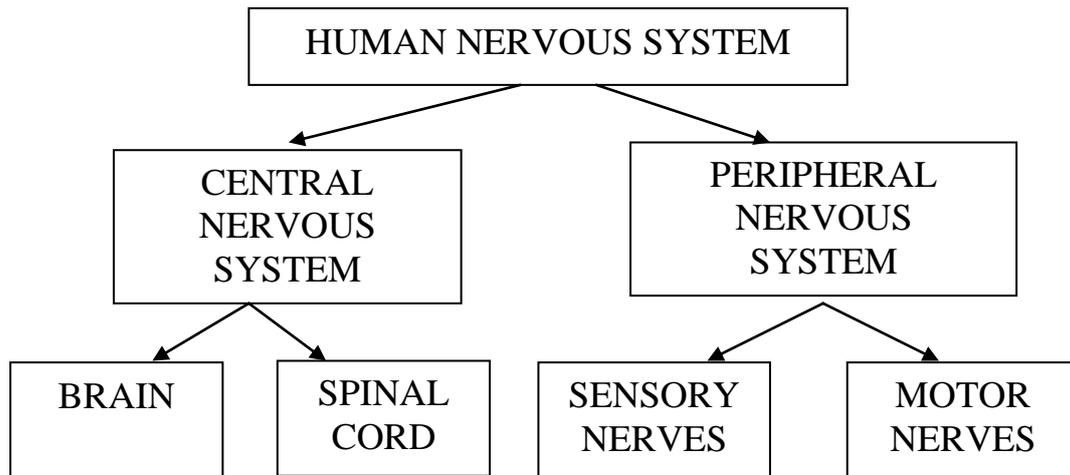


THE HUMAN NERVOUS SYSTEM



3 Main Parts of the Nervous System

1. Brain
2. Spinal Cord
3. Nerves – Sensory and _____ Nerves

The Neurone

- ◆ Nerve cells are called _____.
- ◆ A **neurone** consists of a **cell body** (with a nucleus and cytoplasm), **dendrites** which carry electrical _____ to the cell, and a long **axon** which carries the impulses away from the cell.
- ◆ The axon of one neurone and the dendrites of the next neurone do not actually touch. The _____ between neurones is called the **synapse**.

Neuronal Function

There are 3 processes involved in nerve transmission:

1. Generation of a nerve impulse (**action potential**) of a sensory neurone occurs as a result of a stimulus such as light, a particular chemical or stretching of a cell membrane by sound.
2. Conduction of an impulse along a neurone occurs from the _____ to the cell body to the axon.
3. A **chemical transmitter substance** is released across the _____ to allow the electrical impulses to pass from one neurone to the next. This substance causes the next neurone to be electrically stimulated and keeps the signal going along a nerve.

The Central Nervous System

- ◆ The **Central Nervous System** comprises the parts that are enclosed and protected by bone - the Brain and the _____ Cord.
- ◆ The **Brain** is composed of _____ of interconnected neurones. It is protected within the _____ or **cranium**.
- ◆ The **Spinal Cord** is a bundle of nerve fibres made of many neurones. It is protected by the **vertebral column**.
- ◆ **Cerebro-spinal Fluid** surrounds the brain and spinal cord and acts as a buffer against hard knocks or jolts.
- ◆ **3 Parts of The Brain**
 1. Cerebrum (Forebrain) – the largest section of the brain, which lets us think, interpret sensory messages, carry out voluntary _____ movements, remember and have consciousness
 2. Cerebellum (Midbrain) – helps us to keep our balance, and have repetitive muscle control
 3. Medulla Oblongata (Hindbrain or Brain Stem) – control the vital functions of heartbeat and _____

The Hypothalamus

- ◆ The hypothalamus is a small cluster of neurones deep within the brain. It plays a central role by regulating many vital processes (e.g. regulating body temperature, heart rate, water balance and blood pressure, carbohydrate and fat metabolism, appetite, sleep and sex drive).
- ◆ It also links the nervous system with the endocrine system, because it controls the **pituitary gland** which is the master gland of the _____ system.

The Peripheral Nervous System

- ◆ This is the part of the nervous system that does not include the brain and the spinal cord.
- ◆ There are 2 types of nerves – sensory and motor nerves.
- ◆ **Sensory Nerves** carry information about the surroundings from the sense receptors in the skin, _____, ears, nose and tongue along the spinal cord to the brain to be interpreted.
- ◆ **Motor Nerves** carry messages from the brain through the spinal cord to the muscles and other organs to produce an action.
- ◆ Some of the nerves of the peripheral nervous system are under voluntary control (e.g. _____). Other nerves are involuntary or uncontrolled (e.g. regulating heartbeat).

A Reflex Arc

- ◆ A reflex arc involves transmission of a nervous impulse or message from sensory receptors to the spinal cord and back to muscles. Later, the message also reaches the brain for interpretation.