

## The Nervous System

The nervous system allows your body to **react** to changes **inside** and **outside** the body. Changes in your environment that you need to react to are called **stimuli**.

To detect stimuli we have different **sense organs** called **eyes, ears, nose, tongue** and **skin**. The sense organs have different **receptors**, groups of cells that are **sensitive** to certain **stimuli**.

| Sense Organ | Receptors found in the sense organ                                                                    |
|-------------|-------------------------------------------------------------------------------------------------------|
| Eyes        | Light receptors.                                                                                      |
| Ears        | Sound and "balance" receptors                                                                         |
| Nose        | Smell receptors – sensitive to chemical stimuli.                                                      |
| Tongue      | Taste receptors – sensitive to bitter, salt, sweet, sour and savoury. These are all chemical stimuli. |
| Skin        | Pressure (touch) and temperature receptors.                                                           |

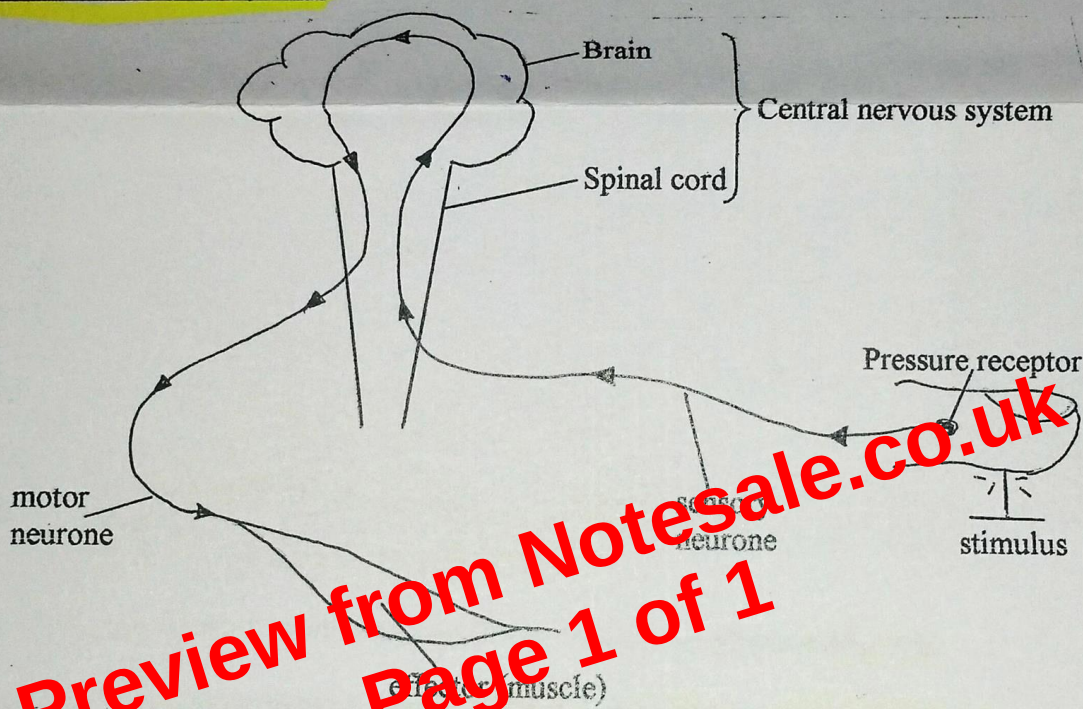
The receptors change the **energy** of the **stimuli** into **electrical signals** called **impulses**, which then travel to the **brain**. The brain **processes** the information and **sends** impulses to other **organs** to alter the way the body works.

### The Central Nervous System - (CNS).

The job of the CNS is to organise and **coordinate** responses to control your body.

The CNS consists of the **spinal cord** and the **brain**.

### Simple Model of the Nervous System



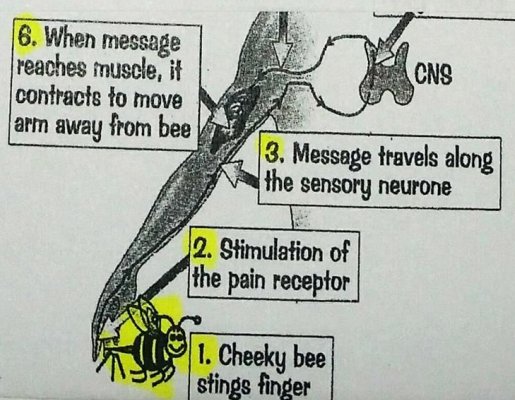
A **stimulus** detected by **receptor cells** in a sense organ is changed into an **electrical impulse**. The impulse is sent along a **sensory neurone** to the **CNS**.

The CNS (the brain part) decides **what to do** then sends a **response** as an impulse along a **motor neurone** to the **effectors**. The effectors, either **muscles** or **glands** respond to the impulse – muscles **contract** and glands **secrete hormones**.

In the central nervous system the sensory neurone passes the impulse to a **relay neurone**, which **relay** the impulse to a **motor neurone**.

The impulse travels along the motor neurone to **effectors**, muscles in the hand.

The muscles then **contract** and move your



Hand shown -> Stimulus -> Receptors -> C.N.S -> Motor neurone -> Effectors -> Response