# The Brain

## The brain is composed of ***4 regions:***

### I. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- connects brain to spinal cord

### II. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- the interbrain (inner part)

### III. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- “cerebral hemispheres”; makes up \_\_\_\_\_\_\_\_\_\_\_\_ of the brain

### IV. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- “small brain”; \_\_\_\_\_\_\_\_\_ largest area of brain

# I. Brain Stem

## ***Brain stem***- \_\_\_\_\_\_\_\_\_\_\_\_ matter surrounded by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(like spinal cord)

## About \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ long

## Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ arise from this area (all except 2)

## Composed of 3 regions:

### 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ responsible for vital functions such as:

#### a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### c. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### d. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (vomiting, coughing, sneezing, swallowing)

#### e. Contains the \_\_\_\_\_\_\_\_\_\_\_ ventricle

## \* Cranial nerves- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- “bridge”; less than \_\_\_\_\_\_\_\_\_\_ long

#### contains ascending/ descending nerve tracts

#### relay center between cerebrum and cerebellum

## Cranial nerves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- highest part of brain stem

#### responsible for:

#### a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Cranial nerves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \*\*4. Reticular Formation- Extends through the central core of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and is responsible for keeping brain alert by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# II. Diencephalon (Interbrain)

## Interbrain composed of primarily \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Source of only\_\_\_\_\_\_\_\_\_ cranial nerves

## Composed of 3 paired \_\_\_\_\_\_\_\_\_ matter structures which all enclose the \_\_\_\_\_\_\_\_\_ ventricle:

## 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- largest, \_\_\_\_\_% of diencephalon; held together by “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”; called “gateway to cerebral cortex”(all impulses go through here)

### a. Influences \_\_\_\_\_\_\_\_\_\_\_\_

### b. Registers \_\_\_\_\_\_\_\_\_\_\_\_\_

### c. Relay center to \_\_\_\_\_\_\_\_\_\_\_\_\_\_

### d. Memory processing/\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Cranial nerves \_\_\_\_\_\_\_\_\_\_\_\_\_\_

## 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-- small, contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_gland connected by a stalk called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_; maintain “homeostasis”; part of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ system; main visceral (organs) control center of body.

 Maintains homeostasis by:

 a. controlling \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 b. initiating \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Hypothalamus is responsible for:

## 1.

## 2.

## 3.

## 4.

## 5.

## 6. Secrete and control \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## 7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (via mamillary body)

## 8.

## 9.

## 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- forms the roof of the \_\_\_\_\_\_\_ ventricle; contains the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gland (responsible for sexual maturity); contains the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which forms CSF; secretes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to regulate the sleep/wake cycle.

# III. Cerebrum

##  3. Cerebrum- \_\_\_\_\_\_\_\_\_ of brain; “cerebral hemispheres”; \_\_\_\_\_\_\_\_\_\_ matter outside, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_matter inside. Has 3 functions:

### 1. \_\_\_\_\_\_\_\_\_\_\_\_ function

### 2. \_\_\_\_\_\_\_\_\_\_\_\_function

### 3. \_\_\_\_\_\_\_\_\_\_\_\_ (integrate information

The cerebral hemispheres form the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ part of the brain and account for \_\_\_\_\_\_\_\_\_\_% of brain mass.

Surface markings include:

 a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= ridges

 b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= shallow grooves

 c. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= deep grooves

 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= separates 2 hemispheres

 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= separates cerebrum and cerebellum

There are 5 lobes that make up each hemisphere.

 1.

 2.

 3.

 4.

 5.

These lobes are divided by specific sulci.

|  |  |
| --- | --- |
| Sulcus | Lobes divided |
| Central sulcus |  |
| Parieto-occipital sulcus |  |
| Lateral sulcus |  |

Each hemisphere has 3 basic regions:

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = grey matter superficially
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = internally
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = deep within white matter

The \_\_\_\_\_\_\_\_\_\_\_\_\_ is the “executive suite” of the brain. It is the site of the conscious mind and is responsible for:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The cerebral cortex is thin \_\_\_\_\_\_\_\_\_mm. and made of a superficial later of \_\_\_\_\_\_\_\_\_\_\_ matter (neuron cell bodies, dendrites, glial cells, blood vessels, but no \_\_\_\_\_\_\_\_\_\_\_\_\_\_). It makes up \_\_\_\_\_\_% of the mass of the brain.

The 4 most important considerations of the cerebral cortex are:

 1. It contains \_\_\_\_\_\_ types of functional areas:

 a.

 b.

 c.

 2. Each hemisphere controls the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (opposite) side of the body.

 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (specialization) of function can occur in only \_\_\_\_\_\_ hemisphere.

 4. Conscious behavior involves the \_\_\_\_\_\_\_\_\_ cortex in one way or another.

Motor areas are located in the \_\_\_\_\_\_\_\_\_\_\_\_ lobe. They control voluntary movement.

Sensory areas are located in the \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ lobes. They are concerned with conscious awareness of sensations.

Association areas receive \_\_\_\_\_\_\_\_ from multiple sensory areas and send \_\_\_\_\_\_\_\_\_\_ to multiple areas. This allows us to five meaning to information received, store in memory, tie to previous experience, and decide on actions.

# IV. Cerebellum

## Cerebellum- makes up \_\_\_\_\_\_\_\_\_% of brain mass; it processes input from cortex, brain stem, and sensory receptors to provide precise, coordinated movements of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ muscles and balance.

## The cerebellum is also called the “\_\_\_\_\_\_\_\_\_\_ brain”; \_\_\_\_\_\_\_\_\_largest part; \_\_\_\_\_\_\_\_\_\_\_ matter outside; \_\_\_\_\_\_\_\_\_\_\_\_ inside; contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (“white tree”)

It is responsible for:

### 1.

### 2.

### 3.