

The brain

Kids' Health Topic

What is the brain?

The brain is the control centre for your body and it sits in your skull at the top of your spinal cord.

The brain has three main parts.

- > The **cerebellum** (say se-re-bell-um).
- > The **cerebrum** (say se-re-brum), which has two parts, the left and right **cerebral hemispheres**, (say se-re-brell hem-iss-fears).
- > The **brain stem**, that controls a lot of the 'automatic' actions of your body such as breathing and heart beat, and links the brain to the spinal cord and the rest of the body.

Your brain is wrapped in 3 layers of tissue and floats in a special shock-proof fluid to stop it from getting bumped on the inside of your skull as your body moves around.

What the brain does

Your brain is more powerful, more complex and more clever than any computer ever built.

It is constantly dealing with hundreds of messages from the world around you, and from your body, and telling your body what to do.

It gets the messages from your senses - **seeing, hearing, tasting, smelling, touching and moving**. The messages travel from nerve cells all over the body. They travel along nerve fibres to nerve cells in the brain.

Cranial nerves (say cray-nee-al) carry messages to and from the ears, eyes, nose, throat, tongue and skin on your face and scalp.

The **spinal cord** carries messages to and from the arms, legs and trunk of the body.

Sensory nerves collect the information and send it to the brain **along one network** then **motor nerves** take the brain's orders back along another network (like cars travelling along their own side of the highway.)

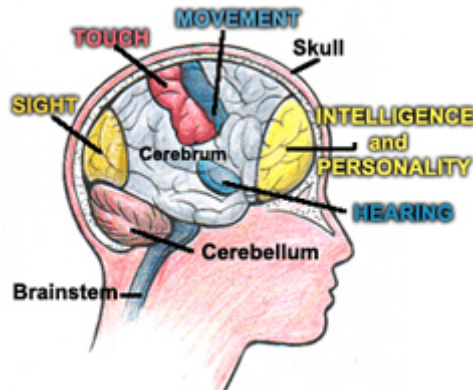
Your brain collects all the information, sorts it out, thinks, remembers, creates, compares, solves problems and coordinates actions **all at the same time - even when you're asleep!** (And you don't have to be 'plugged in' and 'online' either!)

If you get too tired or don't eat enough food, your brain can't do this as well as usual.

Control centres of the brain

Doctors and scientists have found that different parts of the brain are in charge of different things. Look at the diagram for an easy way to understand.





The **cerebellum** controls and coordinates movements of the muscles, like walking or swinging the arms. This means that the movement is smooth and controlled and you don't fall over when you turn around.

The outside layer of the **cerebrum** has special areas, which receive messages about sight, touch, hearing and taste. Other areas control movement, speech, learning, intelligence and personality.

The **brain stem** is in charge of keeping the automatic systems of your body working. You don't have to think about breathing, you just do it automatically, but you can decide if you want to hold your breath for a short time. You don't have to think about your heart beating because your brain keeps it going automatically.


Interesting facts about the human brain

- > Do you know that your brain has around 100 billion nerve cells?
- > It also has 1,000 billion other cells, which cover the nerve cells and the parts of the nerve cells which form the links between one cell and another, feed them and keep them healthy.
- > Your brain keeps on growing until you are about 20 years old. By then the brain has made lots of links which it no longer needs so it is able to shed any unwanted connections and still have billions of brain cells left to cope with whatever you may want to do. You can still make new connections even when you are 100 years old, so get Grandma going on the computer - she may not learn as fast as you but she can do it!
- > The front of the human brain is larger than any other animal's, even the dinosaur's!
- > The left side of your brain is usually better at problem solving, maths and writing.
- > The right side of the brain is creative and helps you to be good at art or music.
- > The brain stores all sorts of things in the memory including facts and figures and all the smells, tastes and things you have seen, heard or touched.
- > Your brain can also find things that you have remembered---like how to spell ce-re-bell-um.

Looking after your brain

Your brain is protected inside your skull but could still be damaged if your head is hit or bumps into something hard.

- > Always wear a helmet if you are riding a bike, scooter or skate board.
- > Always wear a helmet for sports where you could be hit or fall, eg baseball or horse-riding .
- > Never dive into water unless you know how deep it is. (Your brain should let you know that this is not a smart thing to do.)



Apart from making sure that you don't injure your brain, you can also make sure that you help your brain by:

- > Eating healthy food like fish and fresh vegetables.
- > Exercising your brain by learning new things and trying to remember them.
- > Getting plenty of sleep.

Dr Kim says:

The human brain is so complex that doctors and scientists still don't know what some parts of it do. They do know that if the brain is damaged, the damage often cannot be repaired. You can't join brain cells together like you can do with bones. Doctors and scientists know how some of the brain works and can sometimes fix it when things go wrong, but the brain is truly amazing and we don't know all its secrets yet.