

Brain Diagram : GCSE Biology

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1. Introduction

- The brain is mostly composed of **neurons**, also known as nerve cells.
- The brain of an adult consists of approximately **86 billion neurons**.
- These neurons are interconnected with each other and with the other parts of the body.
- This **interconnection** allows **information processing** and **body control**.
- Without a functioning brain, a person dies.

Real -life uses:



Thinking



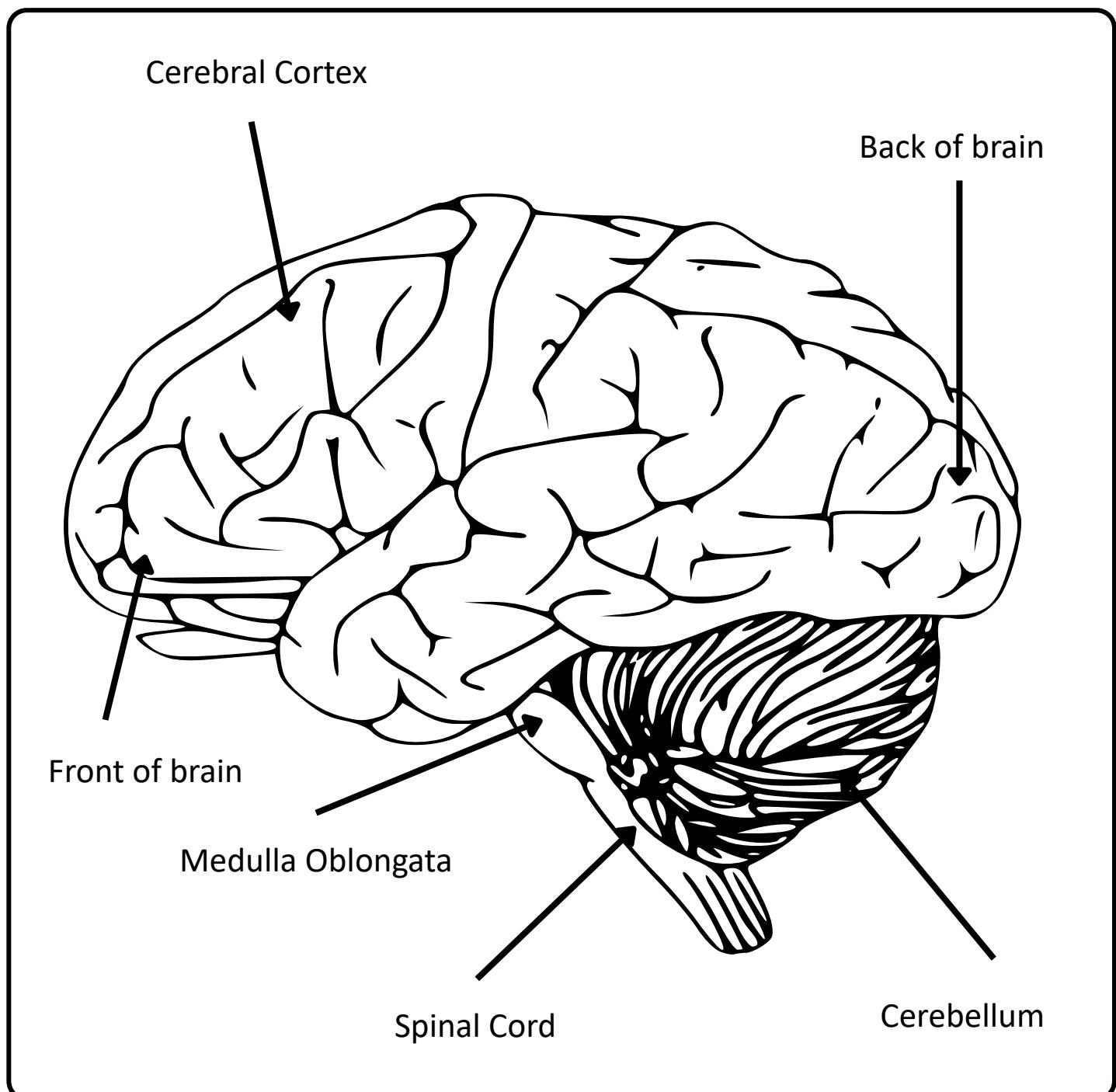
Balancing or coordination



Planning

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2. Diagram of the brain

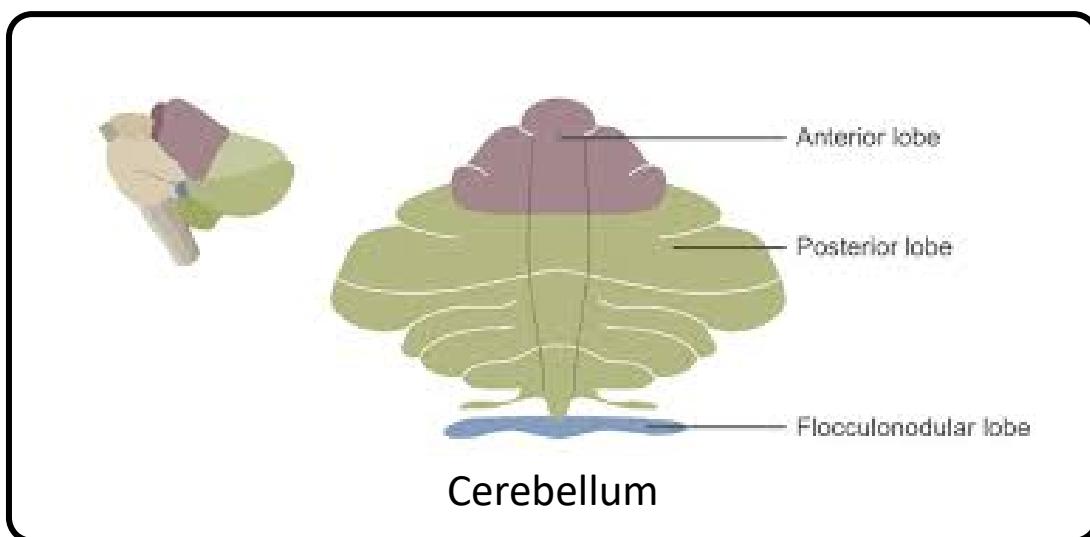


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3. Main Parts of the Brain

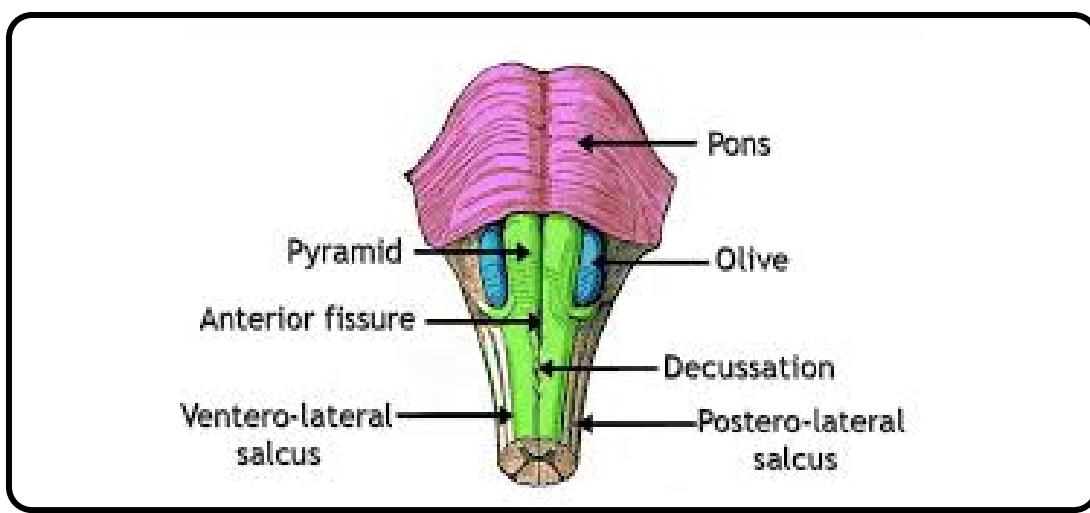
- Main parts of the brain include the **cerebrum**, **cerebellum**, and **medulla oblongata**.

Cerebellum:



- It is present at the **base of the brain**.
- It consists of **two equal parts**.
- The body's **balance** and **posture** are controlled by the cerebellum.
- It works to **ensure smooth movements**. For this, it precisely coordinates when and how the muscles contract.

Medulla Oblongata:



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- It is **located between the brain and the spinal cord**, and connects them.
- It is mainly responsible for involuntary tasks like **controlling heart rate** and **breathing rate**.
- Essential reflexes, including vomiting, sneezing, and swallowing, are carried out by the medulla oblongata.

Cerebrum:

- It is the most widespread part of the brain, having two hemispheres.
- The front and top of the brain are its parts.
- The **cortex** with the underlying **white matter** makes up the cerebrum.

Part of the cerebrum	Functions
Left Hemisphere	Coordinates the right side of the body, smell, hearing, sense, taste, movement, speech, general interpretation, and language.
Right Hemisphere	Controls the left side of the body
Front	Emotions, learning, and personality
Back	Vision

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4. FAQs

1. What are the brain and spinal cord made of?

The Central Nervous System (the brain and spinal cord) is made of Nervous tissue.

2. What are the main parts of the brain?

The human brain is divided into three main parts: the cerebrum, cerebellum, and medulla oblongata.

3. Describe how most of the cells in the brain develop.

The stem cells of a three-week-old embryo begin to differentiate and give rise to nerve cells.

4. Information is carried from the right cerebral hemisphere to the left hand — describe the route the information takes.

The right cerebral hemisphere sends the impulse to the midbrain and then to the left hemisphere. From here, it descends to the medulla, the spinal cord and finally reaches the left hand.

5. Suggest why the medulla oblongata is sometimes referred to as the 'automatic pilot' of the brain.

The medulla oblongata is called the brain's "automatic pilot" as it controls the vital involuntary functions: breathing, heart rate, blood pressure, vomiting, digestion, and sneezing without conscious thought.

6. Are the cerebral cortex and cerebrum the same?

No, the cerebral cortex and cerebrum are not the same. The cerebral cortex is the outer layer of the cerebrum.