

Review on Nervous System, Senses and Musculoskeletal System

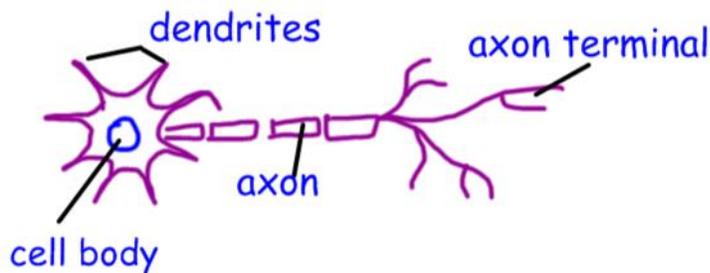
Looking for answers? Visit <http://msjadah.weebly.com>

1. The Nervous System

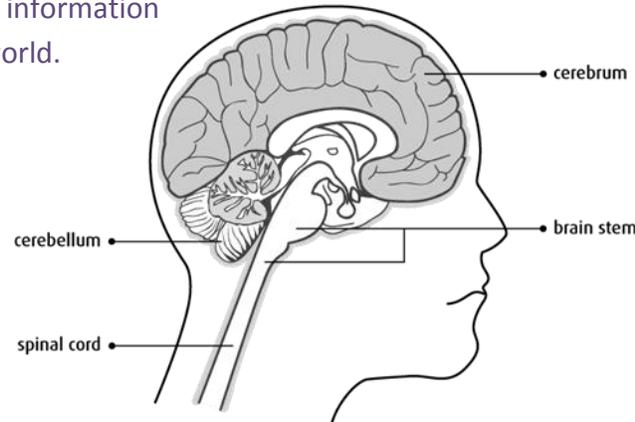
a) What is the function of nervous system?

The nervous system receives, processes, stores and transmits information that comes from various parts of the body and the external world.

b) Draw a neuron and label the parts.



Brain Structures



c) What is the central nervous system? What is the peripheral nervous system?

The central nervous system consists of the brain and the spinal cord. It is the main control center. The peripheral nervous system is made up of our nerves that send nerve impulses from our sensory receptors to the central nervous system.

d) How do messages pass from one nerve to another?

A nerve impulse travels from neuron to neuron until it reaches its target, for example, a muscle.

It travels from dendrites to axon terminals. Nerve impulses travel from one neuron to another by NEUROTRANSMITTERS (chemical substances) secreted by axon terminals across the narrow space between two neurons (called the SYNAPSE).

e) What are the three parts of the brain and their function?

Cerebrum: Command central of all voluntary movements, senses, intelligence, and emotions.

Cerebellum: Center for balance and movement coordination

Brain Stem: Control center of internal stimuli and involuntary movement (ex: heart beating, stomach digesting food)

f) What's the difference between a voluntary movement and an involuntary movement? Give an example if each.

A voluntary movement are acts that we think about doing. Voluntary acts are controlled by the cerebrum. Examples include: writing, playing sports, talking, playing an instrument...)

An involuntary movement is a movement we are unaware we are doing, we are not consciously thinking about it. Involuntary acts are controlled by the brain stem. Examples include digesting food and our heart pumping.

g) What is a reflex?

A reflex is a rapid and involuntary reaction to stimulus.

Ex: When you place your hand on a burning hot stove and move it away quickly without even thinking about it.

h) What is a reflex arc? Describe the path when you place your hand on a hot stove.

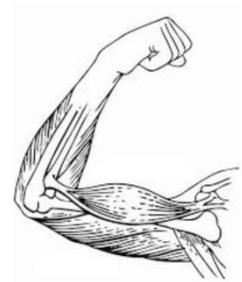
A **reflex arc** is the path taken by a nerve impulse during a reflex.

The reflex arc of the above situation would be the sensory nerve in the hand sends a nerve impulse (message) to the spinal cord. The spinal cord sends a nerve impulse to the motor nerves in the hand telling it to move.

2. The Musculoskeletal System

a) Fill in the following table regarding bones:

Category of Bone	Where are they found?
Long Bone	Found in the limbs; the legs and arms.
Short Bone	Found in the wrists and heels.
Flat Bone	Found in the skull and ribs.
Irregular Bone	Found mainly in the spine.



b) Describe the five main functions of bones

- **Provide support:** Allows us to hold our posture, stand, sit and crouch.
- **Provide protection:** Bones protect our internal organs (ex: ribs protect the heart and lungs).
- **Provide movement:** Bones act as levers allowing us to move around.
- **Provide storage:** Internal cavities of bones store fat, and bone tissue stores minerals.
- **Production of blood cells:** Bone marrow (found in certain bones) produces the formed elements of blood.

c) What are the three muscle types and where are they located?

- **Skeletal muscle:** Attached to bones, the only voluntary muscle.
- **Smooth muscles:** Make up the walls of certain internal organs (bladder, stomach, uterus), an involuntary muscle.
- **Cardiac muscle:** Makes up the heart, an involuntary muscle.

d) What is a tendon?

Tendons attach muscle to bone.

a) What is a ligament?

Ligaments attach bone to bone.

b) What are the three categories of joints?

- **Fixed Joints:** Solid joints, connects the bones of the skull.
- **Semi-Movable Joints:** Allow for some movement, like those connecting all the vertebrae
- **Movable Joints:** Allow for movement, such as in the elbow or hip.

3. The Senses

a) What is stimulus?

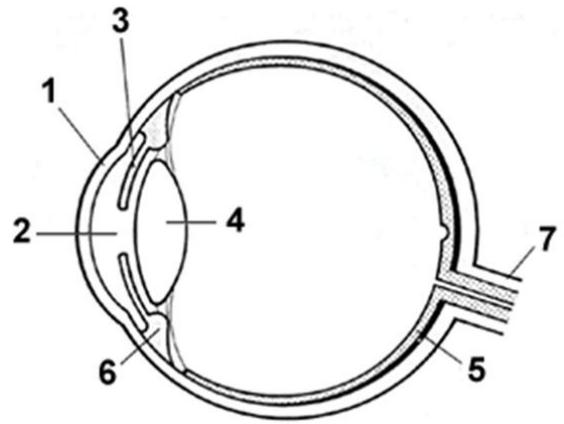
A stimulus is something that causes a response. A loud sound can be a stimulus, a soft feather can be a stimulus.



VISION

a) Label the following diagram:

- 1= Cornea 2= Pupil
3= Iris 4= Lens
5= Retina 6= x
7= Optic Nerve



b) Where are the sensory receptors found in the eye? What are they called?

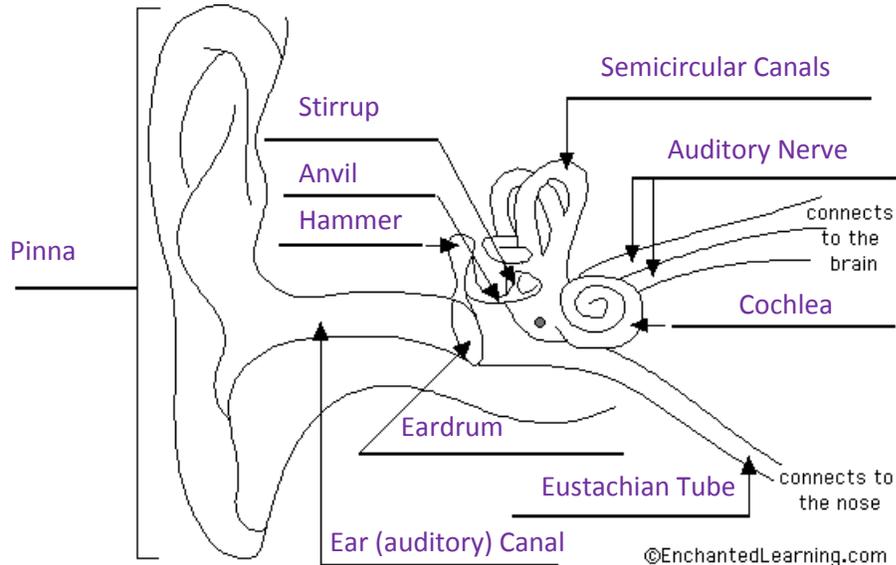
The sensory receptors in the eye are called photoreceptors (rods and cones). They are located in the retina.

c) What two conditions affect eye sight? How do they impair vision?

Myopia (nearsightedness) and Hyperopia (farsightedness). Someone with myopia cannot clearly see objects at a distance. Someone with hyperopia cannot clearly see objects close up.

HEARING AND BALANCE

d) Label the following diagram:



e) Where are the sensory receptors found in the ear? What are they?

The sensory receptors in the ear are nerve cells located in the cochlea.

f) What part of the ear controls balance and coordination?

The semicircular canals control balance and coordination.

TOUCH, TASTE AND SMELL

g) Where are the sensory receptors found in the skin? What are they able to perceive?

The sensory receptors in the skin are found in the dermis (a layer of our skin). They can perceive touch, pressure, heat, cold and pain.

h) Where are the sensory receptors found in the tongue? What are they able to perceive?

The sensory receptors in the tongue are taste buds found in the papillae. They can detect different tastes (sweet, sour, salty, bitter and umami) from the chemicals in food or drink we are ingesting.

i) Where are the sensory receptors found in the nose? How is smell associated with the sense of taste?

The sensory receptors in the nose are olfactory cells (or receptors) found in the nasal cavity. Taste and smell are interrelated. The smell of food rises to the nose and stimulates the olfactory receptors which then identify the food and send the message to the brain.