neurons that transmit messages from sensory receptors to the spinal cord and brain. Also called **sensory neurons**

Chapter 2

neurons that transmit messages from the brain or spinal cord to muscles and glands. Also called **motor neurons**

Chapter 2

the electrochemical discharge of a nerve cell, or neuron

Chapter 2

to ready a neuron for firing by creating an internal negative charge in relation to the body fluid outside the cell membrane

Chapter 2

the electrical potential across the neural membrane when it is not responding to other neurons

Chapter 2

cells that nourish and insulate neurons, direct their growth, and remove waste products from the nervous system

Chapter 2

rootlike structures, attached to the cell body of a neuron, that receive impulses from other neurons

Chapter 2

a long, thin part of a neuron that transmits impulses to other neurons from branching structures called **terminal buttons**

Chapter 2

a fatty substance that encases and insulates axons, facilitating transmission of neural impulses

Chapter 2
chemical substances involved in the transmission of neural impulses from one neuron to another

to reduce the resting potential of a cell membrane from about 70 millivolts toward zero

Chapter 2

a location on a dendrite of a receiving neuron tailored to receive a neurotransmitter

the electrical impulse that provides the basis for the conduction of a neural impulse along an axon of a neuron

Chapter 2

a neurotransmitter that controls muscle contractions

the fact that a neuron fires an impulse of the same strength whenever its action potential is triggered

Chapter 2

a part of the limbic system of the brain that is involved in memory formation

a phase following firing during which a neuron is less sensitive to messages from other neurons and will not fire

Chapter 2

a neurotransmitter that is involved in Parkinson’s disease and that appears to play a role in schizophrenia

a junction between the axon terminals of one neuron and the dendrites or cell body of another neuron

Chapter 2

Chapter 2
norepinephrine  

central nervous system

serotonin  

peripheral nervous system

gamma-aminobutyric acid (GABA)  

somatic nervous system

endorphins  

autonomic nervous system (ANS)

nerve  

sympathetic
the brain and spinal cord

the part of the nervous system consisting of the somatic nervous system and the autonomic nervous system

the division of the peripheral nervous system that connects the central nervous system with sensory receptors, skeletal muscles, and the surface of the body

the division of the peripheral nervous system that regulates glands and activities such as heartbeat, respiration, digestion, and dilation of the pupils

the branch of the ANS that is most active during emotional responses, such as fear and anxiety, that spend the body’s reserves of energy

a neurotransmitter whose action is similar to that of the hormone epinephrine and that may play a role in depression

a neurotransmitter, deficiencies of which have been linked to affective disorders, anxiety, and insomnia

an inhibitory neurotransmitter that apparently helps calm anxiety

neurotransmitters that are composed of amino acids and that are functionally similar to morphine

a bundle of axons from many neurons
parasympathetic

spinal cord

spinal reflex

gray matter

white matter

electroencephalograph (EEG)

computerized axial tomography (CAT scan)

positron emission tomography (PET scan)

magnetic resonance imaging (MRI)

functional MRI (fMRI)
a method of detecting brain waves by means of measuring the current between electrodes placed on the scalp

the branch of the ANS that is most active during processes (such as digestion) that restore the body's reserves of energy

a method of brain imaging that passes a narrow X-ray beam through the head and measures structures that reflect the rays from various angles, enabling a computer to generate a three-dimensional image

a column of nerves within the spine that transmits messages from sensory receptors to the brain and from the brain to muscles and glands throughout the body

a method of brain imaging that injects a radioactive tracer into the bloodstream and assesses activity of parts of the brain according to the amount of glucose they metabolize

a simple, unlearned response to a stimulus that may involve only two neurons

a method of brain imaging that places a person in a magnetic field and uses radio waves to cause the brain to emit signals that reveal shifts in the flow of blood which, in turn, indicate brain activity

in the spinal cord, the grayish neurons and neural segments that are involved in spinal reflexes

a form of MRI that enables researchers to observe the brain “while it works” by taking repeated scans

in the spinal cord, axon bundles that carry messages from and to the brain
a bundle of nuclei below the thalamus involved in body temperature, motivation, and emotion

a group of structures involved in memory, motivation, and emotion that forms a fringe along the inner edge of the cerebrum

a part of the limbic system that apparently facilitates stereotypical aggressive responses

the large mass of the forebrain, which consists of two hemispheres

the wrinkled surface area (gray matter) of the cerebrum

a oblong area of the hindbrain involved in regulation of heartbeat and respiration

a structure of the hindbrain involved in respiration, attention, and sleep and dreaming

a part of the hindbrain involved in muscle coordination and balance

a part of the brain involved in attention, sleep, and arousal

an area near the center of the brain involved in the relay of sensory information to the cortex and in the functions of sleep and attention
a language disorder characterized by slow, laborious speech

temporary disturbances of brain functions that involve sudden neural discharges

an organ that secretes one or more chemical substances such as hormones, saliva, or milk

the body’s system of ductless glands that secrete hormones and release them directly into the bloodstream

a substance secreted by an endocrine gland that regulates various body functions

a thick fiber bundle that connects the hemispheres of the cortex

the section of cortex in which sensory stimulation is projected. It lies just behind the central fissure in the parietal lobe

the section of cortex that lies in the frontal lobe, just across the central fissure from the sensory cortex. Neural impulses in the motor cortex are linked to muscular responses throughout the body

a disruption in the ability to understand or produce language

a language disorder characterized by difficulty comprehending the meaning of spoken language
<table>
<thead>
<tr>
<th>Definition</th>
<th>Chapter 2</th>
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<tr>
<td>a stereotyped pattern of behavior that is triggered by a particular stimulus and nearly identical among members of a species, even when they are reared in isolation</td>
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<tr>
<td>the transmission of traits from parent to offspring by means of genes</td>
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<tr>
<td>the area of biology that focuses on heredity</td>
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<td>a basic unit of heredity, which is found at a specific point on a chromosome</td>
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<td>a microscopic rod-shaped body in the cell nucleus carrying genes that transmit hereditary traits from generation to generation. Humans normally have 46 chromosomes</td>
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<td>the gland that secretes growth hormone, prolactin, antidiuretic hormone, and other hormones</td>
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<td>a core concept of the theory of evolution that holds that adaptive genetic variations among members of a species enable individuals with those variations to survive and reproduce</td>
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<td>a sudden variation in an inheritable characteristic, as distinguished from a variation that results from generations of gradual selection</td>
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<td>the branch of psychology that studies the ways in which adaptation and natural selection are connected with mental processes and behavior</td>
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<tr>
<td>a category of biological classification consisting of related organisms who are capable of interbreeding. Homo sapiens—humans—make up one species</td>
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Chapter 2

DNA

polygenic

phenotype

nature

nurture

sex chromosomes

dizygotic (DZ) twins

monozygotic (MZ) twins

Down syndrome
the 23rd pair of chromosomes, whose genetic material determines the sex of the individual.

A condition caused by an extra chromosome on the 21st pair and characterized by mental deficiency, a broad face, and slanting eyes.

Twins that develop from a single fertilized ovum that divides in two early in prenatal development. MZ twins thus share the same genetic code. Also called identical twins.

Twins that develop from two fertilized ova and who are thus as closely related as brothers and sisters in general. Also called fraternal twins.

The acronym for deoxyribonucleic acid, the substance that forms the basic material of chromosomes. It takes the form of a double helix and contains the genetic code.

Referring to traits that are influenced by combinations of genes. Genotype one’s genetic makeup, based on the sequencing of the nucleotides we term A, C, G, and T.

One’s actual development and appearance, as based on one’s genotype and environmental influences.

The inborn, innate character of an organism.

The sum total of the environmental factors that affect an organism from conception onward.

Chapter 2