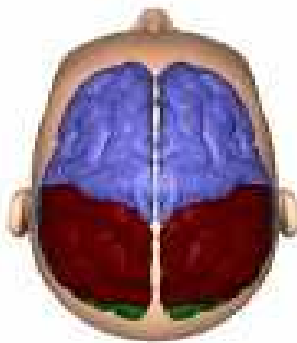


## The brain



## The brain

### How it works

The brain works as a control centre for the whole body. It is mainly responsible for doing three things:

**Receiving information**, both from inside and outside your body. For example, the brain receives information from your stomach when it is empty, or from your skin when you are cold. The brain gives you the ability to see, hear, smell, taste and feel.

**Analysing information** it receives, both from inside and outside your body. You are then able to put a meaning to what you feel, and to remember what you felt or experienced. For example, an empty stomach will make you feel hungry; it will make you think about food and remember where to find it. When the weather is cold, you will feel uncomfortable and you will think about putting on a sweater.

### Responding to information

The brain sends messages to muscles, glands, organs, etc. in the body. They react to the messages they receive. So, following on from the example used above, when you are hungry, you reach for food and eat it. When you are cold, you might run up and down, clap your hands and blow warm air into them.



## Description of the brain

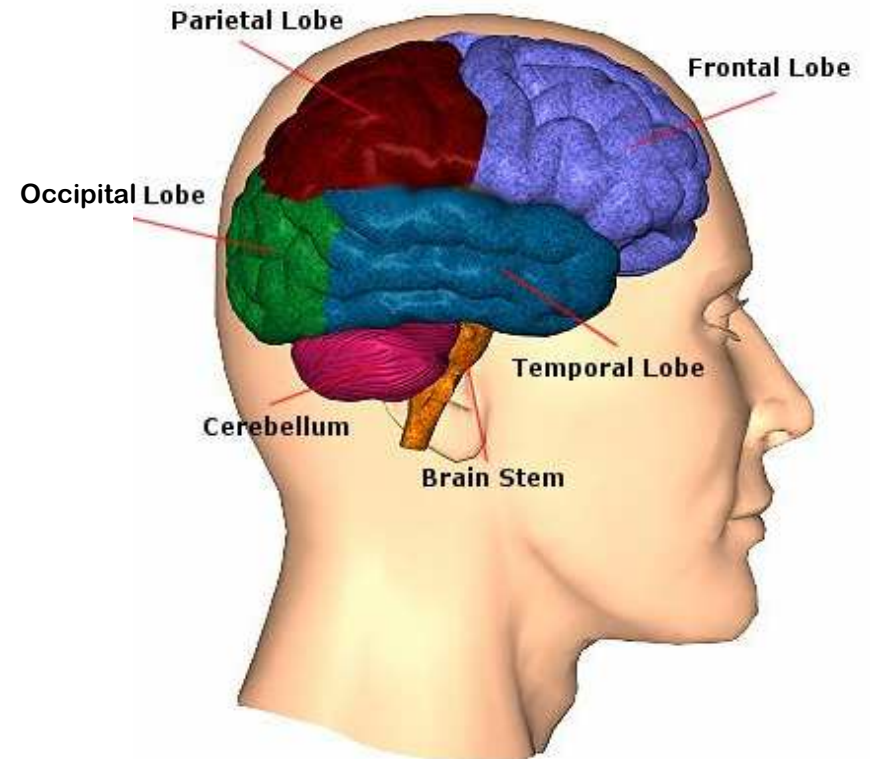
The brain is the most important part of the body and, unlike most other parts of the body, it is irreplaceable. Because it is so important, it needs to be protected, and this is done by a hard outer cover (the skull), two protective soft layers (the meninges) and a “shock absorber”, which is a fluid (cerebro-spinal fluid) surrounding and inside the brain.

The brain is built of millions of nerve cells, layer upon layer. Nerve cells are very fragile, and to be able to work properly they need to be nourished and supplied with oxygen. Nerve cells receive these things in blood, which is carried to all parts of the brain by blood vessels.

If anything goes wrong with the supply of nutrition and oxygen, or a brain injury has taken place, then nerve cells can get damaged beyond repair and lose their function (more information on this topic can be found in the leaflet on Brain injury).

## Areas of the brain

There are different kinds of nerve cells and each kind has its own function, depending on where it is in the brain. Each area has special tasks to do and different areas work together to carry out activities of daily life.



## Frontal lobe

This area controls your:

- personality
- emotions
- behaviour
- initiative (“get up and go”)
- problem-solving abilities
- speech
- ability to move
- conscious control over bowel and bladder function.

## Parietal lobe

This area controls:

- the ability to feel your posture, touch and passive movements
- the ability to tell the size, shape, texture and weight of an object
- the ability to count or write.

## Occipital lobe

The function of this lobe is mainly to recognise and give meaning to the information coming in through your eyes. It gives you the ability to see.

## Temporal lobe

This controls your ability to:

- hear sounds, rhythm, language and music
- understand speech and written information
- learn and remember information.

It controls your emotions and how you show them. Also, it helps you to recognise smells and to see.

## Cerebellum

This is situated at the base of the brain. It helps you to walk, to move in an *efficient* and *coordinated* way, to find your balance and control your posture. It also controls the *fluency* of your speech.

## The brainstem

This is situated at the base of the brain in front of the cerebellum. It controls *consciousness* and the most basic body functions such as breathing, swallowing, blinking and heart rate.

From the brainstem, the spinal cord runs down your back. It is protected by the meninges, the cerebrospinal fluid and your spine. The spinal cord is made up of nerves carrying messages from/to the brain. If the brain is like a central railway station, then the spinal cord is like the railway tracks. The spinal cord is the messenger between your body and your brain, and it delivers messages both ways.

## Brain hemispheres

The brain is divided into two halves, a left and a right hemisphere, which are connected to each other. The right and left brain halves have different functions. The Brain injury leaflet gives more details. The left side of the brain controls the right side of the body and the right side of the brain controls the left side of the body.



## **Where to get more information**

If you would like more information about the brain, please ask to speak to your doctor. If you would like to know more about brain injury, please ask a member of staff to give you the Brain Injury leaflet.

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