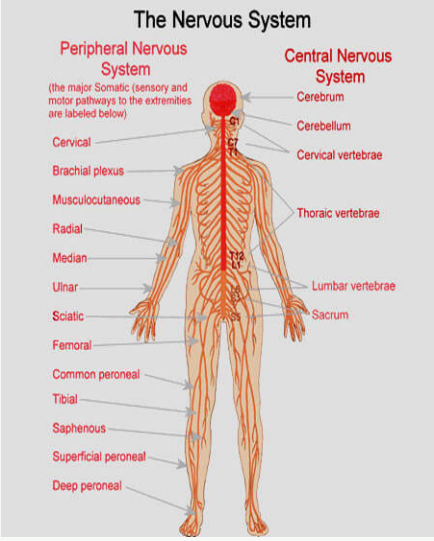
NERVOUS SYSTEM

- **network of nerves** that connect the *spinal cord* and the *brain* to the rest of the body and allow a *stimulus-response* reaction to occur among different organs

nerves - begins at the brain and connect to different organs[1] - serves as a *control system* that dictates all voluntary and involuntary actions performed by the body[2]

illustration of the nervous system



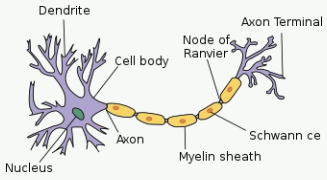
NEURONS

- carry out the *main functions of the nervous system*

- *fundamental units* of the nervous system

- translate **external stimuli** into **electrical signals** transmitted into the *brain* where the *delivered information* is *interpreted*

illustration of neurons



NEURONS : 3 sections

1 : **cell body** / **soma** - the **main part of the neuron** where the *nucleus* is located[1] - translates *DNA information* that is transported to the *dendrites* and the *axon*[2]

2 : **axon** - *thick branch* that trails behind the soma[1] - surrounded by the **myelin sheath** [a *protective covering* & lets *electrical impulses* travel more quickly along the unmyelinated axon[2]

axon terminal - at the end of the axon ; allows *communication* among *various neurons*

action potential - *electrical impulses* is transmitted through this process

3 : **dendrites** - *smaller branch-like extensions* attached to the ends of the soma[1] - process *electrical impulses* before transmitting them *to the axon* through *action potential*[2] - gather the *signals* picked up by *sensory neurons* in the body

excitatory - *fires up neurons*

inhibitory - *represses the neurons' tendency to fire up*

NEURONS : 3 classifications

1 : **sensory neurons** - react to both *external* & *internal stimuli*[1] - *pick up information* from *outside* the body and *deliver* it to the *central nervous system*[2] - *allows* **sight, hearing, smell, taste** & **touch**[3]

2 : **interneurons** - *translate the information* between *sensory neurons* & *motor neurons* within the *spinal cord*

3 : **motor neurons** - *pick up information* from the *central nervous system* & *transmit* them through *nerves* in the rest of the body

TRANSMISSION OF INFORMATION IN THE NERVOUS SYSTEM

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- the *nervous system* recognizes a **stimulus** from *external* & *internal environment*

- **receptors** in *sense organs* pick up information from the *stimulus* and transmits them to *afferent neurons*

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