

مختبر التشريح المقارن للجهاز العصبي

اعداد

المدرس المساعد

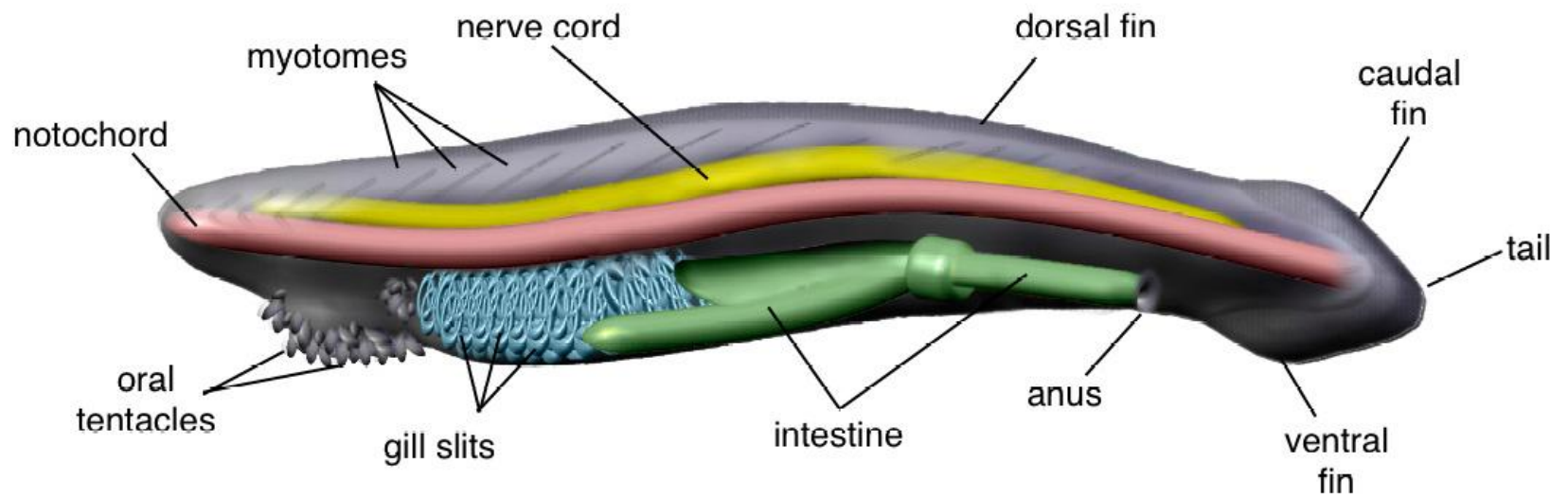
اسماء حسيب

The dorsal tubular nerve cord in amphioxus

The nerve cord is only slightly larger and expand to be vesicle brain in the head region than in the rest of the body, so that lancelets cannot be said to possess a true brain

The dorsal tubular nerve cord which is the central nervous system, is immediately dorsal to the notochord

and can be identified because its ventral part contains black, **light-sensitive spots**; the spots are most concentrated in the anterior part of the cord. The central nerve cord lacks a cranial swelling, so amphioxus lacks a brain



Central nervous system in lamprey

The central nervous system, consisting of the brain and spinal cord and the peripheral nervous system; consisting of the sense organs, cranial and spinal nerves, and their branches.

The brain is primitive and consist of

1- **Forebrain** (prosencephalon)

The front part of the brain is concerned with smell
the *olfactory sense*

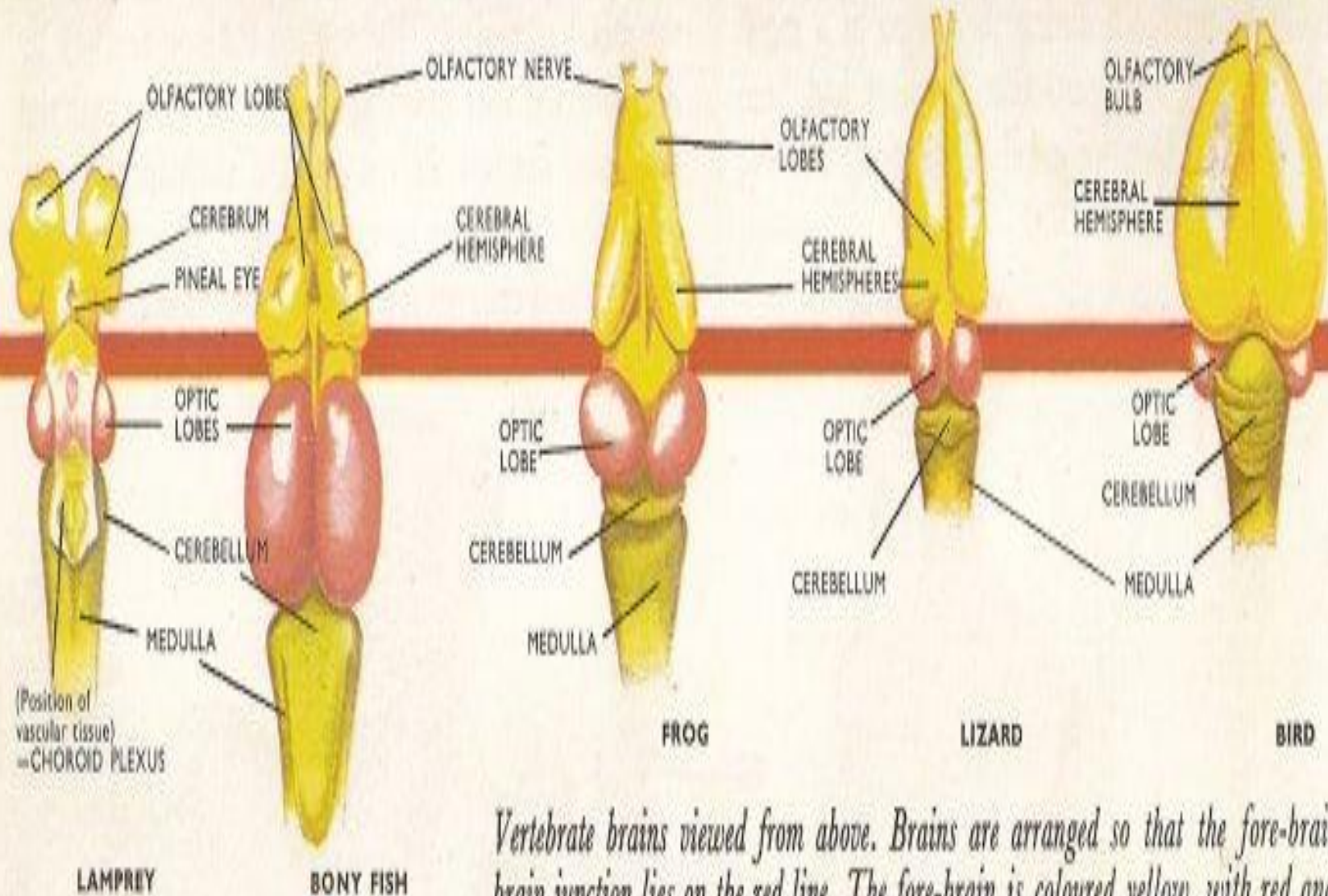
Forebrain consist of (cerebrum) *olfactory lobes* or cerebral hemispheres are quite small *صغير جدا* and thalamus

2- Midbrain (mesencephalon)

The midbrain, behind the thalamus, deals with the sense of sight. Its walls are expanded to form the *optic lobes*

3- Hindbrain (rhombencephalon)

The hindbrain consists of the cerebellum and the medulla oblongata is very well-developed *متطور بشكل جيد*



Vertebrate brains viewed from above. Brains are arranged so that the fore-brain/mid-brain junction lies on the red line. The fore-brain is coloured yellow, with red and green representing the mid- and hind-brains respectively.

The nervous system in dog fish

- **The nervous system** consists of the central nervous system; the brain and spinal cord, and the peripheral nervous system; the sense organs, cranial and spinal nerves, and their branches.
- **The brain** consists of :
- 1- **Forebrain** (prosencephalon)
- consist of (**cerebrum**) *olfactory lobes* or cerebral hemispheres and thalamus

- **Midbrain** (mesencephalon)

Consist of the optic lobes are a pair of prominent bulged structure

- **Hindbrain** (rhombencephalon)

- The cerebellum : is an oval-shaped dorsal portion that partly overlaps the optic lobes.

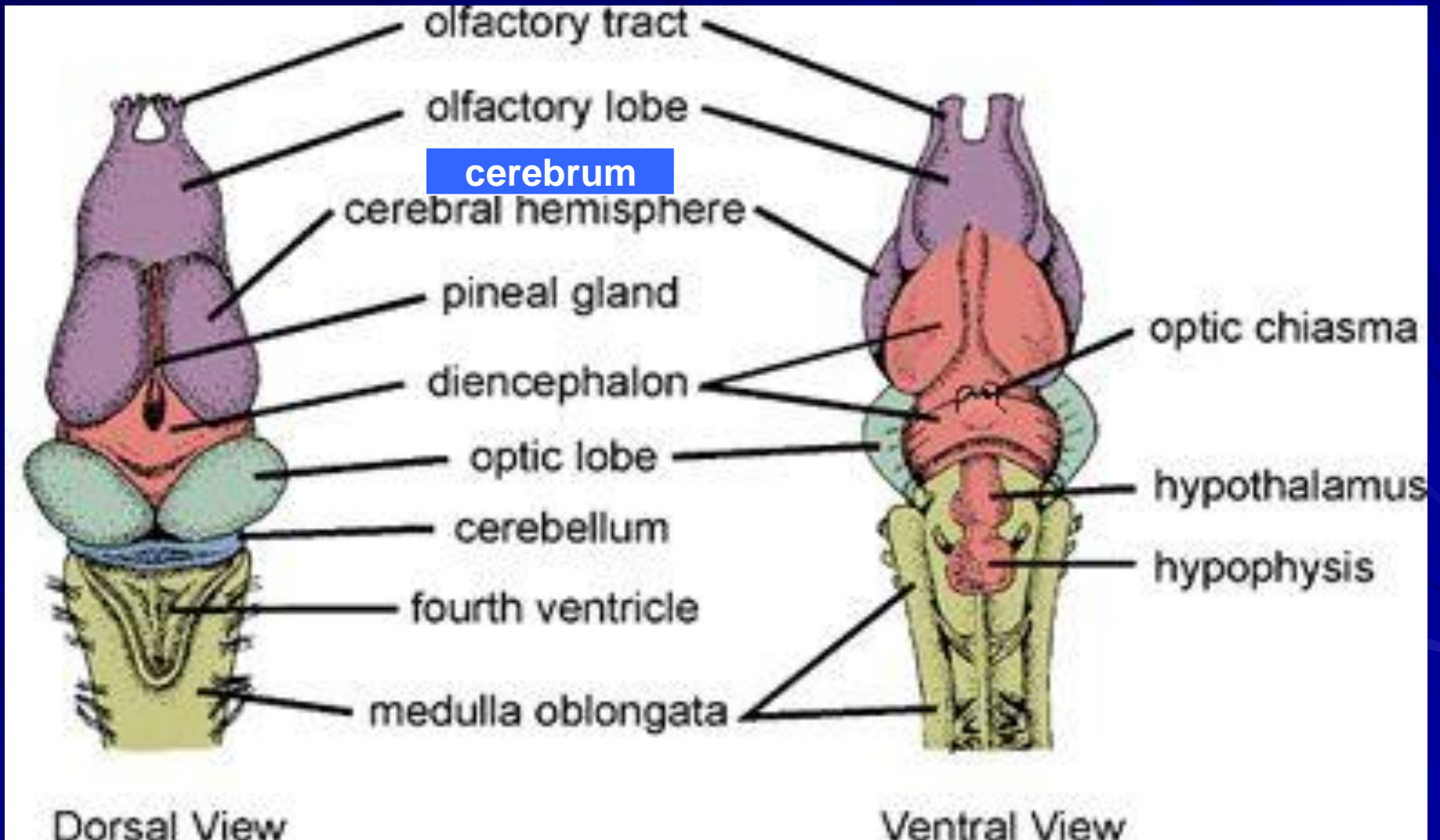
- The medulla oblongata is the elongated posterior region of the brain that is continuous posteriorly with the spinal cord

The nervous system in frog

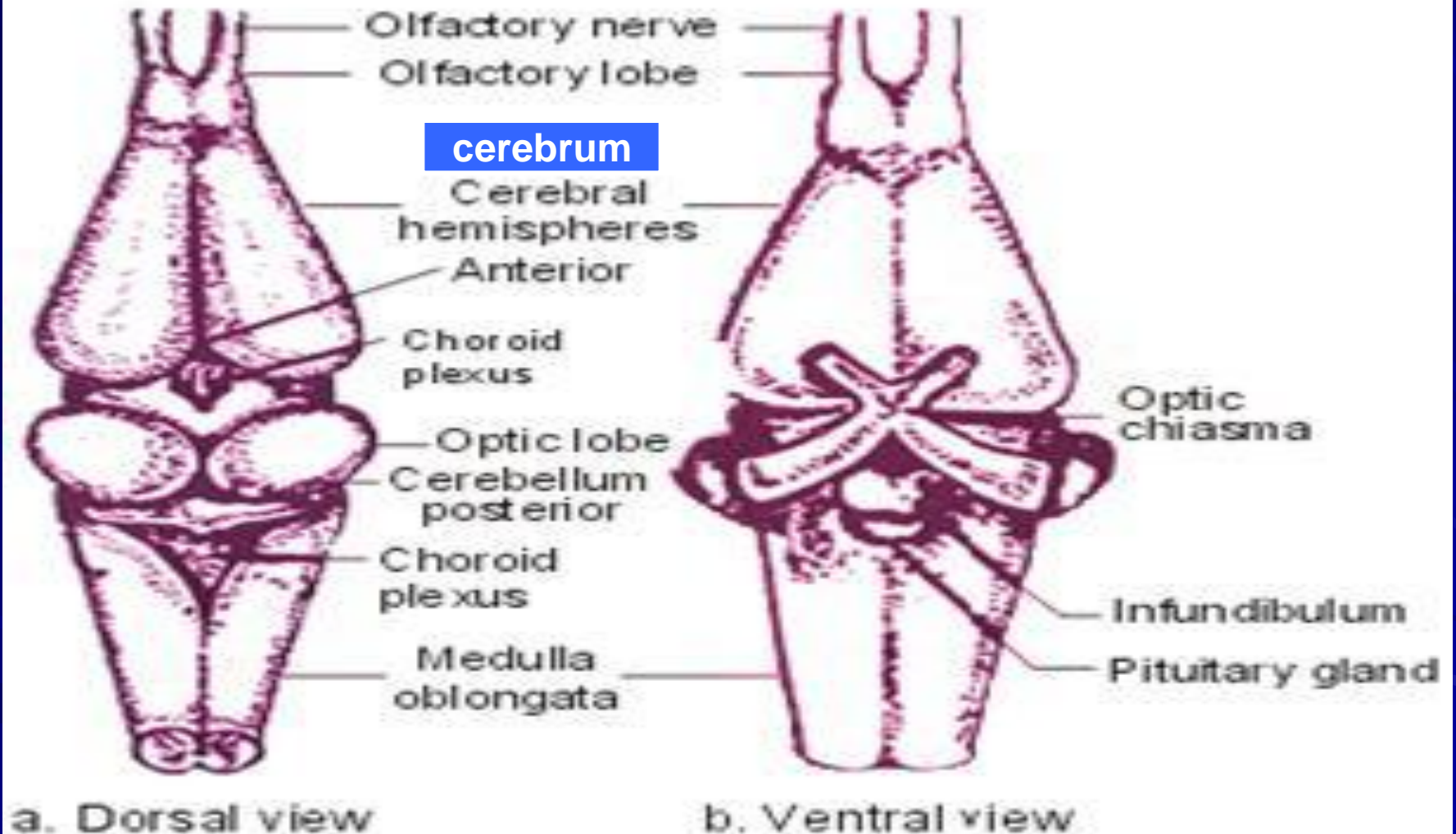
- **The frog has a dorsal nervous system. The central nervous system is protected by bones of the vertebral column and the skull.**
- **The nervous system** consists of the brain and spinal cord and the peripheral nervous system; the sense organs, cranial and spinal nerves, and their branches.

- The brain consists of the forebrain (cerebrum المخ and thalamus المهاد), midbrain (optic lobe), and hindbrain (cerebellum and medulla oblongata).

الجهاز العصبي للضفدع



الجهاز العصبي للضفدع

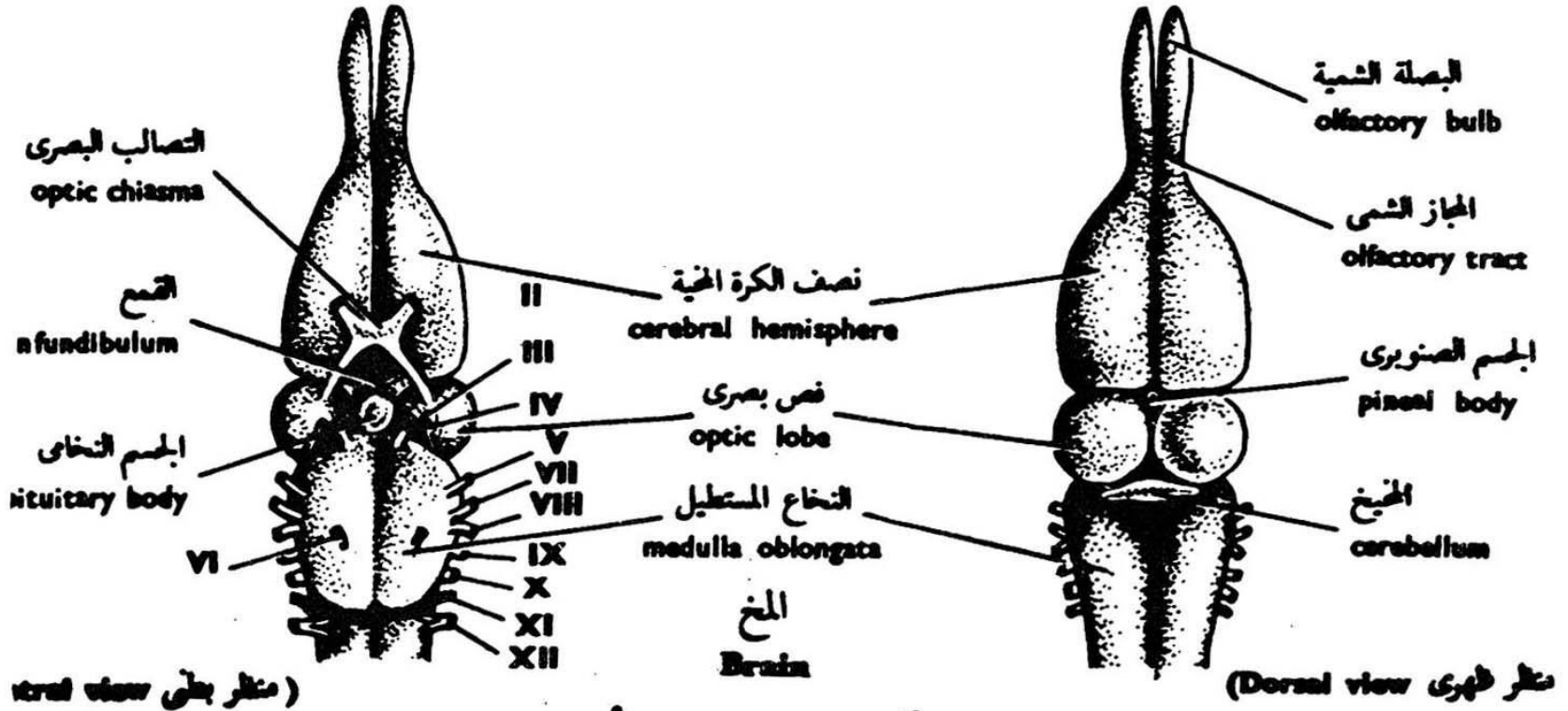


Brain of frog

The nervous system in Reptilia

- **The nervous system** consists of the brain and spinal cord and the peripheral nervous system; the sense organs, cranial and spinal nerves, and their branches.
- **Much like the system of the frog, but the forebrain is larger and more elongated**

الجهاز العصبي للسحلية



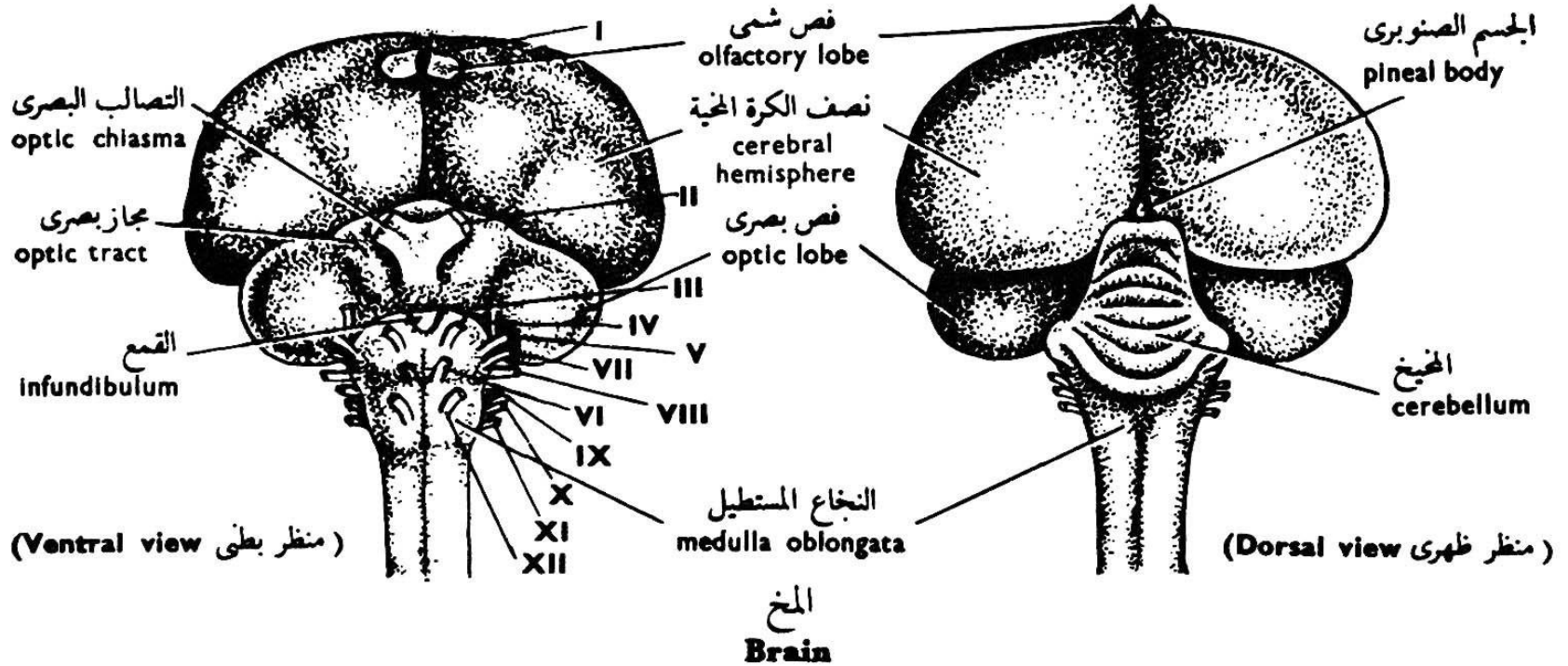
الدفان الكبير كالسيدس أوسيلاتوس

CHALCIDES OCELLATUS

The nervous system in birds

- **The nervous system** consists of the brain and spinal cord and the peripheral nervous system; the sense organs, cranial and spinal nerves, and their branches
- Typical vertebrate nervous system. The brain is larger and not elongated -- it is closer to the shape of the mammalian brain, though the surface of the brain is not as convoluted ملف.

الجهاز العصبي للحمامة



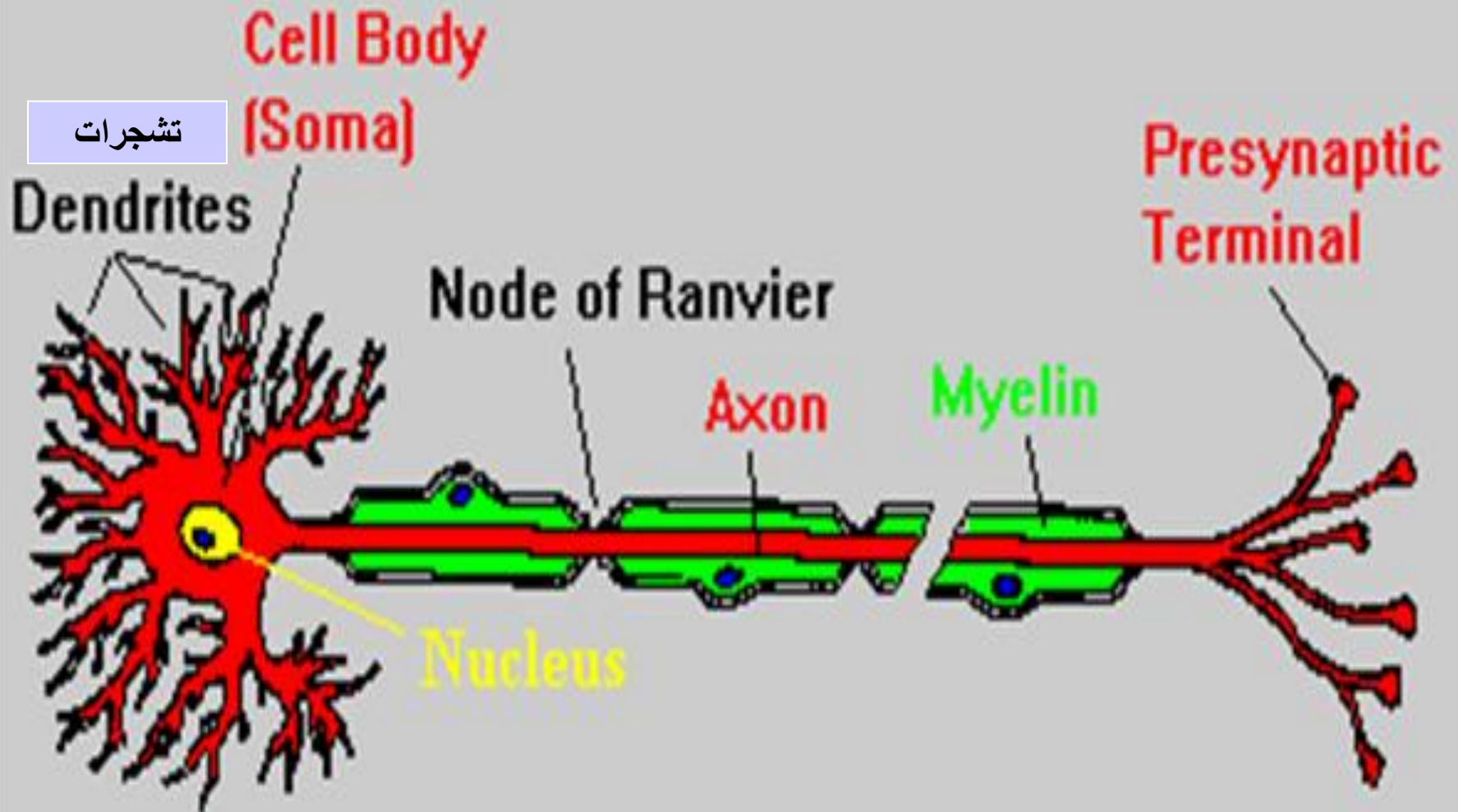
الحمامة المنزلية « كولبا ليفيا دومستيكا »

COLUMBA LIVIA DOMESTICA

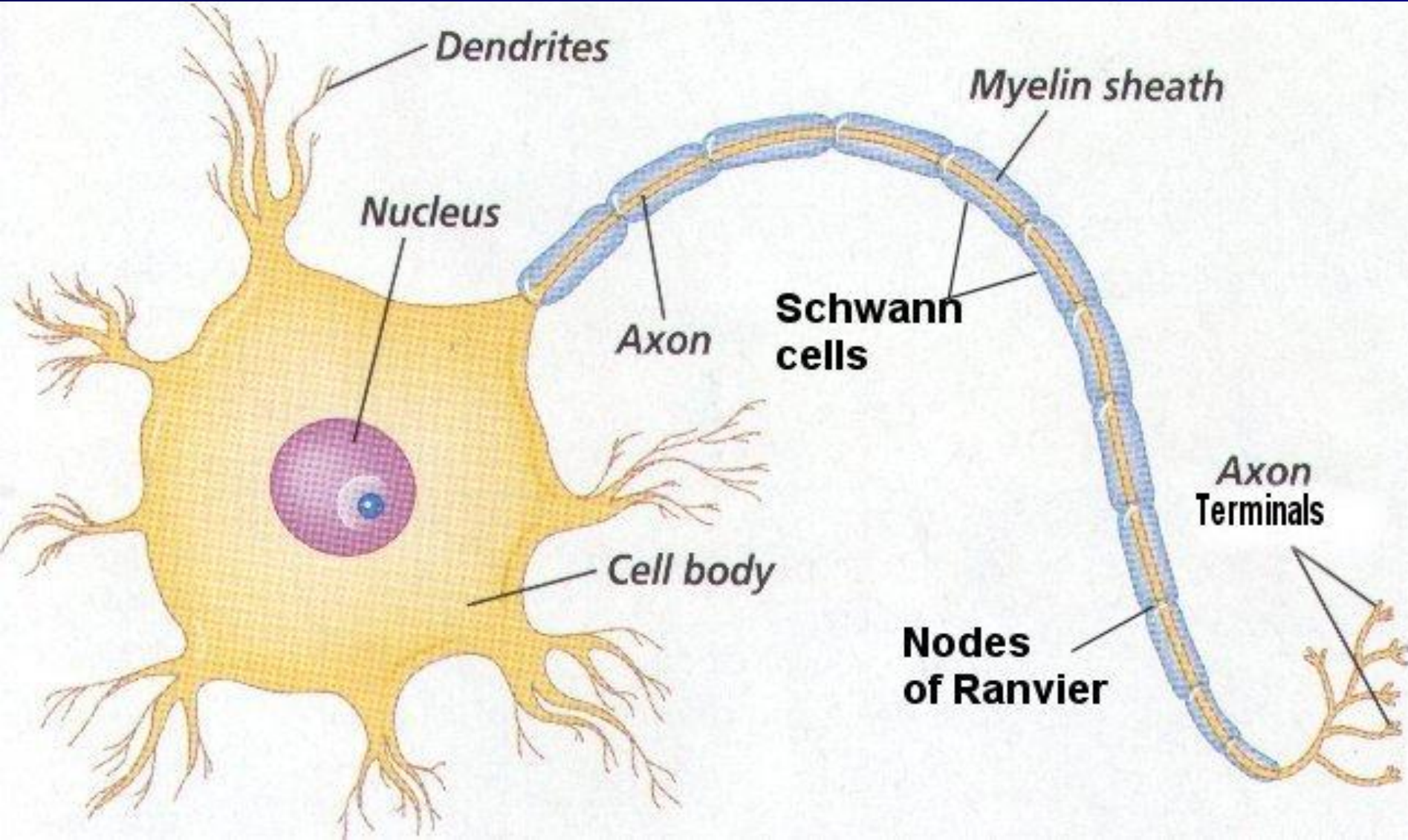
The nervous system in humans

- The neuron is the functional unit of the nervous system. Humans have about 100 billion neurons in their brain alone! While variable in size and shape, all neurons have three parts. Dendrites receive information from another cell and transmit the message to the cell body. The cell body contains the nucleus, mitochondria and other organelles typical of eukaryotic cells. The axon conducts messages away from the cell body.

الخلية العصبية nerve cell



nerve cell الخلية العصبية



Central Nervous System

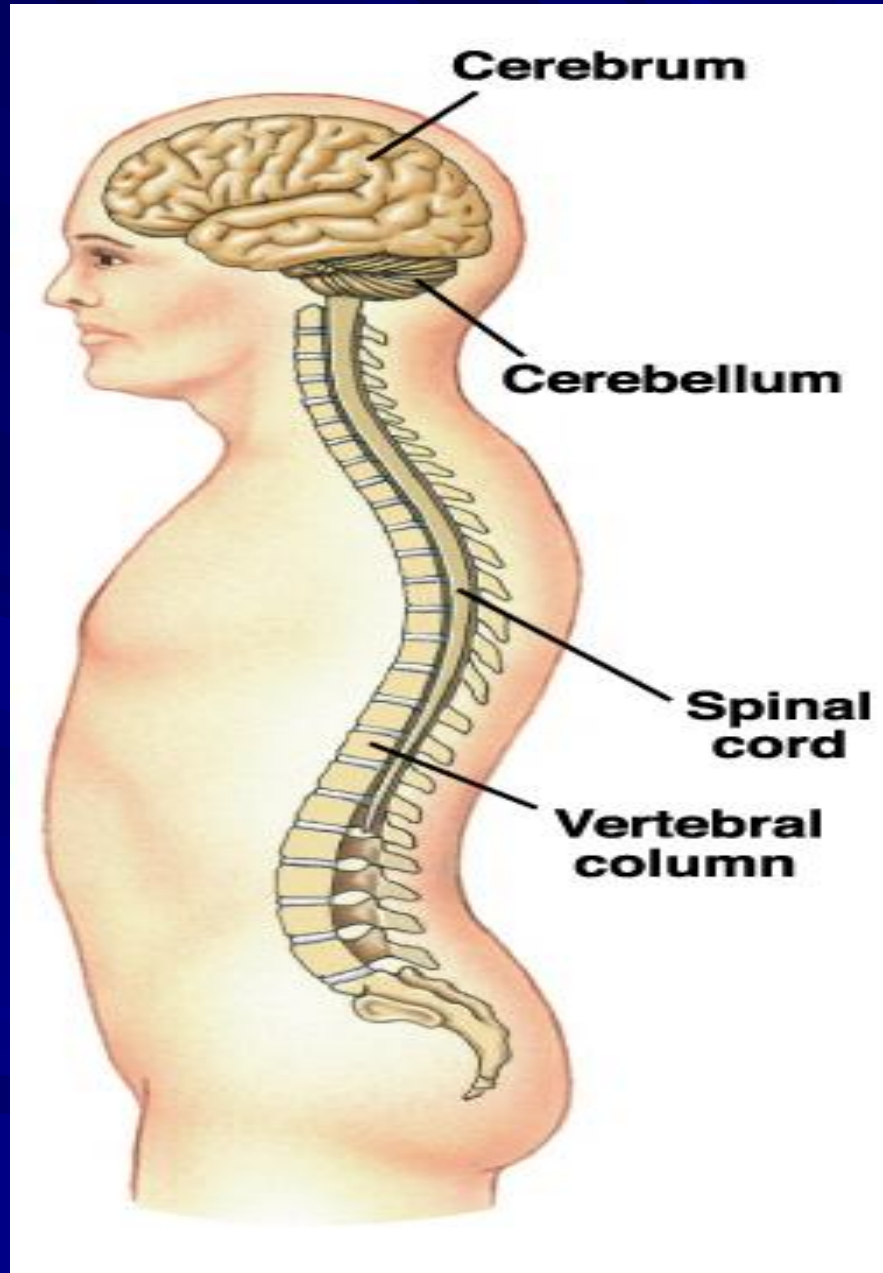
In human

The central nervous system

consists of the **encephalon** or **brain**, is proportionately larger than in other vertebrates, contained within the cranium, and the **medulla spinalis** or **spinal cord**, lodged in the vertebral canal

The brain + the spinal cord

The center of integration and control



– Peripheral Nervous System

- **The nervous system outside of the brain and spinal cord**

- **Consists of:**

 - A- 31 Spinal nerves**

 - **Carry information to and from the spinal cord**

 - B- 12 Cranial nerves**

 - **Carry information to and from the brain**



Central nervous system

Peripheral nervous system

Divisions of the Nervous System

