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# **PERIPHERAL NERVOUS SYSTEM (PNS)**

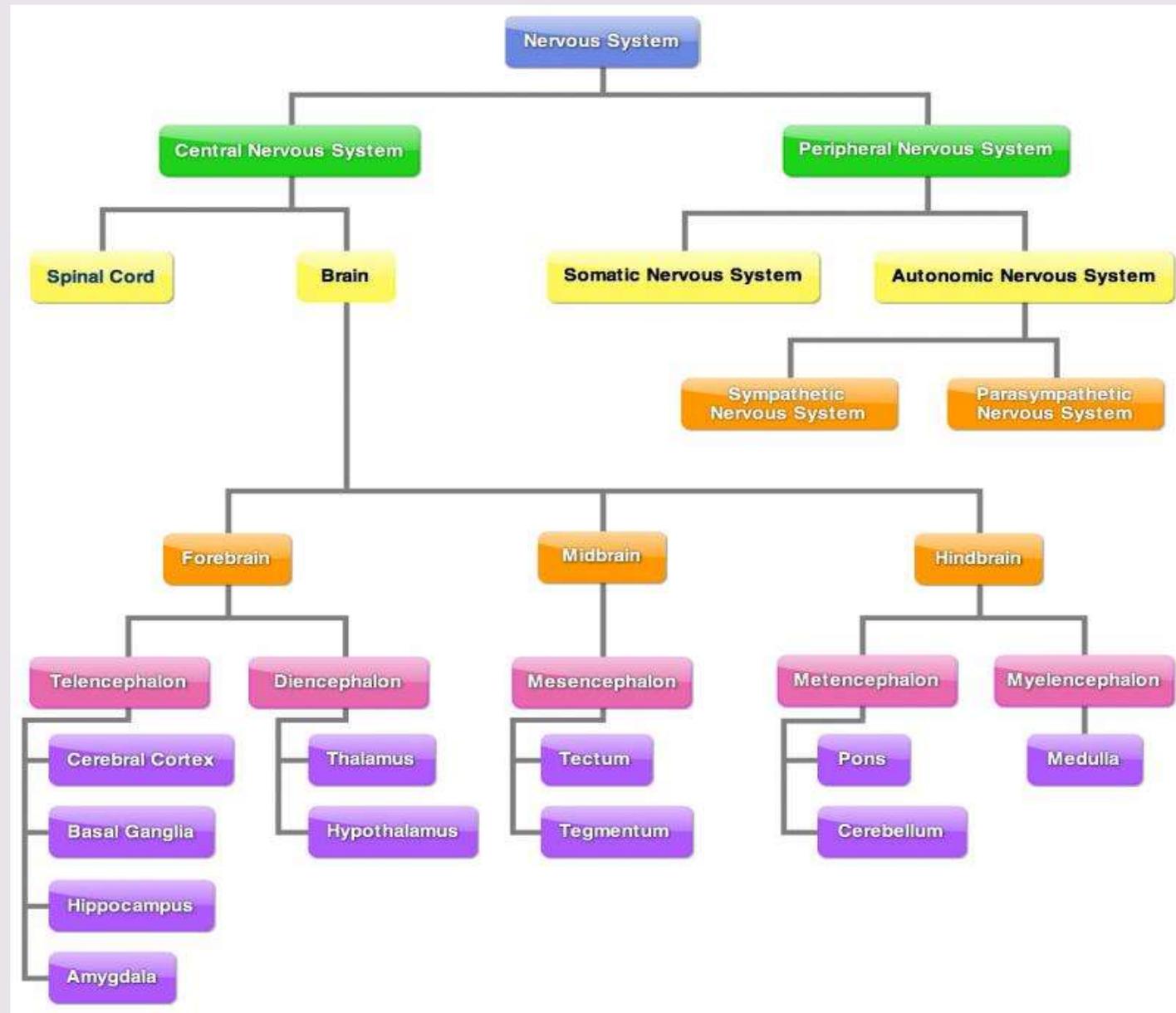
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# Divisions of the nervous system





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# What is Peripheral Nervous System?

The peripheral nervous system (PNS) is the division of the nervous system containing all the nerves that lie outside of the central nervous system (CNS).

## Primary role:

To connect the CNS to the organs, limbs and skin. These nerves extend from the central nervous system to the outermost areas of the body.



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# 1. Somatic Nervous System

The part of the peripheral nervous system responsible for carrying sensory and motor information to and from the central nervous system.

Derives its name from the Greek word *soma*, which means "body."

Responsible for transmitting sensory information as well as for voluntary movement.

**contains two major types of neurons:**

**Sensory neurons (or afferent neurons)** - carry information from the nerves to the central nervous system

**Motor neurons (or efferent neurons)**- that carry information from the brain and spinal cord to muscle fibers throughout the body.



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# Sensory-Somatic Nervous System

The sensory-somatic system consists of

12 pairs of **cranial nerves** and

31 pairs of **spinal nerves**.



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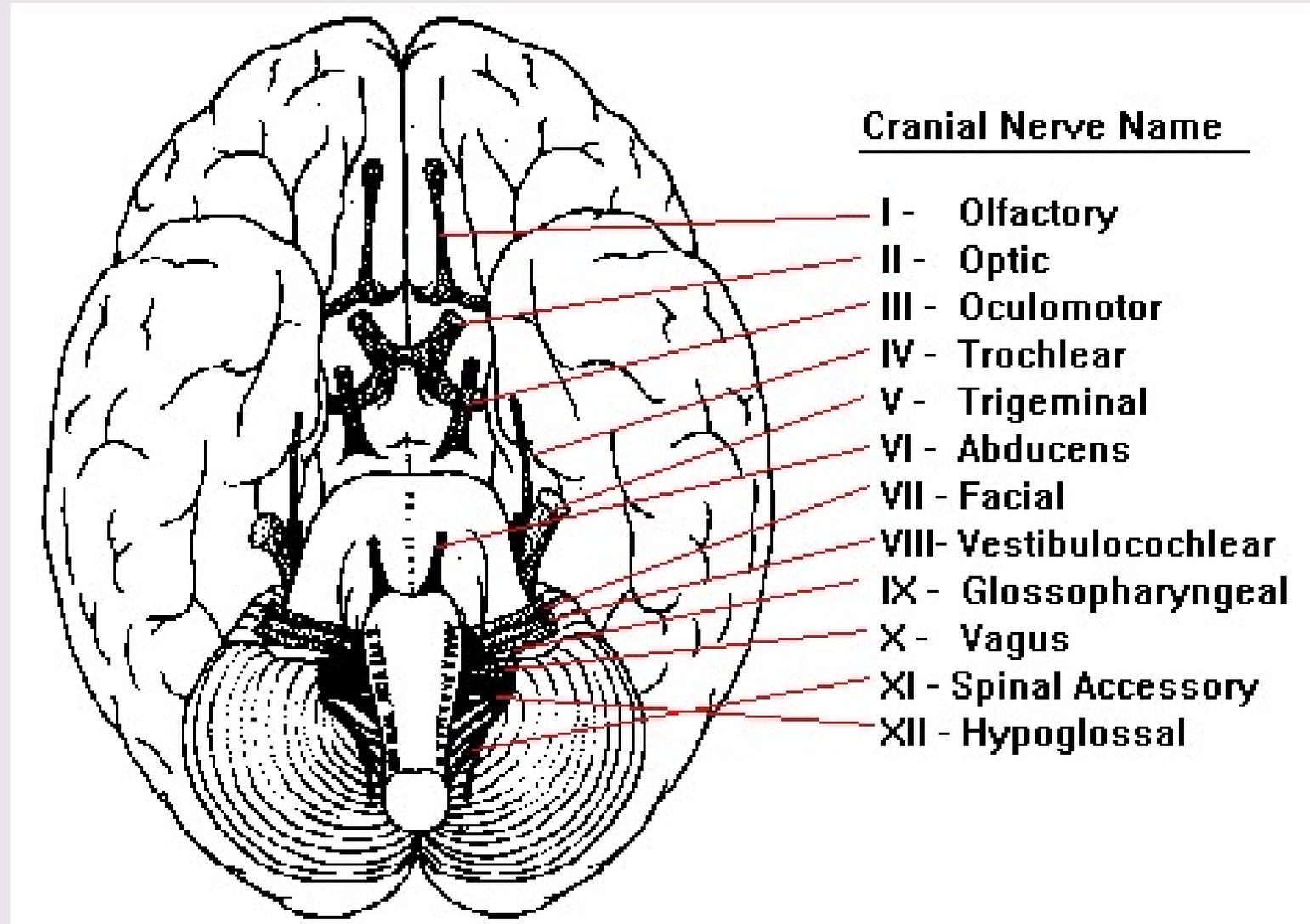
**Cranial Nerves** - nerves that emerge directly from the brain, in contrast to spinal nerves, which emerge from segments of the spinal cord. In humans, there are traditionally twelve pairs of cranial nerves. Only the first and the second pair emerge from the cerebrum; the remaining ten pairs emerge from the brainstem.

**Spinal Nerves** - spinal nerves or nerve roots, branch off the spinal cord and pass out through a hole in each of the vertebrae called the Foramen. These nerves carry information from the spinal cord to the rest of the body, and from the body back up to the brain.



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Nerves	Type	Function
I Olfactory	sensory	olfaction (smell)
II Optic	sensory	vision (Contain 38% of all the axons connecting to the brain.)
III Oculomotor	motor*	eyelid and eyeball muscles
IV Trochlear	motor*	eyeball muscles
V Trigeminal	mixed	Sensory: facial and mouth sensation Motor: chewing
VI Abducens	motor*	eyeball movement
VII Facial	mixed	Sensory: taste Motor: facial muscles and salivary glands
VIII Auditory	sensory	hearing and balance
IX Glossopharyngeal	mixed	Sensory: taste Motor: swallowing
X Vagus	mixed	main nerve of the parasympathetic nervous system (PNS)
XI Accessory	motor	swallowing; moving head and shoulder
XII Hypoglossal	motor*	tongue muscles



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**Sensory neurons** running from stimulus **receptors** that inform the CNS of the stimuli

**Motor neurons** running from the CNS to the **muscles and glands** - called **effectors** – that take action.

It is responsible for monitoring conditions in the internal environment and bringing about appropriate changes in them.

The contraction of both smooth muscle and cardiac muscle is controlled by motor neurons of the autonomic system.