophysiology: The study of the functional properties of the nervous system at different levels, from individual ion channels to complex neural circuits. Topics include membrane potentials, synaptic plasticity, and neural coding.

Neuroplasticity: The brain's ability to reorganize itself by forming new neural connections throughout life. Understanding this process is crucial for rehabilitation after brain injury.

Neurodevelopmental Disorders: Conditions that affect the development of the nervous system, including autism spectrum disorder, attention-deficit/hyperactivity disorder (ADHD), and cerebral palsy.

Conclusion

Mastering the vocabulary of the nervous system is a continuous process. This guide provides a foundation for further exploration and understanding. By applying this knowledge, individuals can better appreciate the complexity and wonder of the human brain and its crucial role in our lives.

FAQs:

1. What is the difference between a neuron and a glial cell?
2. What are the four lobes of the cerebrum and their primary functions?
3. Explain the difference between sensory and motor neurons.
4. Name three common neurotransmitters and their roles.
5. What are the main types of diagnostic tests used to assess the nervous system?
6. What is the difference between an ischemic and a hemorrhagic stroke?
7. What is neuroplasticity, and why is it important?
8. Name three common neurodevelopmental disorders.

9. How can understanding neurological vocabulary improve healthcare?

Related Articles:

1. Neuroanatomy for Beginners: A simplified introduction to the structures of the nervous system.
2. Understanding Neurotransmitters: A detailed explanation of different neurotransmitters and their functions.
3. Common Neurological Disorders Explained: A guide to understanding various neurological conditions.
4. Diagnostic Techniques in Neurology: An overview of common diagnostic procedures.
5. Neurological Rehabilitation Strategies: Exploring different therapies for neurological recovery.
6. The Science of Neuroplasticity: A deep dive into the brain's ability to change.
7. Neurodevelopmental Disorders in Children: Understanding the signs and symptoms.
8. The Role of Glial Cells in Brain Health: A focus on the supporting cells of the nervous system.
9. The Future of Neurological Research: Exploring emerging advancements in neuroscience.

nervous system vocabulary words: *Anatomy and Physiology* J. Gordon Betts, Peter DeSaix, Jody E. Johnson, Oksana Korol, Dean H. Kruse, Brandon Poe, James A. Wise, Mark Womble, Kelly A. Young, 2013-04-25

nervous system vocabulary words: *The Road* Cormac McCarthy, 2007 In a novel set in an indefinite, futuristic, post-apocalyptic world, a father and his young son make their way through the ruins of a devastated American landscape, struggling to survive and preserve the last remnants of their own humanity

nervous system vocabulary words: *The Nervous System* Joelle Riley, 2005-01-01 Introduces the nervous system, explores its parts, and explains how the parts work together.

nervous system vocabulary words: *Brain Architecture : Understanding the Basic Plan* and Director NIBS Neuroscience Program University of Southern California Larry W. Swanson Milo Don and Lucille Appleman Professor of Biological Sciences, 2002-10-23 Depending on your point of view the brain is an organ, a machine, a biological computer, or simply the most important component of the nervous system. How does it work as a whole? What are its major parts and how are they interconnected to generate thinking, feelings, and behavior? This book surveys 2,500 years of scientific thinking about these profoundly important questions from the perspective of fundamental architectural principles, and then proposes a new model for the basic plan of neural systems organization based on an explosion of structural data emerging from the neuroanatomy revolution of the 1970's. The importance of a balance between theoretical and experimental morphology is stressed throughout the book. Great advances in understanding the brain's basic plan have come especially from two traditional lines of biological thought-- evolution and embryology, because each begins with the simple and progresses to the more complex. Understanding the organization of brain circuits, which contain thousands of links or pathways, is much more difficult. It is argued here that a four-system network model can explain the structure-function organization of the brain. Possible relationships between neural networks and gene networks revealed by the human genome project are explored in the final chapter. The book is written in clear and sparkling prose, and it is profusely illustrated. It is designed to be read by anyone with an interest in the basic organization of the brain, from neuroscience to philosophy to computer science to molecular biology. It is suitable for use in neuroscience core courses because it presents basic principles of the structure of the nervous system in a systematic way.

nervous system vocabulary words: *Discovering the Brain* National Academy of Sciences, Institute of Medicine, Sandra Ackerman, 1992-01-01 The brain ... There is no other part of the human anatomy that is so intriguing. How does it develop and function and why does it sometimes,

tragically, degenerate? The answers are complex. In *Discovering the Brain*, science writer Sandra Ackerman cuts through the complexity to bring this vital topic to the public. The 1990s were declared the Decade of the Brain by former President Bush, and the neuroscience community responded with a host of new investigations and conferences. *Discovering the Brain* is based on the Institute of Medicine conference, Decade of the Brain: Frontiers in Neuroscience and Brain Research. *Discovering the Brain* is a field guide to the brain—an easy-to-read discussion of the brain's physical structure and where functions such as language and music appreciation lie. Ackerman examines: How electrical and chemical signals are conveyed in the brain. The mechanisms by which we see, hear, think, and pay attention—and how a gut feeling actually originates in the brain. Learning and memory retention, including parallels to computer memory and what they might tell us about our own mental capacity. Development of the brain throughout the life span, with a look at the aging brain. Ackerman provides an enlightening chapter on the connection between the brain's physical condition and various mental disorders and notes what progress can realistically be made toward the prevention and treatment of stroke and other ailments. Finally, she explores the potential for major advances during the Decade of the Brain, with a look at medical imaging techniques—what various technologies can and cannot tell us—and how the public and private sectors can contribute to continued advances in neuroscience. This highly readable volume will provide the public and policymakers—and many scientists as well—with a helpful guide to understanding the many discoveries that are sure to be announced throughout the Decade of the Brain.

nervous system vocabulary words: The Red Umbrella Christina Diaz Gonzalez, 2011-12-13
The Red Umbrella is a moving tale of a 14-year-old girl's journey from Cuba to America as part of Operation Pedro Pan—an organized exodus of more than 14,000 unaccompanied children, whose parents sent them away to escape Fidel Castro's revolution. In 1961, two years after the Communist revolution, Lucía Álvarez still leads a carefree life, dreaming of parties and her first crush. But when the soldiers come to her sleepy Cuban town, everything begins to change. Freedoms are stripped away. Neighbors disappear. And soon, Lucía's parents make the heart-wrenching decision to send her and her little brother to the United States—on their own. Suddenly plunked down in Nebraska with well-meaning strangers, Lucía struggles to adapt to a new country, a new language, a new way of life. But what of her old life? Will she ever see her home or her parents again? And if she does, will she still be the same girl? The Red Umbrella is a touching story of country, culture, family, and the true meaning of home. “Captures the fervor, uncertainty and fear of the times. . . . Compelling.” –The Washington Post “Gonzalez deals effectively with separation, culture shock, homesickness, uncertainty and identity as she captures what is also a grand adventure.” –San Francisco Chronicle

nervous system vocabulary words: The Core Six Harvey F. Silver, R. Thomas Dewing, Matthew J. Perini, 2012 Drawing on their extensive research and practice in schools across the United States, the authors of this indispensable guide offer six research-based, classroom-proven strategies that every K-12 teacher needs to respond to the Common Core State Standards. This practical book includes sample lesson plans and checklists to ensure effective implementation of each strategy in the classroom.

nervous system vocabulary words: Tuesdays with Morrie Mitch Albom, 2007-06-29 #1 NEW YORK TIMES BESTSELLER • A special 25th anniversary edition of the beloved book that has changed millions of lives with the story of an unforgettable friendship, the timeless wisdom of older generations, and healing lessons on loss and grief—featuring a new afterword by the author “A wonderful book, a story of the heart told by a writer with soul.”—Los Angeles Times “The most important thing in life is to learn how to give out love, and to let it come in.” Maybe it was a grandparent, or a teacher, or a colleague. Someone older, patient and wise, who understood you when you were young and searching, helped you see the world as a more profound place, gave you sound advice to help you make your way through it. For Mitch Albom, that person was his college professor Morrie Schwartz. Maybe, like Mitch, you lost track of this mentor as you made your way, and the insights faded, and the world seemed colder. Wouldn't you like to see that person again, ask

the bigger questions that still haunt you, receive wisdom for your busy life today the way you once did when you were younger? Mitch Albom had that second chance. He rediscovered Morrie in the last months of the older man's life. Knowing he was dying, Morrie visited with Mitch in his study every Tuesday, just as they used to back in college. Their rekindled relationship turned into one final "class": lessons in how to live. "The truth is, Mitch," he said, "once you learn how to die, you learn how to live." Tuesdays with Morrie is a magical chronicle of their time together, through which Mitch shares Morrie's lasting gift with the world.

nervous system vocabulary words: *From Neurons to Neighborhoods* National Research Council, Institute of Medicine, Board on Children, Youth, and Families, Committee on Integrating the Science of Early Childhood Development, 2000-11-13 How we raise young children is one of today's most highly personalized and sharply politicized issues, in part because each of us can claim some level of expertise. The debate has intensified as discoveries about our development-in the womb and in the first months and years-have reached the popular media. How can we use our burgeoning knowledge to assure the well-being of all young children, for their own sake as well as for the sake of our nation? Drawing from new findings, this book presents important conclusions about nature-versus-nurture, the impact of being born into a working family, the effect of politics on programs for children, the costs and benefits of intervention, and other issues. The committee issues a series of challenges to decision makers regarding the quality of child care, issues of racial and ethnic diversity, the integration of children's cognitive and emotional development, and more. Authoritative yet accessible, *From Neurons to Neighborhoods* presents the evidence about brain wiring and how kids learn to speak, think, and regulate their behavior. It examines the effect of the climate-family, child care, community-within which the child grows.

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