

# THE BRAIN AND SPINAL CORD

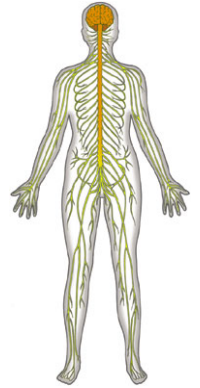
The human nervous system is divided into two main divisions: the central nervous system (CNS) peripheral nervous system (PNS)

## 1. Central Nervous System (CNS)

The central nervous system (CNS) is made up of the **brain** and the **spinal cord**. The job of the CNS is to control the rest of the body and to coordinate our actions.

## 2. Peripheral Nervous System (PNS)


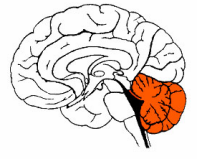
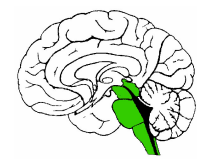
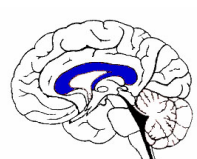
The peripheral nervous system (PNS) is made up of **all other neurons** that are connected to the brain and spinal cord. The main job of the PNS is to receive information from the **sense organs** (eyes, ears, nose, skin) and to carry instructions from the brain or spinal cord to the **effectors** (muscles and glands) of the body.



## 3. The Brain

The brain is the most complicated structure in the universe. It is a mass of **100 billion** interconnected neurons, and each neuron is connected to roughly 25,000 others. This huge number of connected neurons is what allows the brain to perform such complex processes.

The brain controls and coordinates our senses, movement and behavior, as well as automatically regulating body functions such as heart rate, blood pressure and body temperature. The brain is the source of conscious thought, emotion, memory, and learning. The brain has **four** major parts and each part is responsible for certain processes:

	Description	Picture
<b>Cerebrum</b>	The largest part of the brain. The cerebrum interprets information from the senses, controls movement, and is responsible for thought and memory. It is split into 2 hemispheres, the left hemisphere and right hemisphere.	
<b>Cerebellum</b>	The cerebellum is a small portion at the base of the brain. Cerebellum literally means "little brain". Its job is to coordinate our muscle movements and is responsible for balance.	
<b>Brain Stem</b>	The brain stem is found just above the spinal cord and is the most primitive part of the brain. It controls our involuntary actions, like heartbeat, breathing and digestion processes.	
<b>Cortex</b>	The cortex is a small portion of the brain that connects the two hemispheres together. Most of the brains neurons are found here.	

#### 4. The Spinal Cord

The spinal cord begins inside the brain and extends down to the pelvis. It acts as the main information pathway in the body and connects the brain to all other nerves in the body. The job of the spinal cord is to carry impulses from the body's sensory organs **towards the brain** and transmit impulses **from the brain** to the body's muscles and glands. The spinal cord is also responsible for your body's **reflexes**. Reflexes are complex responses designed to protect your body from harm, which do not involve the brain. An example of a reflex is when you quickly pull your hand away after touching a hot surface.



### **REVIEW QUESTIONS - THE BRAIN AND SPINAL CORD**

1. What are the 2 main divisions of the nervous system?

2. What is the CNS and what is its main role?

3. What is the PNS and what is its main role?

4. List the four parts of the brain and summarize what each does.

5. What is the job of the spinal cord?

6. What is a reflex and what controls our reflexes?

7. List as many reflexes as you can. (*e.g. pulling your hand away after touching a hot surface*).