The Science of the Five Senses

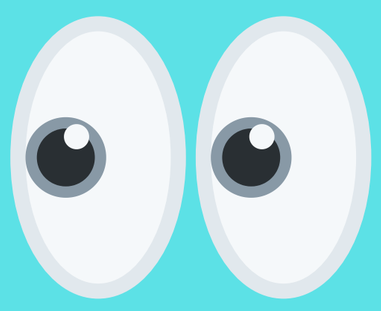

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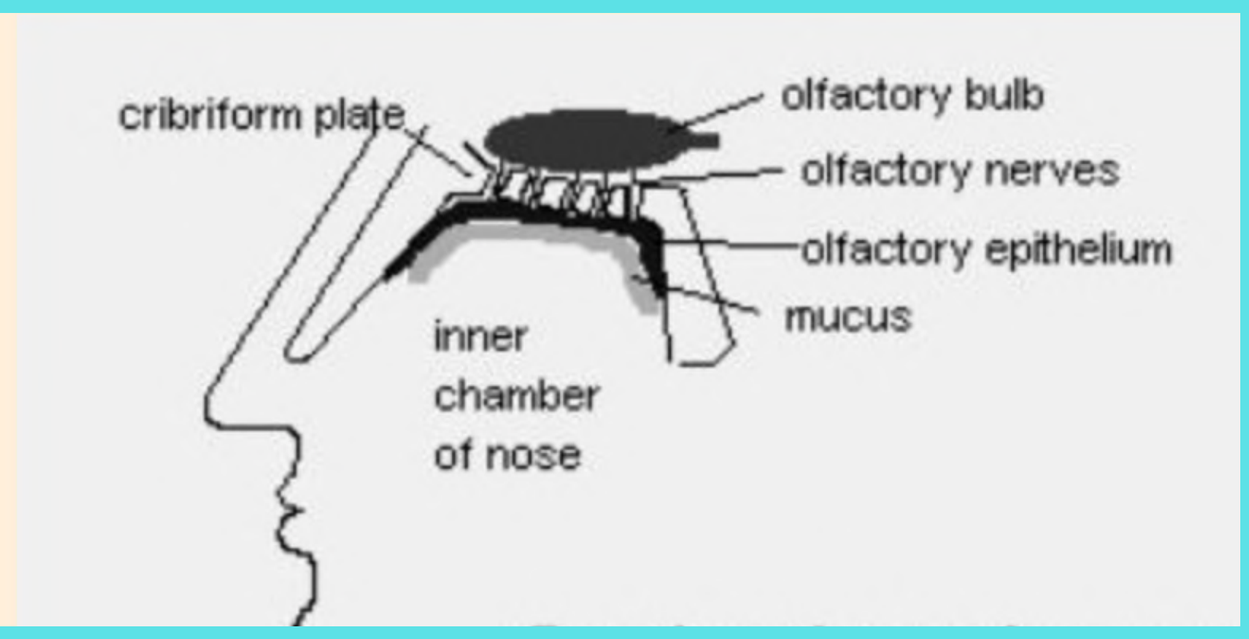
Table of Contents

The olfactory System

This system is responsible for your sense of smell. It allows you to smell at least 1 trillion scents. The olfactory works with many different parts of the body that are in the nose and part of the brain.

The olfactory system works when the odor molecules enter the nose.



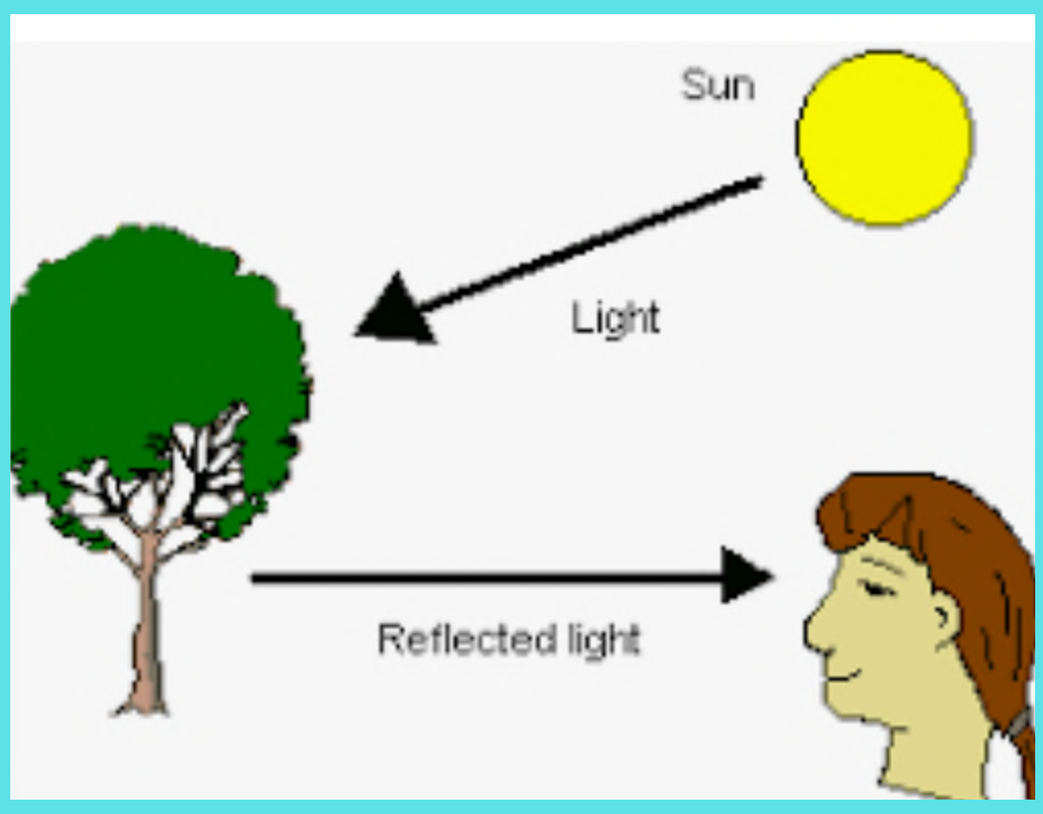
These molecules dissolve in the mucus and under the mucus is the olfactory epithelium (epithelial tissue that contains olfactory nerve cells and receptor neurons).

The olfactory receptor nerves send impulses to the olfactory bulb. The olfactory bulbs are a part of the brain and send signals to the brain so the brain can perceived odors.

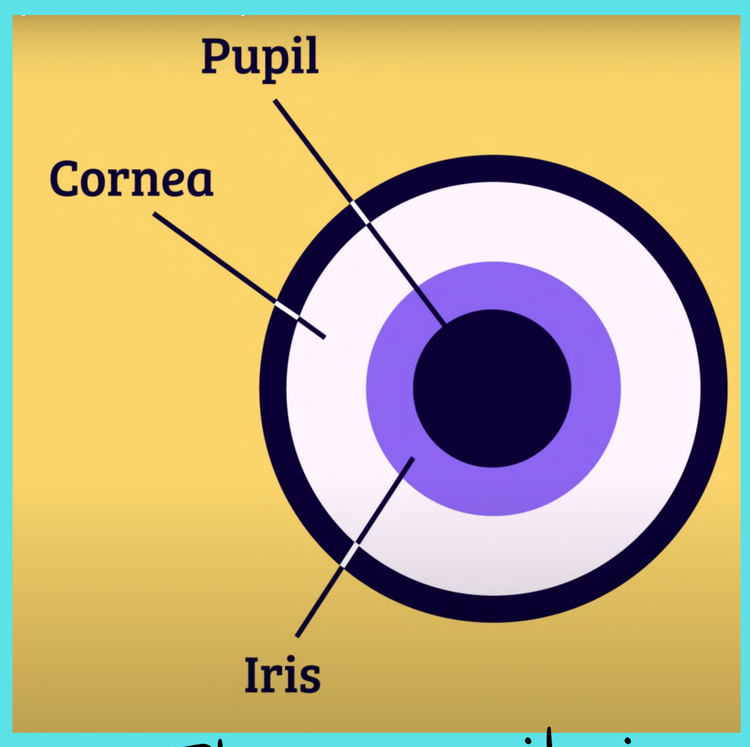
The Visual System

This system allows you to see everything around you.

Your eye works by detecting different patterns of light. For instance, light rays will bounce off an object and the rays will reflect off it and into your eye.



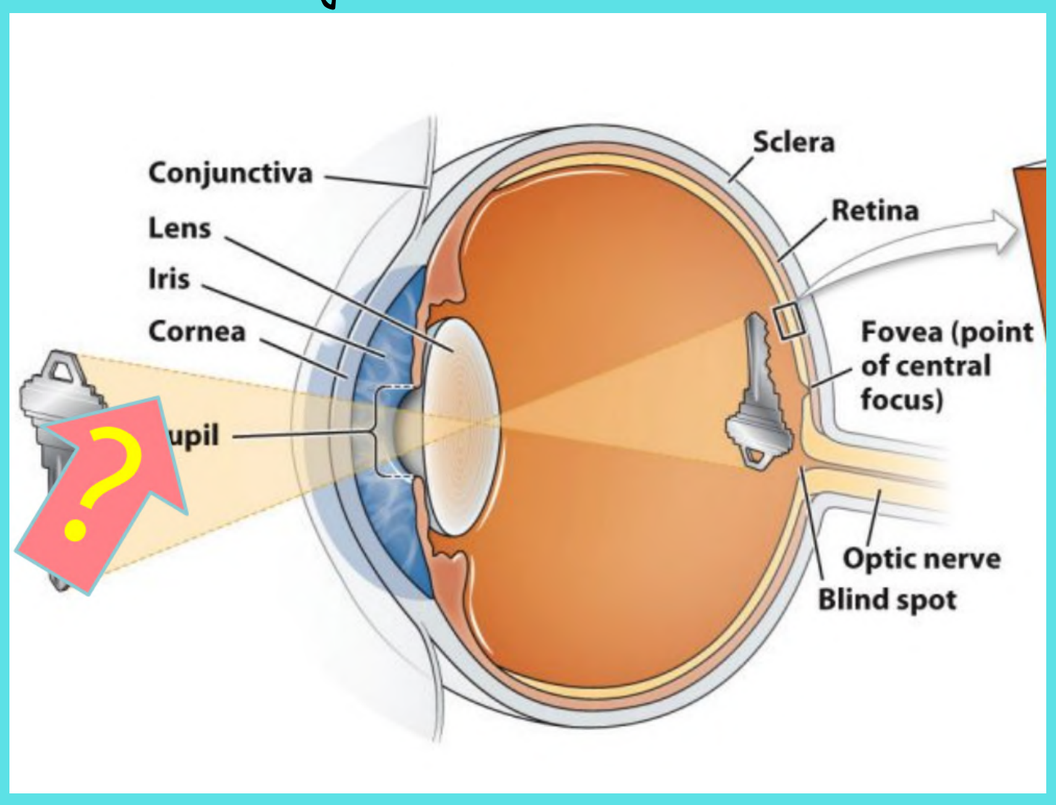
These light rays enter your eye through your cornea. The cornea helps your eye focus the light and serves as a barrier against infections.



Next, the light travels to your pupil which controls how much light enters your eye.

The pupil is controlled by the iris which makes the pupil wider or narrow depending on how much light there is.

Then you have the lens which is in the back of the iris. The lens helps to focus the light coming into your eye. All of these parts of the eye focus the light to the back of the eye because in the back of the eye is the retina.



In the retina, there are many cells sensitive to light. When they detect light they turn it into electrical signals. These signals go through the optic nerve and into the brain.

However, when the light rays bounce off an object.

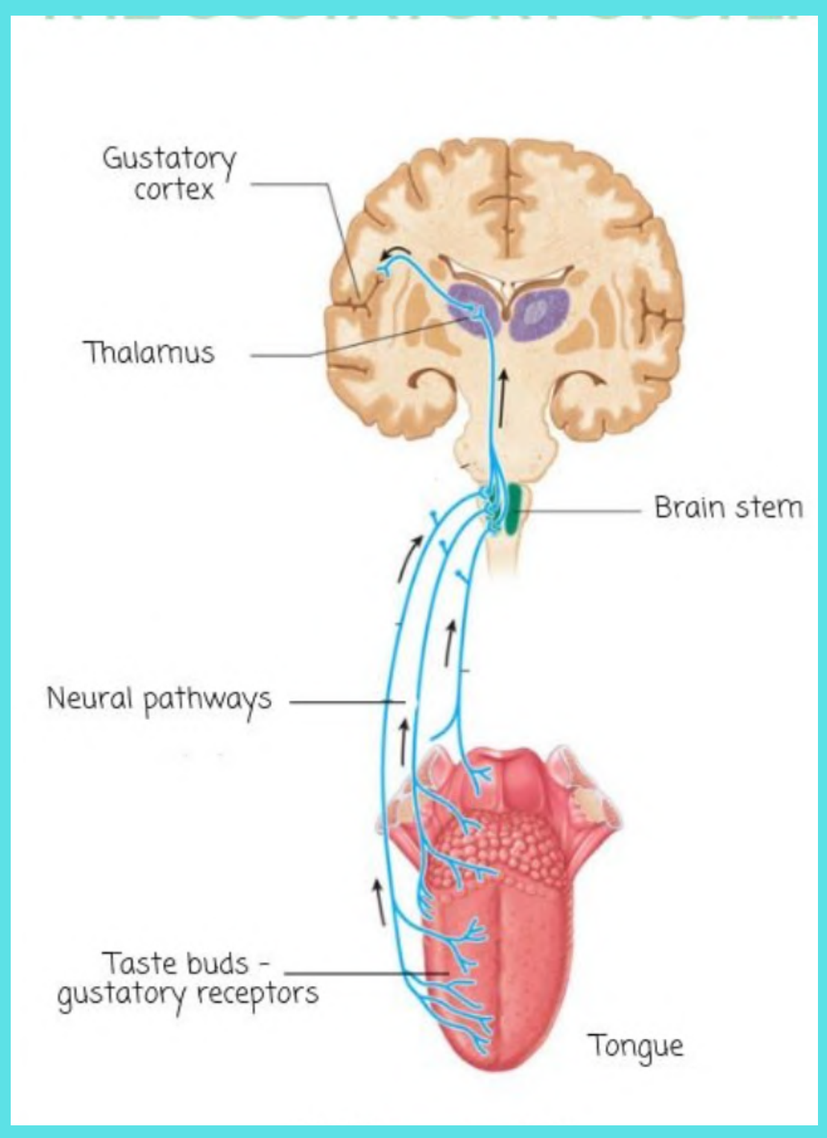
The retina sees things upside down.

So when they go to the brain the brain turns its right side up and helps you identify what you are seeing.

The Gustatory System

This system allows you to taste things.

When you eat something, a taste bud cell detects that something.



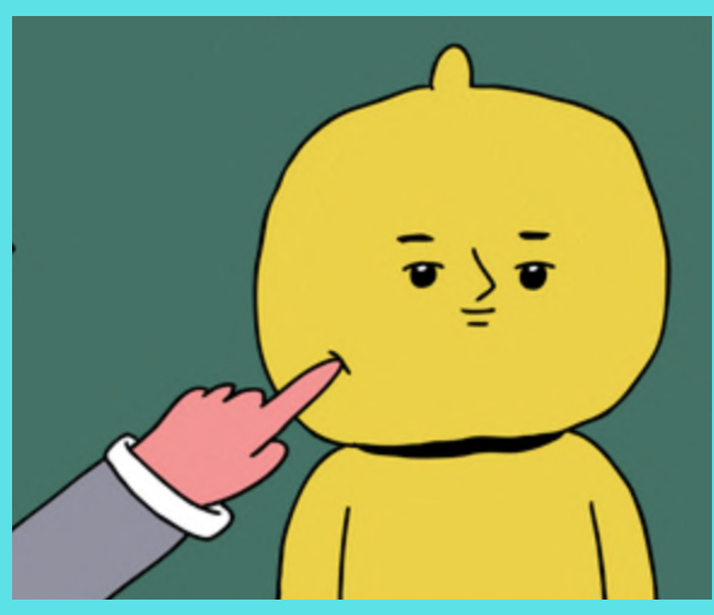
Once it detects it many proteins in the cell produce an electrical current. This current is detected by the nerves of the tongue. When the nerves receive signals from your taste buds, they send the signal to the back of your mouth and into your brain.

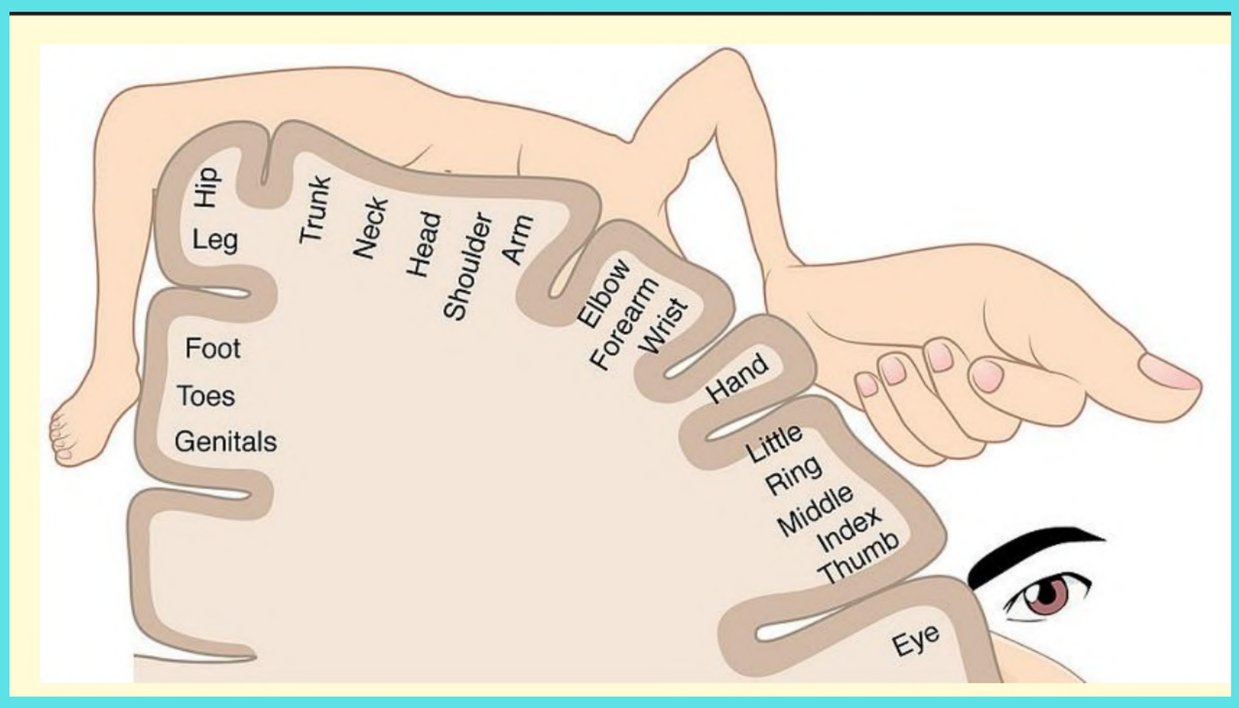
Your brain receives the signal and determines when the taste is bitter, sweet, sour, or salty.

The Somatosensory System

This system allows you to feel everything around you.

There are many receptors on the skin that allow you to detect movements, detect the size of the object, and even detect temperature.





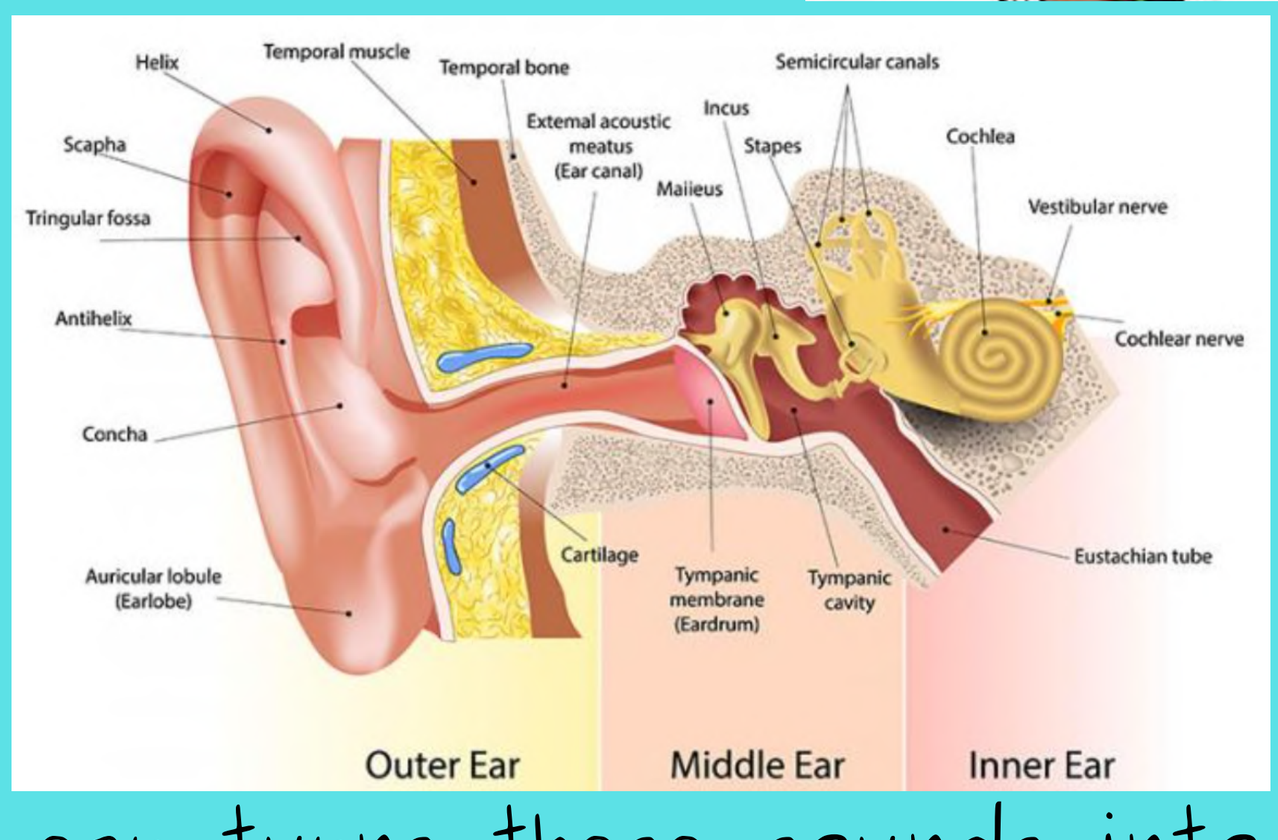
So when you touch something the receptors are stimulated which allows for the charged particles to flow into the nerve. This allows the brain to detect these charged particles and determine many things such as body position.

The Auditory System and

Vestibular System

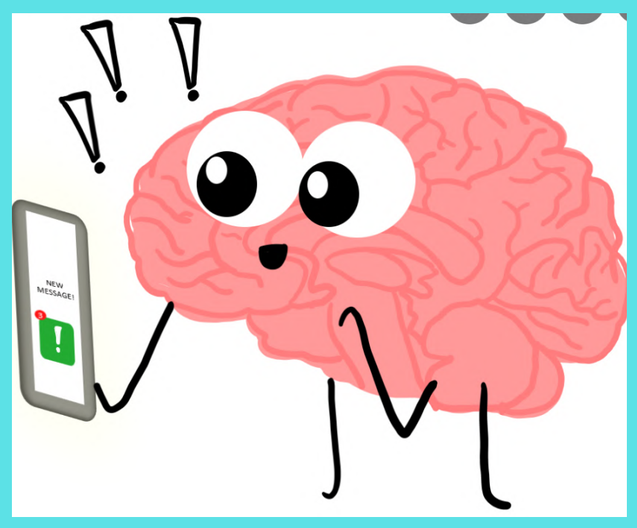
This system allows you to hear and balance yourself.

When a sound comes in from the environment, it enters the outer ear and moves to the middle ear.

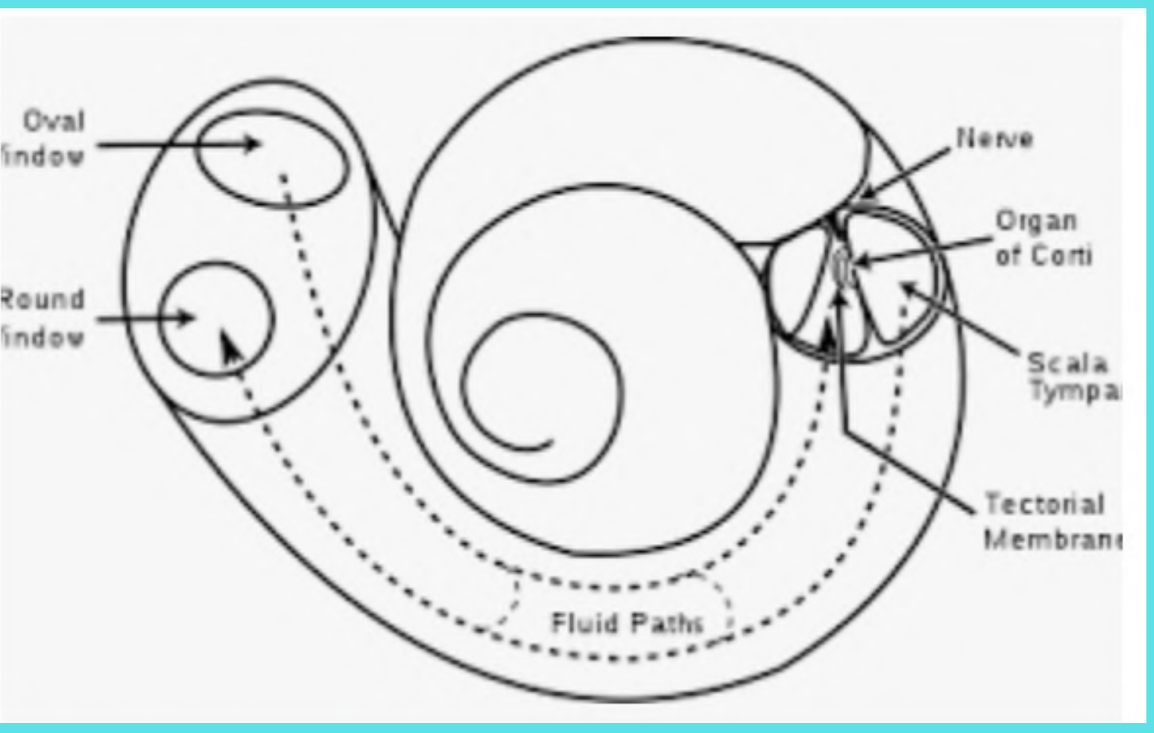


The middle ear turns these sounds into vibrations. It does this when the sound hits the eardrum causing it to move. When the eardrum moves, it causes three other bones to vibrate. These bones are called ossicles. These vibrations are sent to the inner ear.

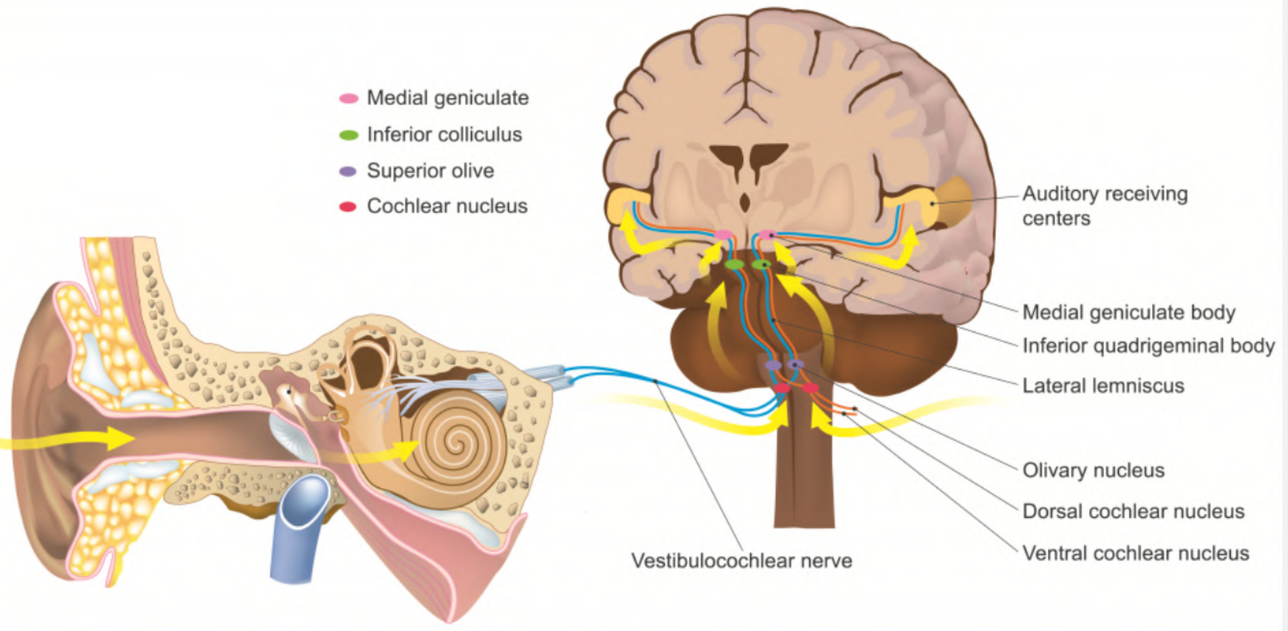
In the inner ear, the vibrations are turned into messages for the brain. The messages are sent with nerve signals.



It does this when the vibrations enter the cochlea. The cochlea has fluid that moves like a wave when vibrations come in. The moving fluid causes the hair cells to make nerve signals. These signals go through the auditory nerve.



Next to the cochlea is the semicircular canals that function like the cochlea except for the fact that it helps with balance. The signal from the semicircular canals goes through the vestibular nerve.



Both nerves lead to the brain where it gathers information about sound and balance.