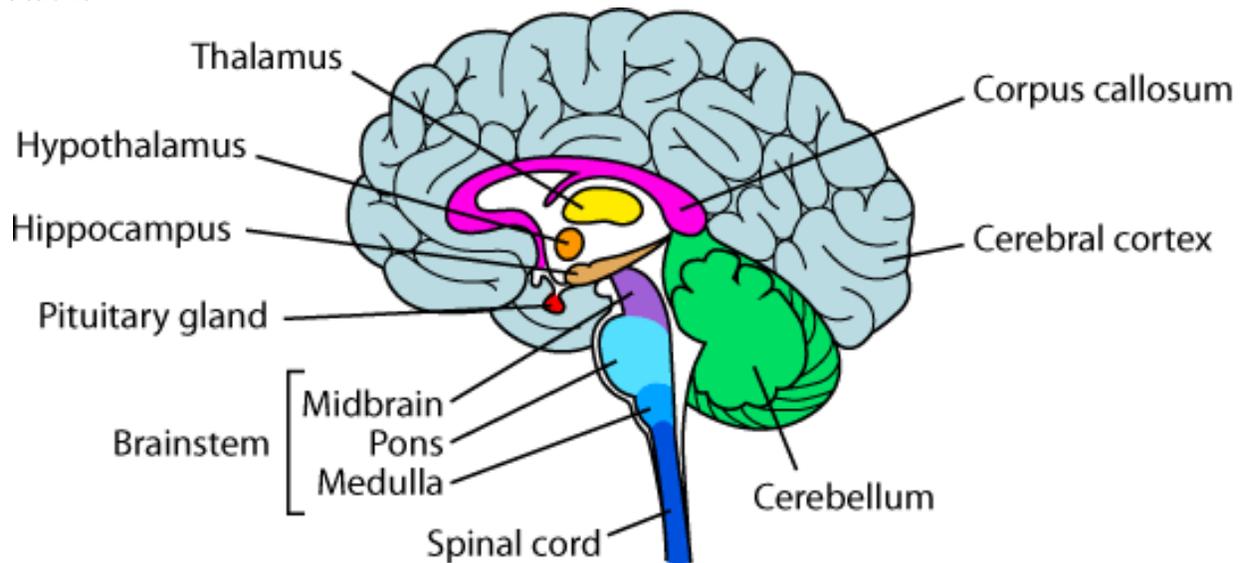


## Brain Structure and Function

What's in your brain?

Every second of every day the brain is collecting and sending out signals from and to the parts of your body. It keeps everything working even when we are sleeping at night. Here you can take a quick tour of this amazing control center. You can see each part and later learn what [areas](#) are involved with different tasks.



### Cerebral cortex:

The wrinkled outer part of the brain is the largest part of the brain. It is also where we do all our thinking. It is used to read this story and also to do math and any homework you might get from your teacher. It also the part of the brain that control your voluntary muscles. These are the muscles used to click a computer mouse button, ride a bike, run a race, or kick a ball. Are you using your left or right brain?

There are some scientists that think the right and left sides of the cerebellum specialize in different work. The right side works on abstract things like colors, shapes, and music. The left side is busy with math, and speaking and is the analytical part. It is also known that the right side of your brain controls the left side of the body and the left side of the brain controls the right.

***Main jobs: sensory integration, thought, voluntary movement, language, reasoning, perception***

### Cerebellum:



At the back of the brain, the cerebellum helps you make smooth, coordinated movements. Walking, running, writing . . . without the cerebellum, movement would not happen properly.

***Main job: proper movement***



### **Thalamus:**

With all the activity going on in the brain there needs to be a switching station and this is the job of the thalamus. This part of the brain takes information coming from the body and sends it on to the cerebral cortex.

The cerebral cortex also sends messages to the thalamus which then sends the information to other areas of the brain and spinal cord.

**Main jobs:** *sensory integration, motor integration, sleep, consciousness.*



### **Hypothalamus:**

In your house is a thermostat. This is the control on the wall that you can change to make the room warmer or cooler. The Hypothalamus is the thermostat for your body. When you get hot it sends signals to your skin pores to sweat. If you get cold it you shiver and get goose bumps.

**Main jobs:** *body temperature, emotions, hunger, thirst, circadian rhythms*



### **Corpus callosum:**

Connecting the right side of the brain with the left side is the corpus callosum. This lets the two sides of the brain talk to each other.

**Main jobs:** *connecting the left and right brain*



### **Pituitary gland:**

This tiny part of the brain is about the size of a pea. It is smallest part of the brain and also the one that controls when and how fast we grow. It releases special hormones that help you grow. It also is at work during puberty.

The pituitary gland also uses [hormones](#) to control how much sugar and water is in your body. It also is one of the areas that controls the body's metabolism. It helps control the digestion of food, breathing, and moving your blood around. Without strict control of your body's metabolism it would not be possible to stay alive.

**Main jobs:** *controls hormones*



### Brainstem:

The brainstem is a collection of three areas of the brain. These parts are the Medulla (autonomic functions, nerve signals, body movement), Pons (relay information from cerebrum to cerebellum), and the Midbrain or mesencephalon (sight, eye movement, pupil dilation, & hearing). It is located below the cerebellum and connects the brain to the spinal cord.

The brainstem has the job of running all the involuntary muscles. These are the muscles you don't consciously control, such as the muscles which make your heart beat. Together these three parts of the brain help keep us alive by controlling our breathing, digestion, and circulating blood.

**Main jobs: breathing, heart rate, blood pressure**

### Spinal cord:

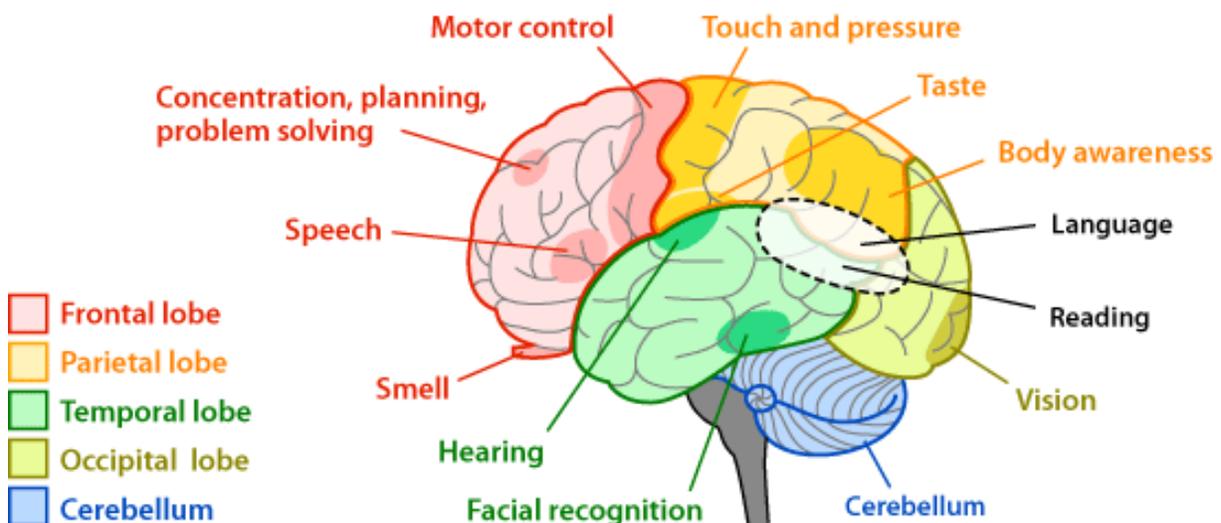


This is the main information highway. All the information from parts of the body move from and to the brain through the spinal cord. It is connected to the brain through the brainstem. It is protected by the vertebral bones that make up the backbone.

**Main job: moving messages from the brain to the rest of the body**

## What is your brain doing?

The brain has many different **parts**. The brain also has specific areas that do certain types of work. These areas are called lobes. One lobe works with your eyes when watching a movie. There is a lobe that is controlling your legs and arms when running and kicking a soccer ball. There are two lobes that are involved with reading and writing. Your memories of a favorite event are kept by the same lobe that helps you on a math test. The brain is controlling all of these things and a lot more.



The brain is a very busy organ. It is the control center for the body. It runs your organs like your heart and lungs. It is also busy working with other parts of your body. All of your senses, sight, smell, hearing, touch, and taste depend on your brain. Tasting food with the sensors on your tongue is only possible if the signals from your taste buds are sent to the brain. Once in the brain the signals are decoded. The sweet flavor of an orange is only sweet if the brain tells you.



Frontal lobe:

Movement of the body, Personality, Concentration, planning, problem solving, Meaning of words, Emotional reactions, Speech, and Smell



Parietal lobe:

Touch and pressure, Taste, and Body awareness



Temporal lobe:

Receive & processes sound, Recognizing faces, Emotion, and Long term memory



Occipital lobe:

Sight



Cerebellum:

Latin for little brain, Fine motor (muscle) control, and Balance and coordination (avoid objects and keep from falling)