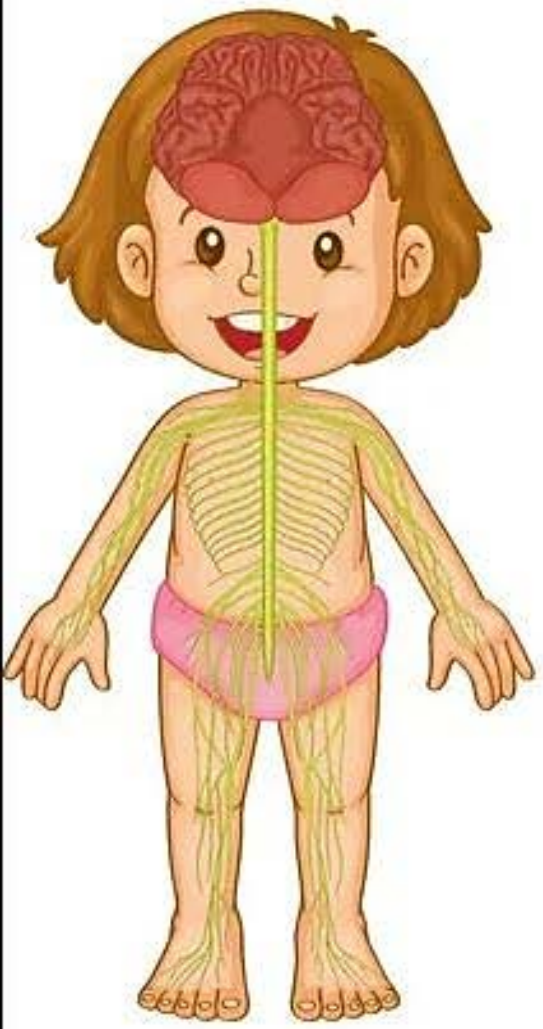
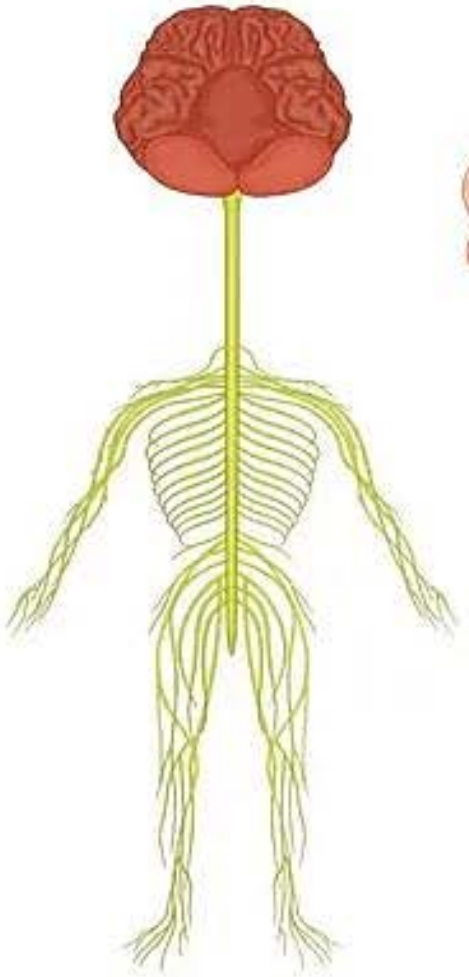
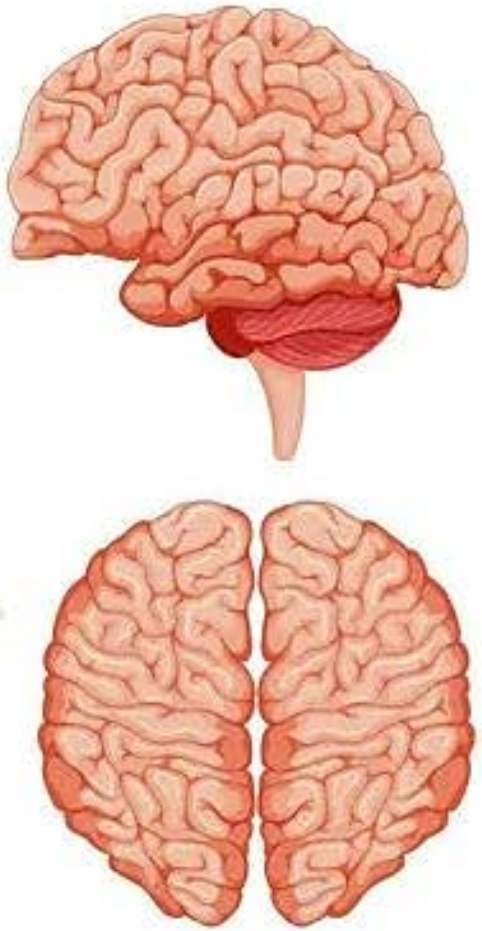
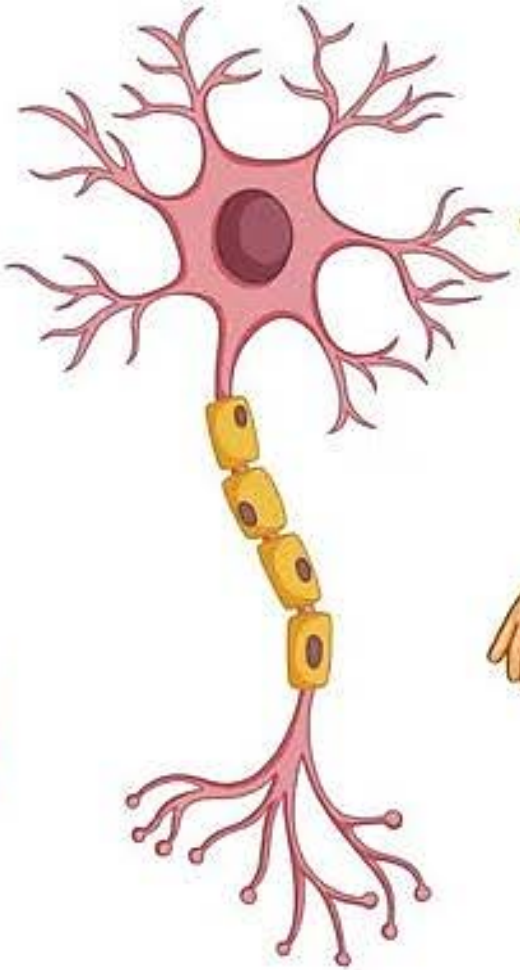
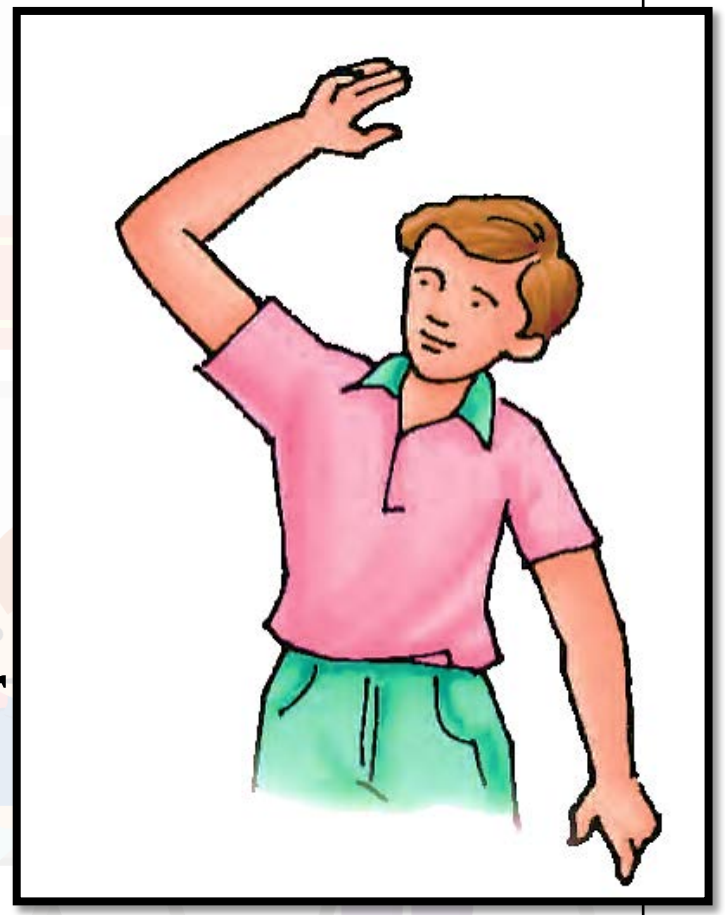
10. Nervous System
Class 5 E.V.S

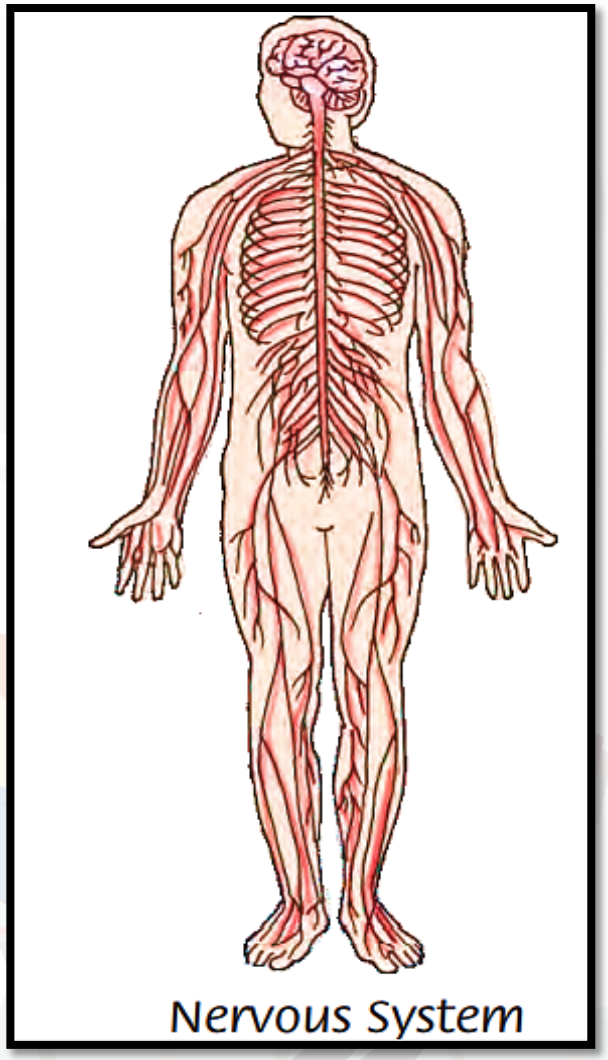






Hold your hands out in front of you. Now, wave hello at yourself. Now tap yourself on the head. Now let us try this experiment again, but this time, we will do it, a little differently. Put your one arm down. Now look at your other arm. Say loudly, "move arm." Just order it to move and see whether your other arm obeys the order? It does not.

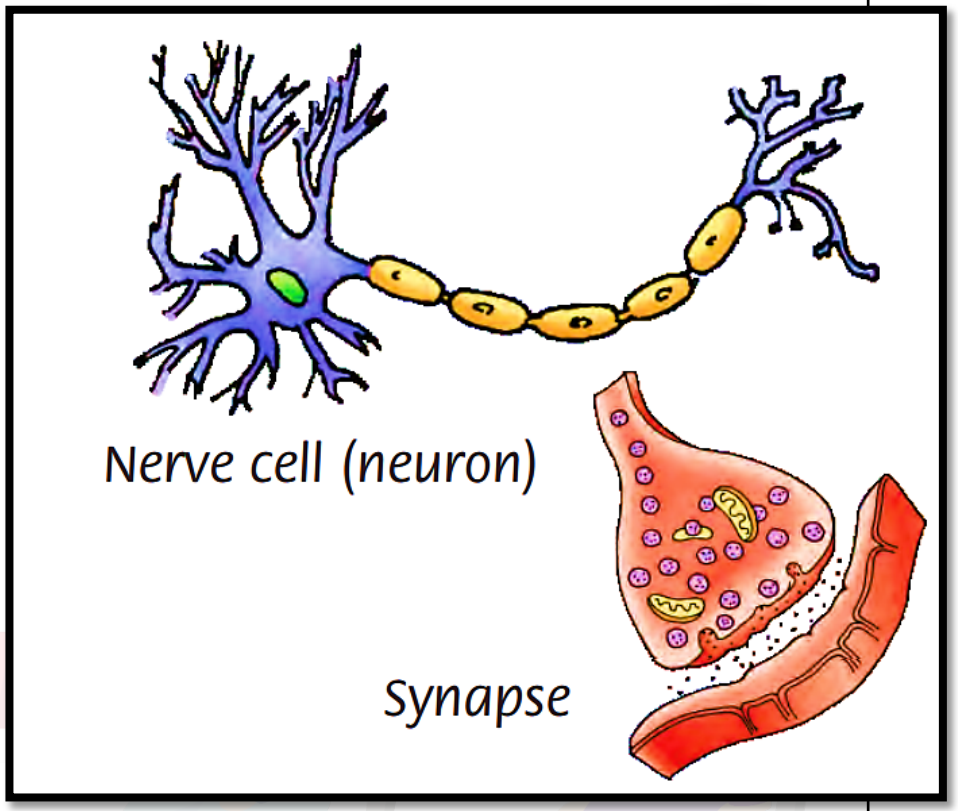


Why not? How does your arm come to know when you want it to move? This experiment shows that your arm does not understand spoken commands. So what makes it understand? What tells it to move? It moves only when you think it in your brain.

But wait a moment. Your brain is up in your head, while your arms are down on your body. How does your brain talk to your arm? They must be connected! The connection between your brain and your arm, as well as every other part of your body, is known as **nervous system**.

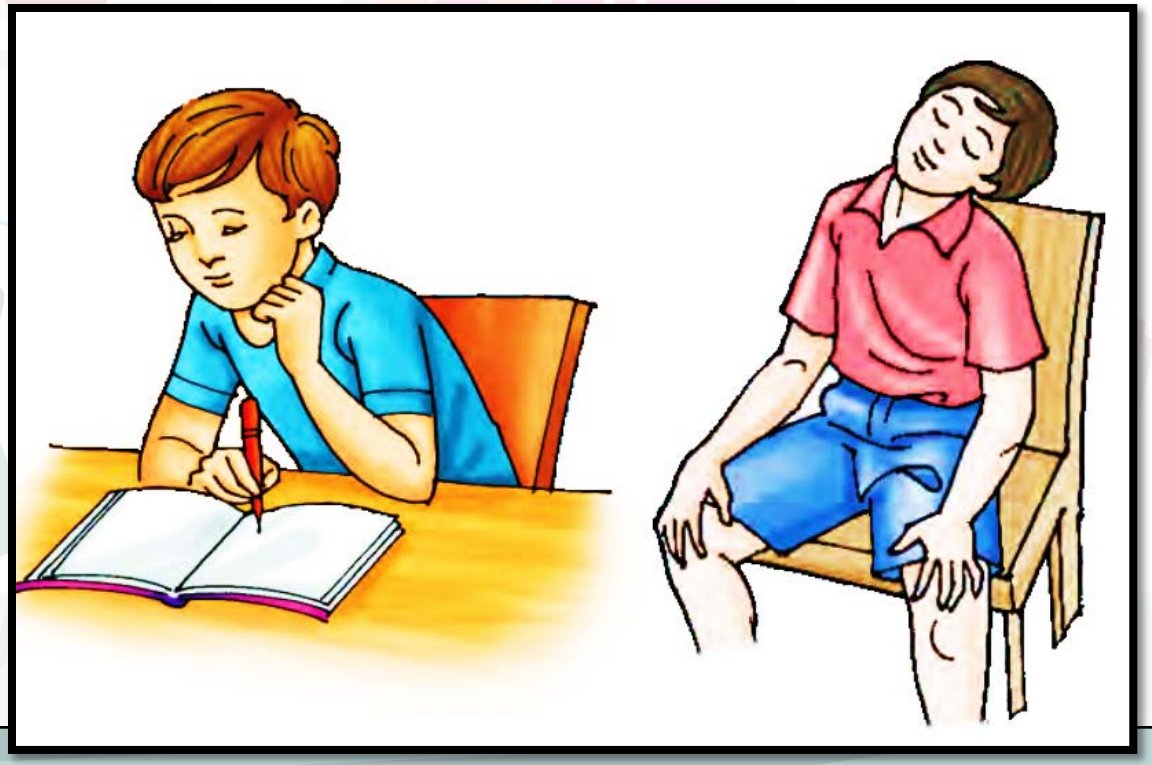


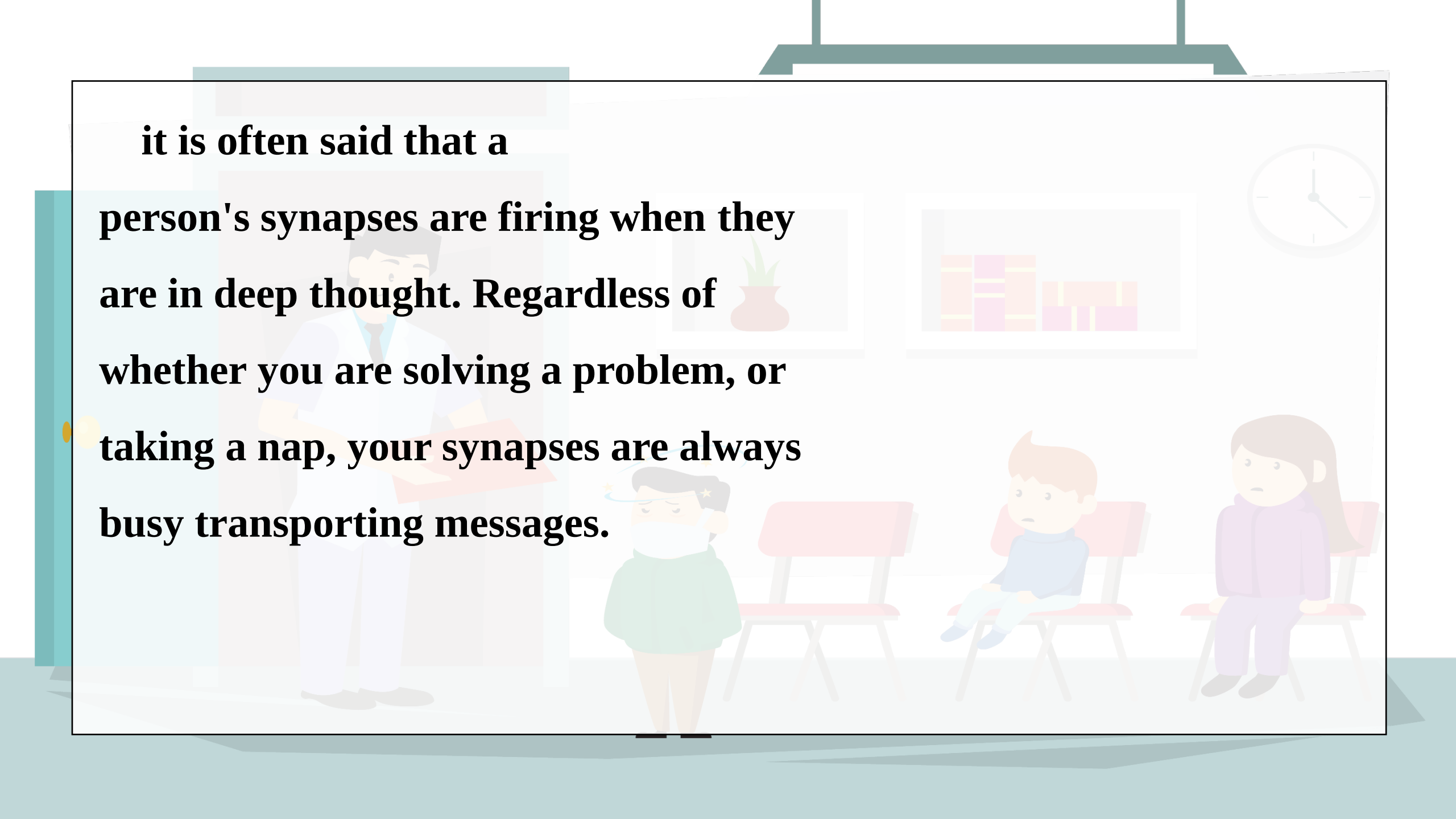
How messages are transmitted along your nervous system? Interestingly enough, messages travel from your brain to your various body parts, in much the same way cable television signals travel from the cable company to your television.



Nervous system is made of cells. The cells making nervous system are called neurons. Neurons are connected to other neurons, as well as to other tissues within the body via synapses. The location where a neuron connects to another cell is called a Synapse.

When a message is transferred through a neuron it passes to the next neuron via an amazing fast chemical and electrical reaction. Because of its lightning speed,

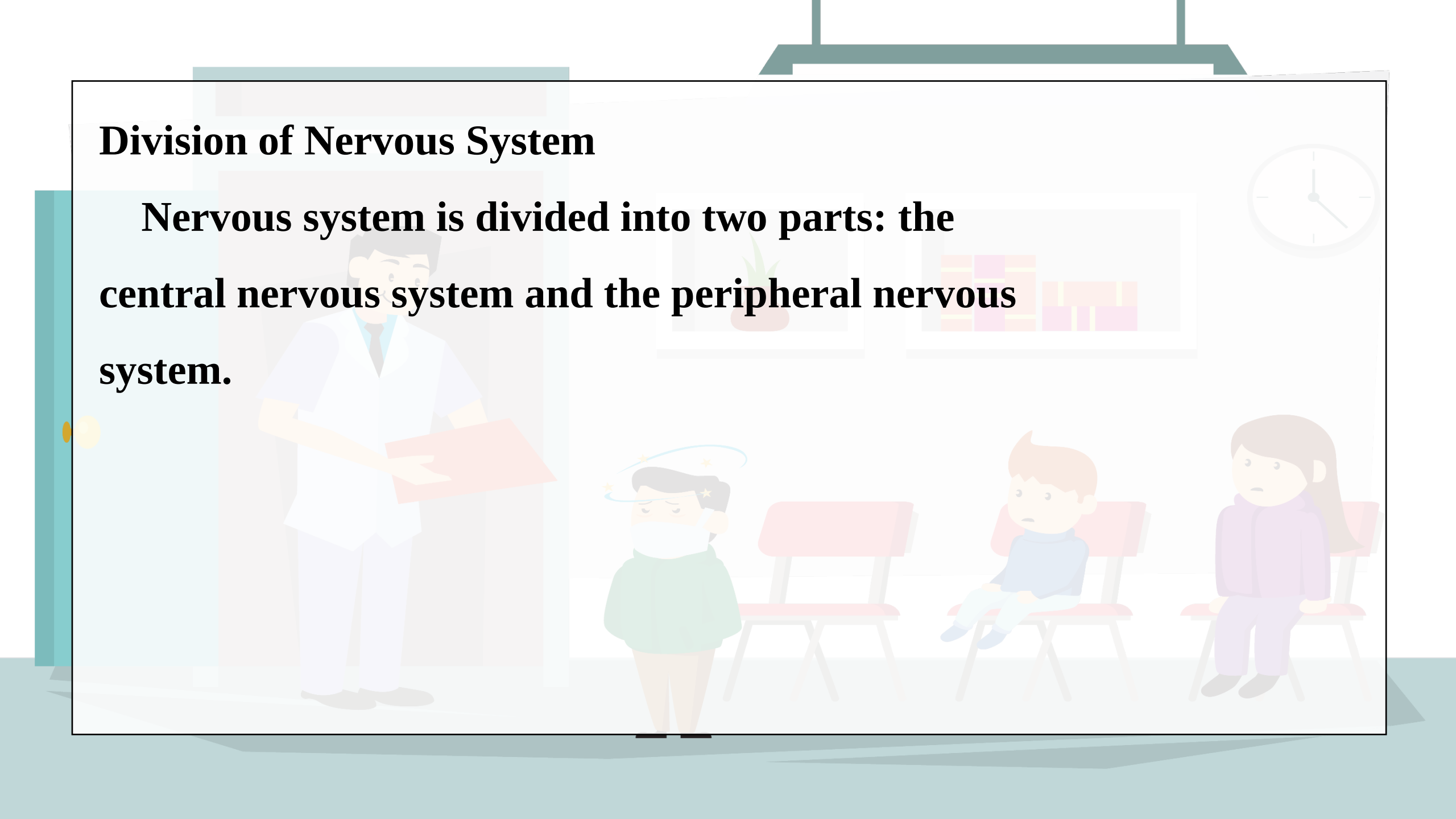




it is often said that a person's synapses are firing when they are in deep thought. Regardless of whether you are solving a problem, or taking a nap, your synapses are always busy transporting messages.

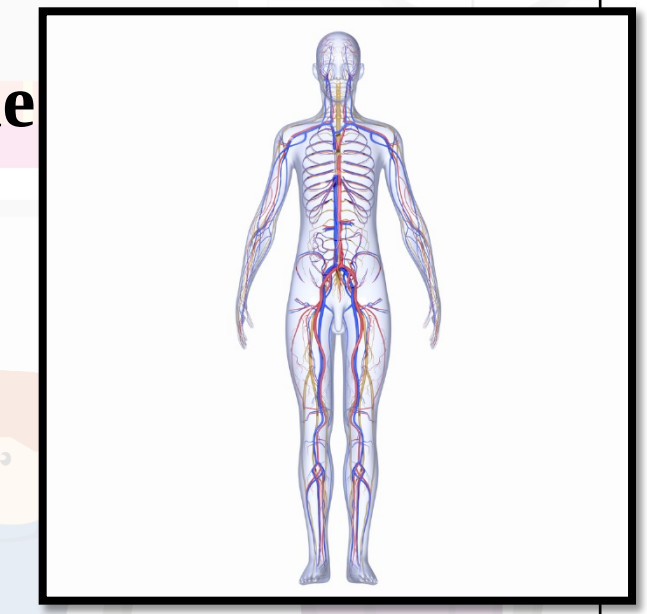
Division of Nervous System

Nervous system is divided into two parts: the central nervous system and the peripheral nervous system.



CENTRAL NERVOUS SYSTEM

Central Nervous System is made of brain and spinal cord. It is the main control center of the body and the center of thought. Central Nervous System controls most of the actions within the body



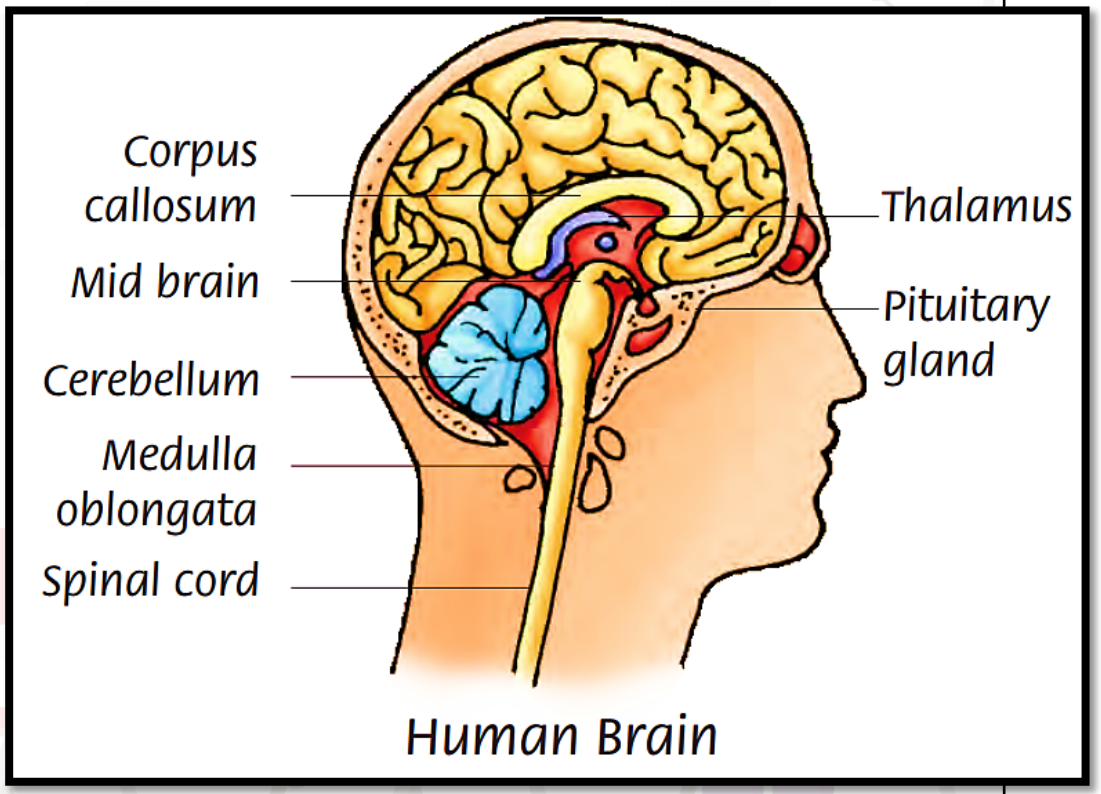
Human central nervous system

Brain is like a central computer that controls all the body functions and the nervous system is like a network that relays messages back and forth from the brain to different parts of the body. Brain does this via the spinal cord, which runs from the brain down through the back and contains thread-like nerves that branch out to every organ and body part.

When a message comes into the brain from anywhere in the body, brain tells the body how to react. For example, if you accidentally touch a hot thing, the nerves in your skin shoot a message of pain to your brain. Brain then sends a message back telling the muscles in your hand to pull away. Luckily, this neurological relay

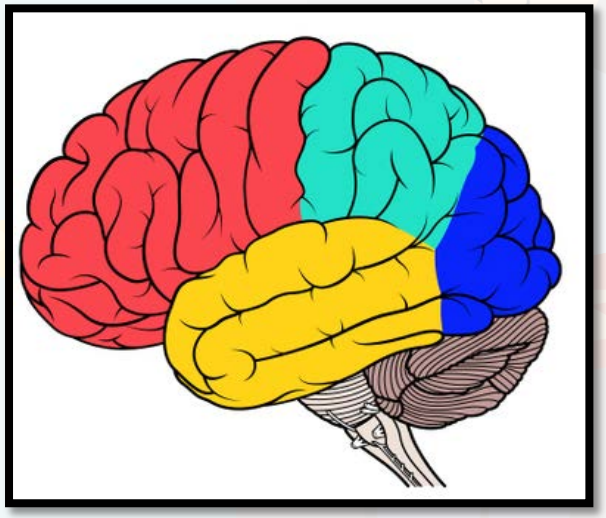
race takes a very less time than it just took to read about it.

Human brain is incredibly compact, weighing just three pounds. Its many folds and grooves, though, provide it with the additional surface area necessary for storing all of the body's important information.



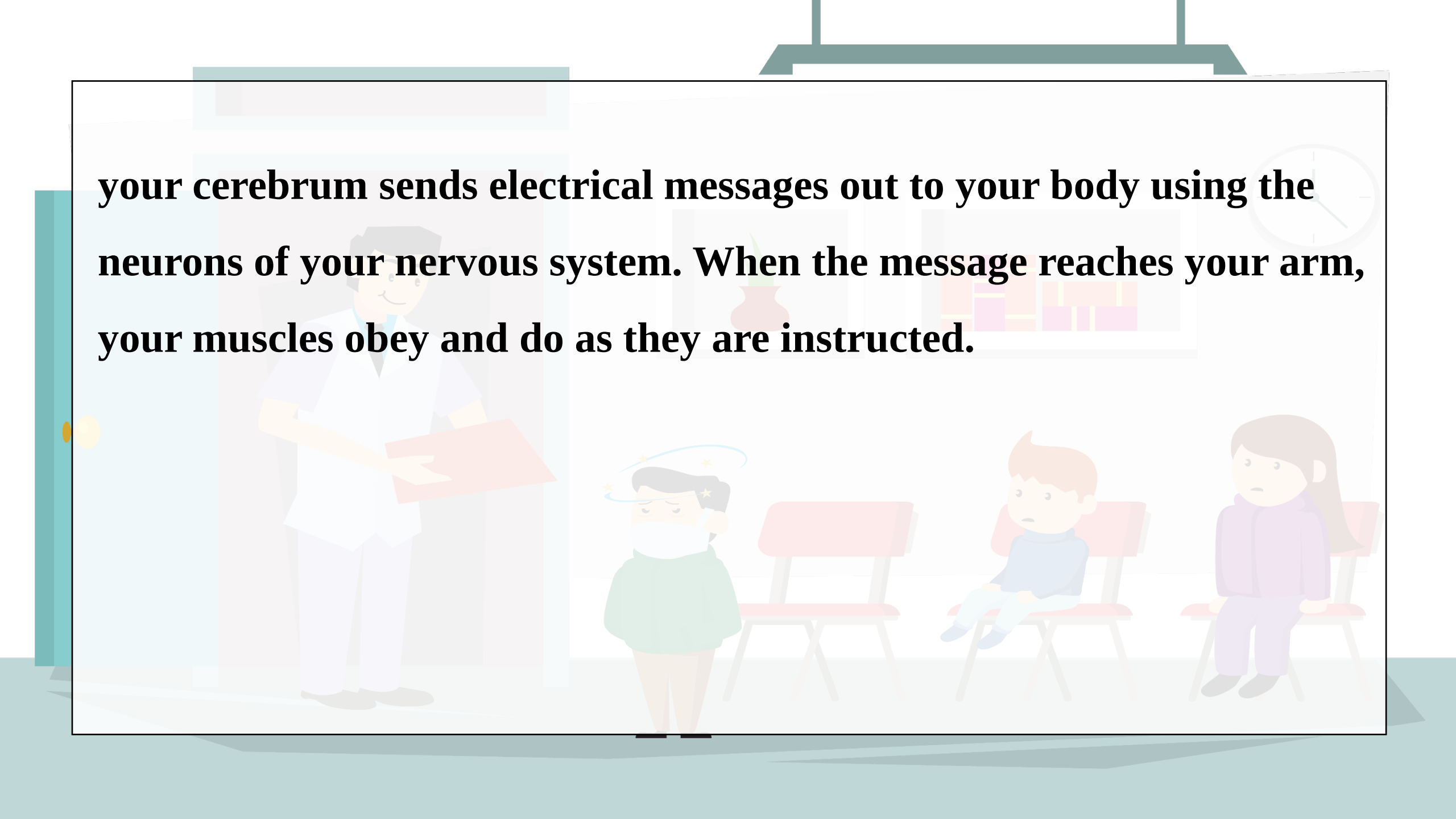
Cerebrum

The largest portion of the brain is called the Cerebrum . cerebrum is responsible for all the voluntary processes that you do each day, including thought. Voluntary means that you want to do something, or decide to do something on your own, like hold your hand in the air, wave to yourself, and tap yourself on the head. As you do these actions,

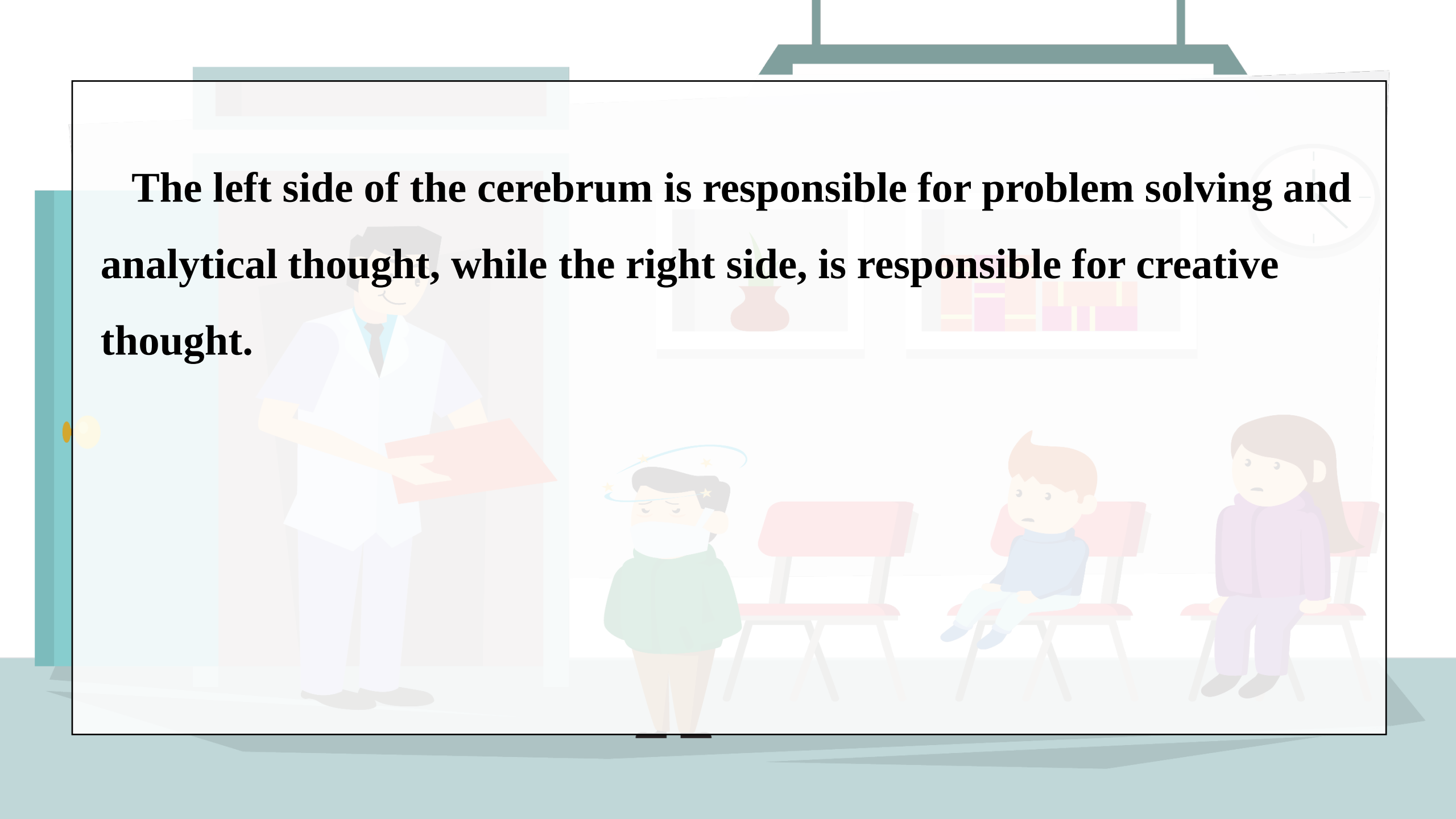


Cerebrum

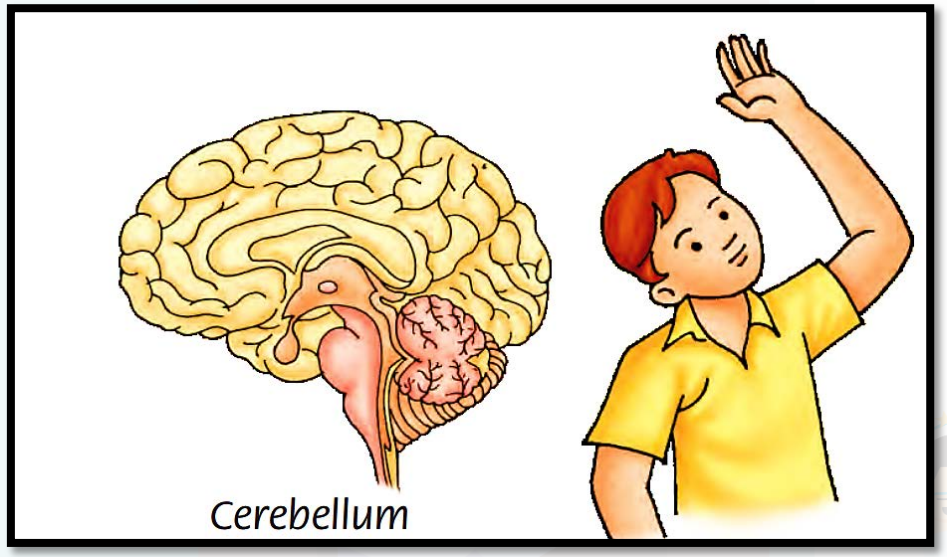
your cerebrum sends electrical messages out to your body using the neurons of your nervous system. When the message reaches your arm, your muscles obey and do as they are instructed.



The left side of the cerebrum is responsible for problem solving and analytical thought, while the right side, is responsible for creative thought.



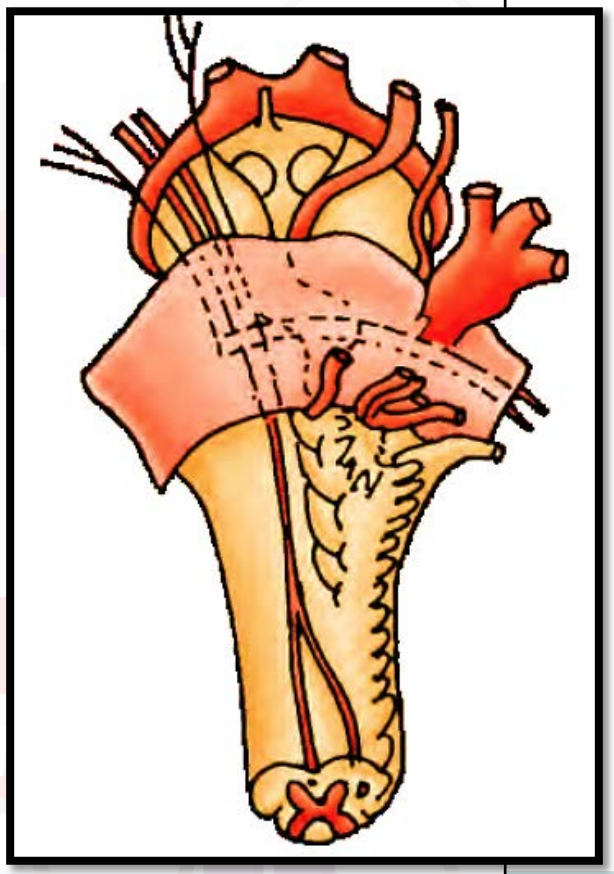
Cerebellum



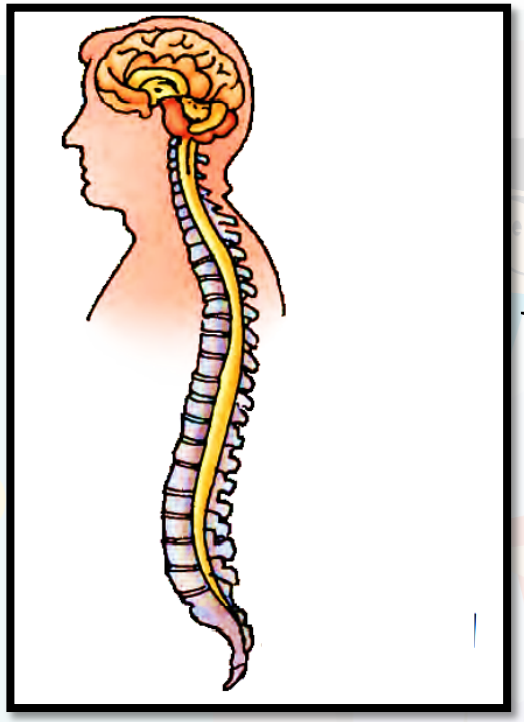
Cerebellum helps cerebrum in the task of moving of muscles. It helps to maintain balance, it coordinates and regulates muscular activities.

Medulla

The bulb shaped part under the cerebellum is called Medulla. Its function is to connect brain and spinal cord. It also controls involuntary actions such as movement of heart and lungs. Medulla always works even when we are sleeping.



Medulla



Spinal cord

Spinal Cord

Spinal cord is a cylindrical long bundle of nerve tissues about 18 inch long and ¾ inch thick. It is the mass of nerves inside the spine that connects all parts of the body to the brain.

Both brain and the spinal cord are protected by the bones: brain by the bones of the skull, and the spinal cord by a set of ring-shaped bones called vertebrae. They're both cushioned by layers of membranes called meninges as well as a special fluid called cerebrospinal fluid. This fluid helps to protect the nerve tissue, to keep it healthy and to remove waste products.

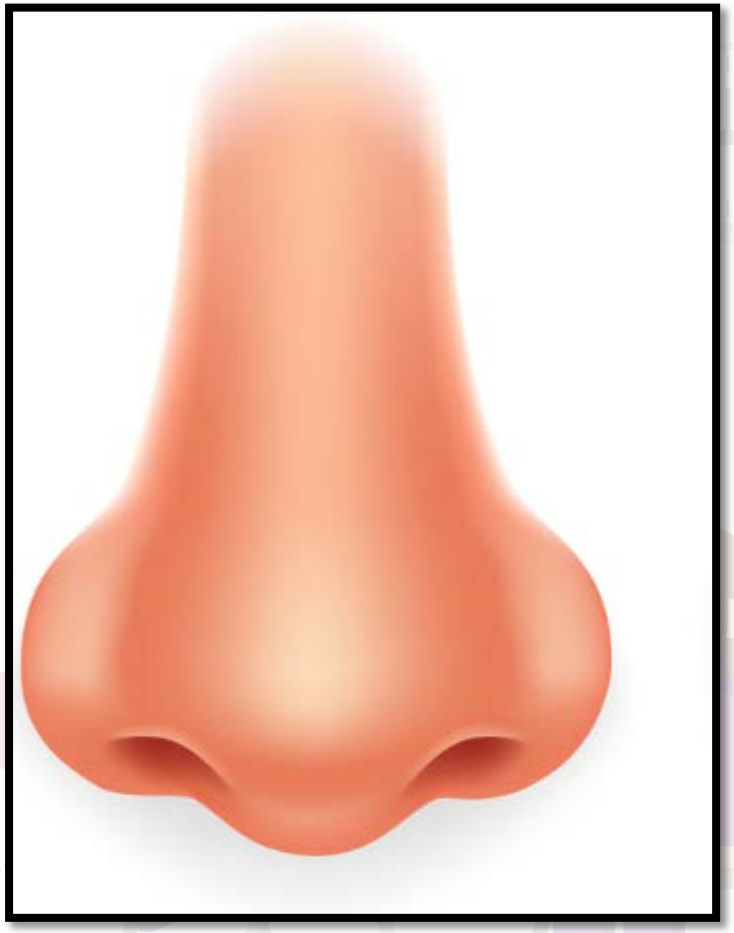
DID YOU KNOW

The right side of the brain controls the left side of the body and the left side of the brain controls the right side of the body.

FIVE SENSE ORGANS IN HUMAN BEINGS

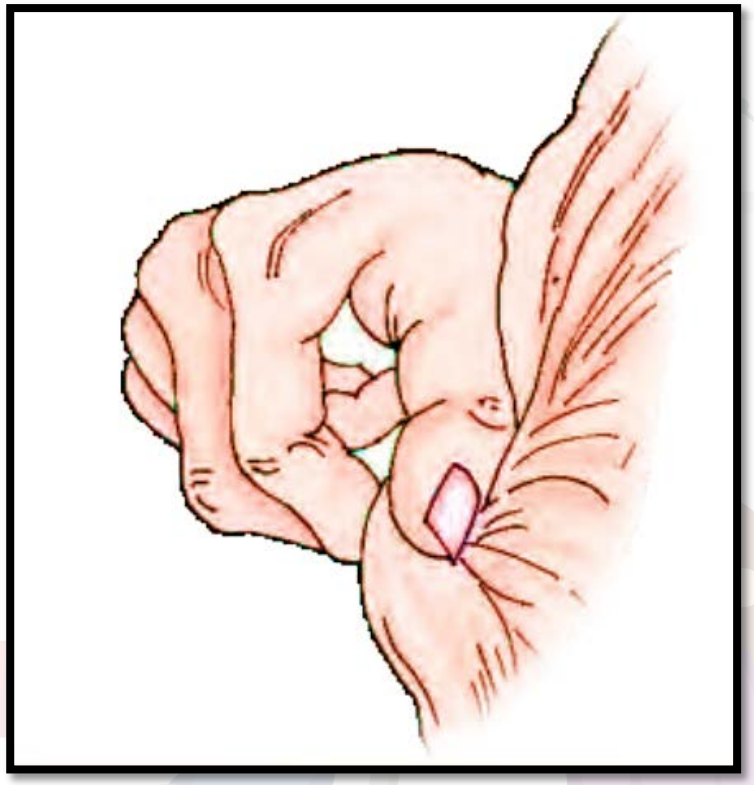
The sense organs like nose, eyes, skin, tongue and ears help to protect the body. Human sense organs contain receptors that relay information through sensory neurons to the appropriate places within the nervous system.

1. Nose helps to smell.



2. Eyes help to see different things.

3. Skin is the sense organ that helps us to feel pain, touch etc.



4. Tongue helps to taste.

5. Ears help us to hear different sounds.

Fact File

- Nerves can carry signals at a speed of 100 metres a second.
- If we wind up all the neurons of our body it would be around 600 miles long.
- As we grow older, the brain loses almost one gram weight per year.

Things to Remember

- **The largest portion of human brain is known as the cerebrum.**
- **Cerebellum helps in moving the muscles.**
- **The bulb shaped part under the cerebellum is called medulla.**
- **Nose, eyes, skin, tongue and ears are the five sense organs of human beings.**


THANK YOU