

The Nervous System

Sense organs and receptors

The five sense organs are:
eyes ears nose tongue skin

These five different sense organs all contain different receptors. Receptors are groups of cells which are sensitive to a stimulus such as light or heat, etc.

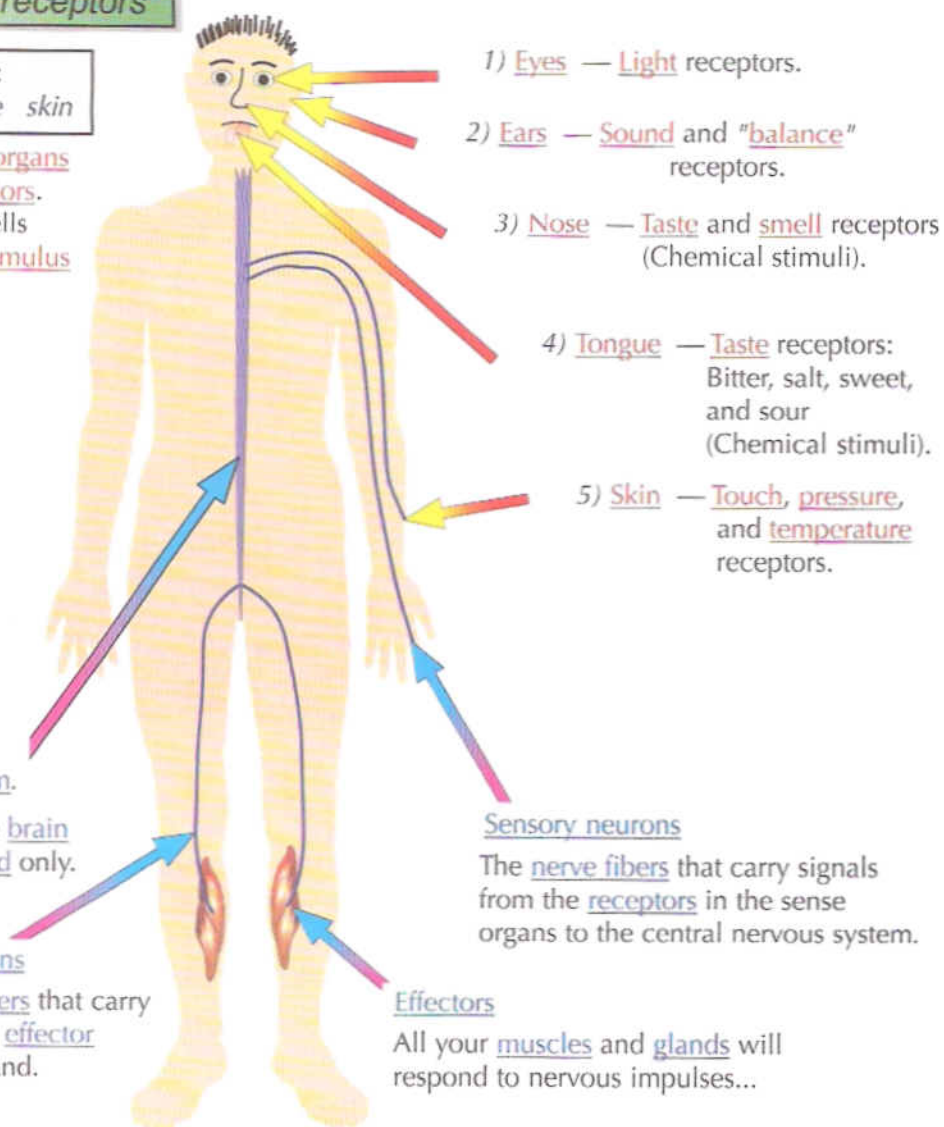
Receptors turn energy (such as light energy) into electrical impulses. These are transmitted to the brain.

The central nervous system.

Consists of the brain and spinal cord only.

Motor Neurons

The nerve fibers that carry signals to the effector muscle or gland.



Neurons (nerve cells) transmit electrical impulses very quickly around the body.

The effectors are muscles and glands which respond to the various stimuli according to the instructions sent from the central nervous system.

The central and peripheral nervous systems

- 1) The central nervous system is where all the sensory information is sent and where reflexes and actions are coordinated. It consists of the brain and spinal cord only.
- 2) The peripheral nervous system contains sensory and motor neurons that transmit information to and from the central nervous system. It is organized into two divisions — the somatic and autonomic nervous systems.
- 3) The somatic nervous system contains neurons that control the actions of skeletal muscles. The autonomic nervous system contains neurons that control the automatic functions of the body, like heart rate.

This stuff is easy — I mean it's all just common senses...

Sense organs and Receptors — don't get them mixed up: The eye is a sense organ — it contains light receptors. The ear is a sense organ — it contains sound-receptors. There's quite a few names to learn here (as ever!). Practice until you can cover the page and scribble down all the details from memory.

Neurons and Reflexes

There are three types of neuron

The THREE TYPES of NEURONS are:

(They're all pretty much the same, they're just connected to different things, that's all.)

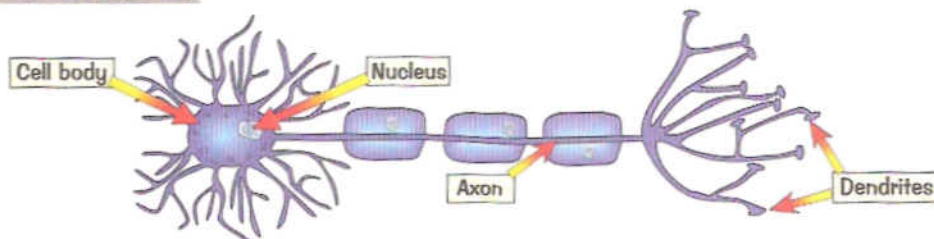
1) SENSORY neuron

2) MOTOR neuron

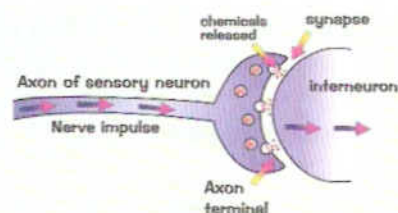
3) INTERNEURON

A typical neuron:

— Learn the names of all the parts:



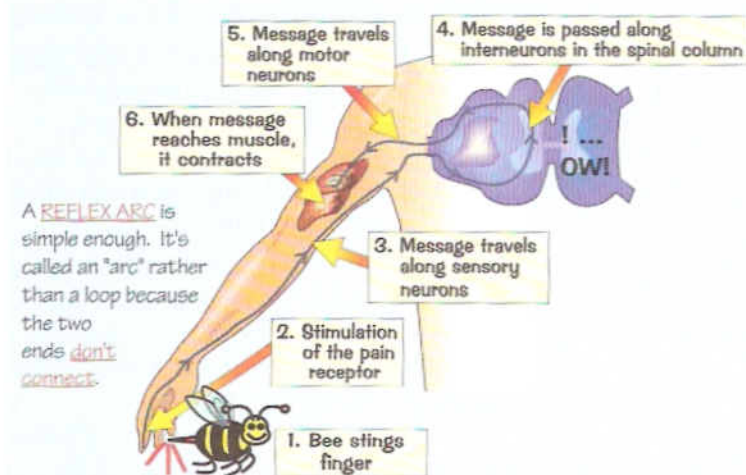
Synapses use chemicals



- 1) The connection between two neurons is called a synapse.
- 2) A synapse is actually a small gap between neurons.
- 3) The nerve signal is transferred by chemicals which diffuse across the gap.
- 4) These chemicals then set off a new electrical signal in the next neuron.

The reflex arc allows very quick responses

A typical reflex arc



- 1) The nervous system allows very quick responses because it uses electrical impulses.
- 2) Reflex actions are automatic (they are done without thinking — the brain isn't involved) so they are even quicker.
- 3) Reflex actions save your body from injury, for example, pulling your hand off a hot object for you.
- 4) A muscle responds by contracting, a gland responds by secreting.

Don't get all twitchy — just learn it...

Another page to learn, but it's all good clean fun. Once again, everything on this page is important information that you will need to know for the Regents exam. Use the diagrams to help you remember the important details. Then cover the page and scribble it all down.