

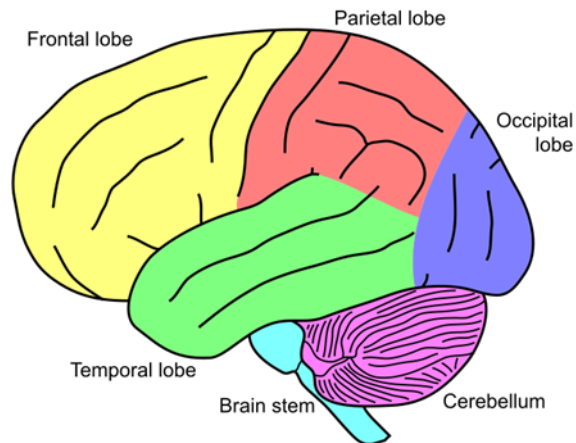


## Activity 1: Brain Structure

In this activity, we will explore the structure of the human brain and what is unique about it when compared to other primates.

### Lobes

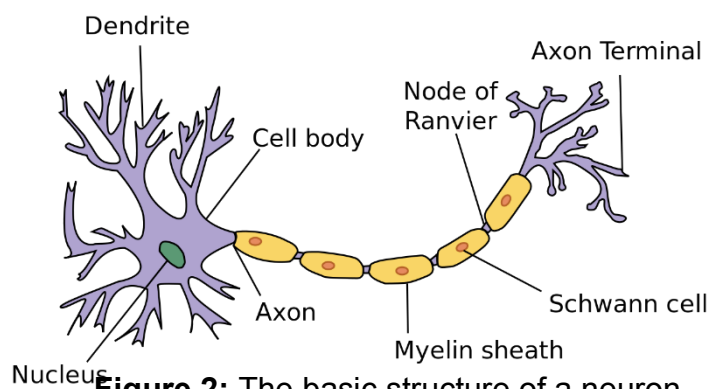
The brain consists of different areas: the frontal lobe, parietal lobe, occipital lobe, temporal lobe, the brain stem and the cerebellum (Figure 1).



**Figure 1:** The structure of the brain

### Neurons

There are about one hundred billion **neurons** in the human brain! Neurons (Figure 2) are complex cells that come in many different shapes and sizes and are responsible in part for sending electrical impulses in the brain. They consist of the cell body, nucleus, dendrite, axon and axon terminal. At the end of the neurons, are the axon terminals. The axon terminals are where the cells communicate to the next cell. The meeting point of two neurons (at the axon terminal in Figure 2) is called a *synapse*.



**Figure 2:** The basic structure of a neuron

# Activity 1: Brain Structure

## ***Other Cell Types***

Neurons are not the only cell type in the brain. There are also a number of other cells that have specialised roles, these include:

- \* oligodendrocytes
- \* microglia
- \* Astrocytes

## ***Blood-Brain Barrier***

Wrapping around the brain are the blood vessels and between the blood supply and the brain is the Blood-Brain Barrier (BBB). The BBB is a layer of endothelial cells with very small gaps between them, to prevent things like microbes and chemicals in the blood from getting into the brain that shouldn't, whilst allowing the transfer of nutrients and oxygen from the blood, that are vital for brain function.

## ***The Human Brain***

Humans are closely related to other primates, but have large differences in language and social structure. It is thought that there are physical differences in the brains of humans and primates. However, there is still ongoing research into the origin of this difference.

## **Task**

- Read this summary about neurons: [Neurons Transmit Messages in the Brain](#)
- Read this brief webpage to learn more about glial cells: [The Other Brain Cells](#)
- Read this webpage to learn more detail about the [Blood Brain Barrier](#)
- Read into the scientific research behind the difference between the brains of humans and other primates, in this article: [What makes a human brain unique?](#)

## **Explore More...**

If you would like to explore the structure of the human brain in more detail, here is a 3D interactive and informative model: [3D Brain Model](#)

If you want to know more about the uniqueness of the human brain, watch this TED talk: [What is so special about the human brain?](#)