

ORGANIZATION

CN: Use very light colors for A and C. The numbers in parentheses following the titles under Spinal Nerves refer to the number of nerves in each of the regions listed. (1) In the central illustration, the spinal cord has been brought out of the vertebral column to show its regions in relation to the vertebrae. Spinal nerves, depicting regional limits, are shown with arrowheads pointing to the same spinal nerves emerging from the vertebral column. Avoid coloring the filum terminale—it is not a spinal nerve. (2) At upper right, color the cranial nerves. (3) At lower right, color over the lines representing the spinal nerves and their branches on the left side of the figure. Color the autonomic ganglia on the right side of the spinal cord.

CENTRAL NERVOUS SYSTEM (CNS):

BRAIN

CEREBRUM _A

BRAINSTEM _B

CEREBELLUM _C

SPINAL CORD

REGIONS _{D-}

CERV _{Dc} THOR _{Dh} LUM _{Di} SAC _{Dj} CO _{Dk}

The nervous system consists of neurons arranged into a highly integrated central part (central nervous system, or CNS) and bundles of neuronal processes (nerves) and islands of neurons (ganglia) largely outside the CNS making up the peripheral part (peripheral nervous system, or PNS). These neurons are supported by neuroglial cells and a rich blood supply. Neurons of the CNS are interconnected to form centers (nuclei; gray matter) and axon bundles (tracts; white matter). The brain is the center of sensory awareness and movement, emotions, rational thought and behavior, foresight and planning, memory, speech, and language and interpretation of language.

The spinal cord, an extension of the brain and part of the CNS, begins at the foramen magnum of the skull, traffics in ascending/descending impulses, and is a center for spinal reflexes, source of motor commands for muscles below the head, and receiver of sensory input below the head.

PERIPHERAL NERVOUS SYSTEM (PNS):

CRANIAL NERVES (12 PAIR) _E

SPINAL NERVES & BRANCHES _F

CERVICAL (8) _{Gc}

THORACIC (12) _{H'}

LUMBAR (5) _{I'}

SACRAL (5) _{J'}

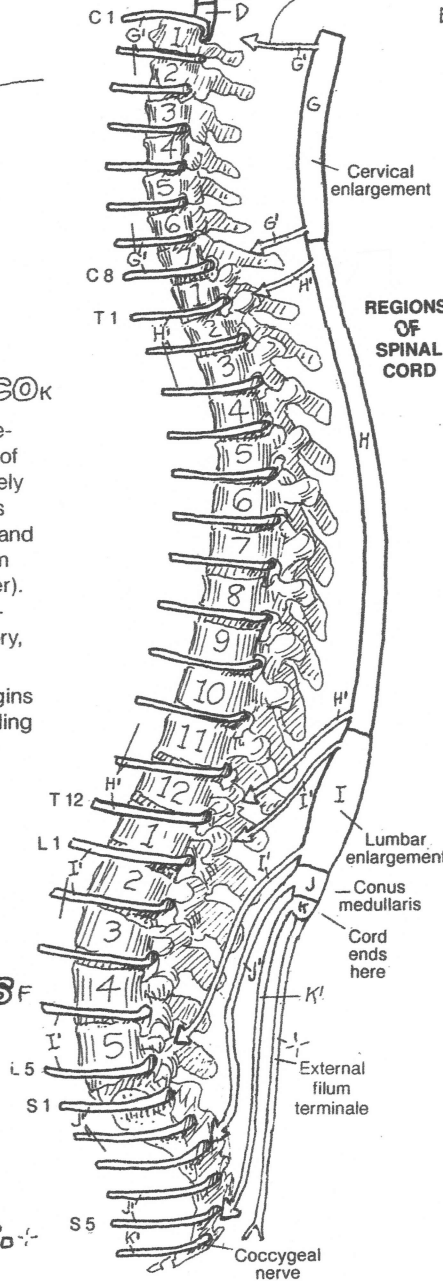
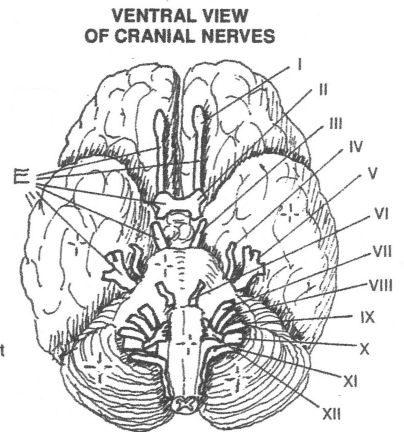
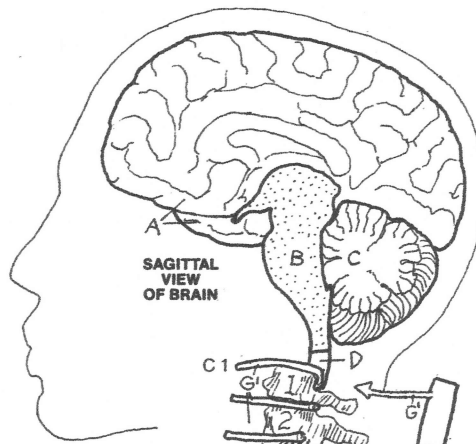
COCCYGEAL (1) _{K'}

AUTONOMIC NERVOUS SYS.:

SYMPATHETIC DIV. _L

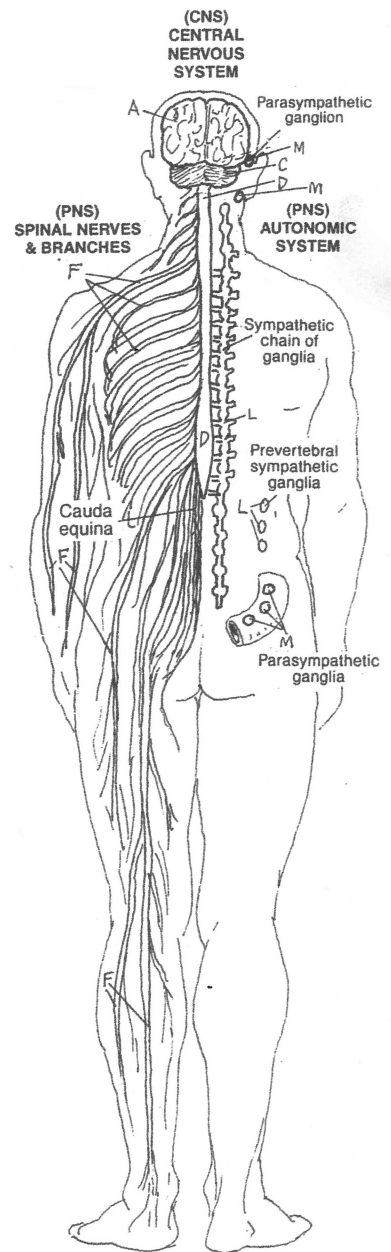
PARASYMPATHETIC DIV. _M

The PNS consists largely of bundles of sensory and motor axons (nerves) radiating from the brain (*cranial nerves*) and spinal cord (*spinal nerves*) segmentally and bilaterally and reaching to all parts of the body (visceral and somatic) through a classic pattern of distribution. *Branches* of spinal nerves are often called peripheral nerves. Nerves conduct all sensations from the body to the brain and spinal cord; they conduct motor commands to all the skeletal muscles of the body. The *autonomic nervous system* (ANS) is a subset of ganglia and nerves in the PNS dedicated to visceral movement and glandular secretion and to the conduction of visceral sensations to the spinal cord and brain.



REGIONS OF SPINAL CORD

VERTEBRAL COLUMN AND SPINAL NERVES



(CNS) CENTRAL NERVOUS SYSTEM

(PNS) SPINAL NERVES & BRANCHES

(PNS) AUTONOMIC SYSTEM