



HUMAN BODY SYSTEMS

RESPIRATION-

Life function

Humans convert the chemical energy stored in foods so the cells can use it more easily



Breathing:

A. Nasal cavity-

- Series of channels which the outside air gets into the body.
- the cavity is able to produce mucus.



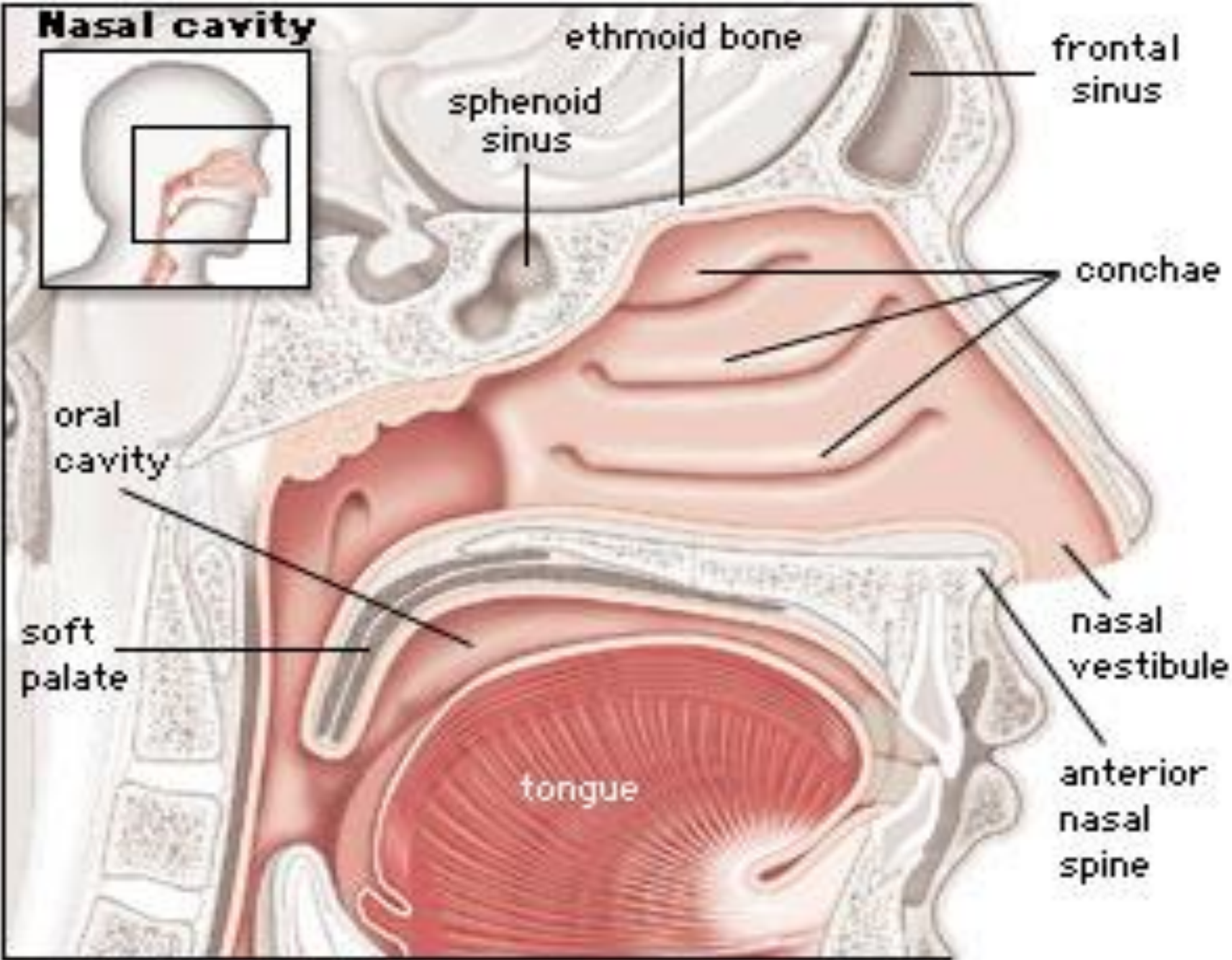
-hair present catches dust particles.

-air is moistened, warmed and filtered to prepare it for the environment of the lungs.



BREATHING	RESPIRATION
It is a physical process involving exchange of oxygen and carbon dioxide.	It is a biochemical process involving oxidation of glucose to carbon dioxide and water.
Energy is not released.	Energy is released.
It takes place outside the cells.	It takes place within the cells.
Enzymes are not involved.	Respiratory enzymes are involved.

Nasal cavity



PHARYNX-

- the pharynx (throat) is the area in the back of the oral cavity the nasal cavity joins in.
- the epiglottis covers the open end of the trachea to prevent food from entering respiratory tubes.



TRACHEA

The trachea (wind pipe), brings air deeper into the respiratory system.

Bronchi

Two bronchi branch from the end of the trachea and lead to the two lungs.



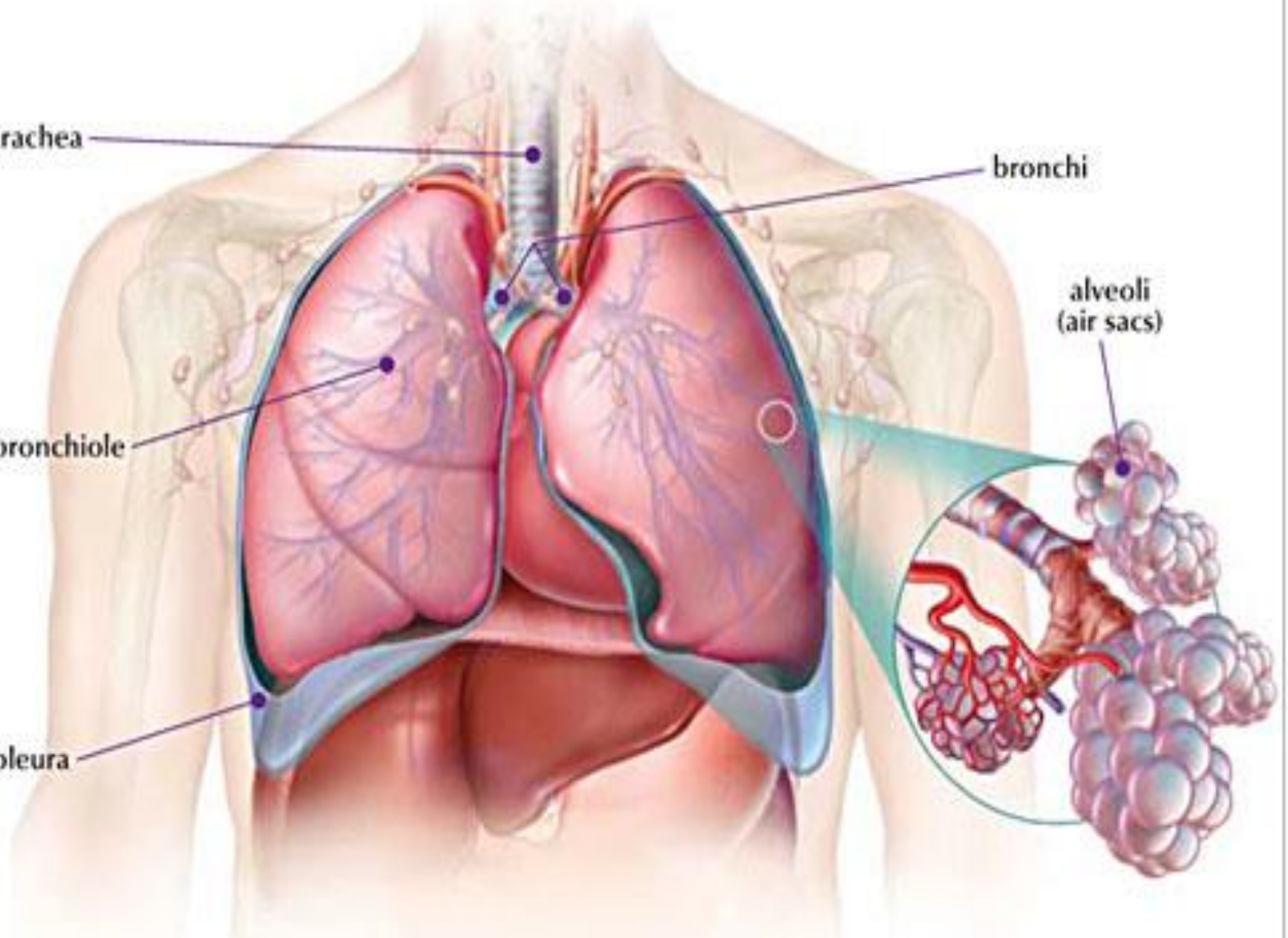
trachea

bronchi

alveoli
(air sacs)

bronchiole

pleura



BRONCHIOLES-

-highly branched tubes that subdivide from the bronchi.

Alveoli-

-Air sacs found at the ends of each bronchioles.

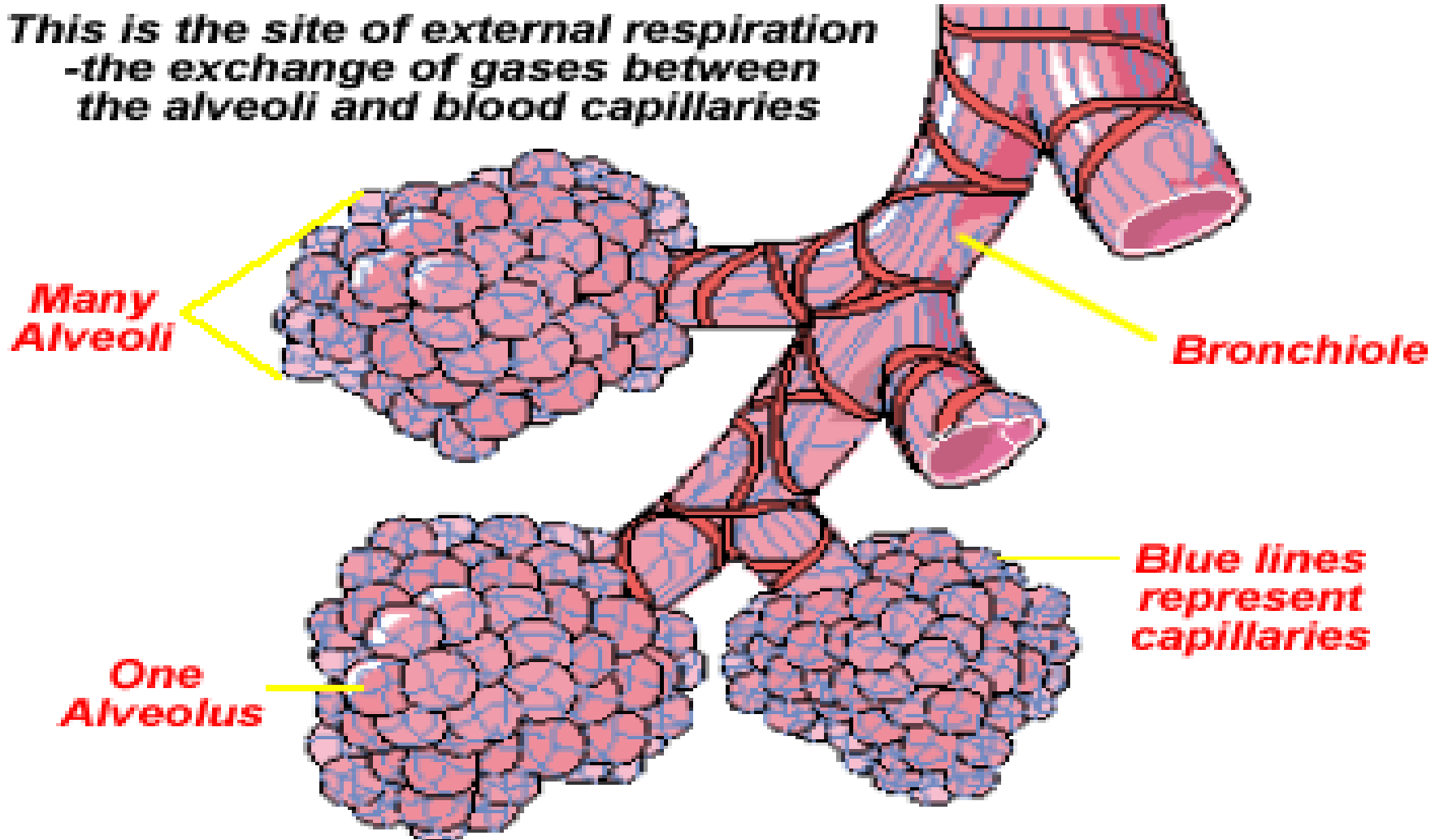
-Lined the cells that are the actual respiratory surface of the lung.



Bronchiole with Alveoli

(each sphere is an individual alveolus)

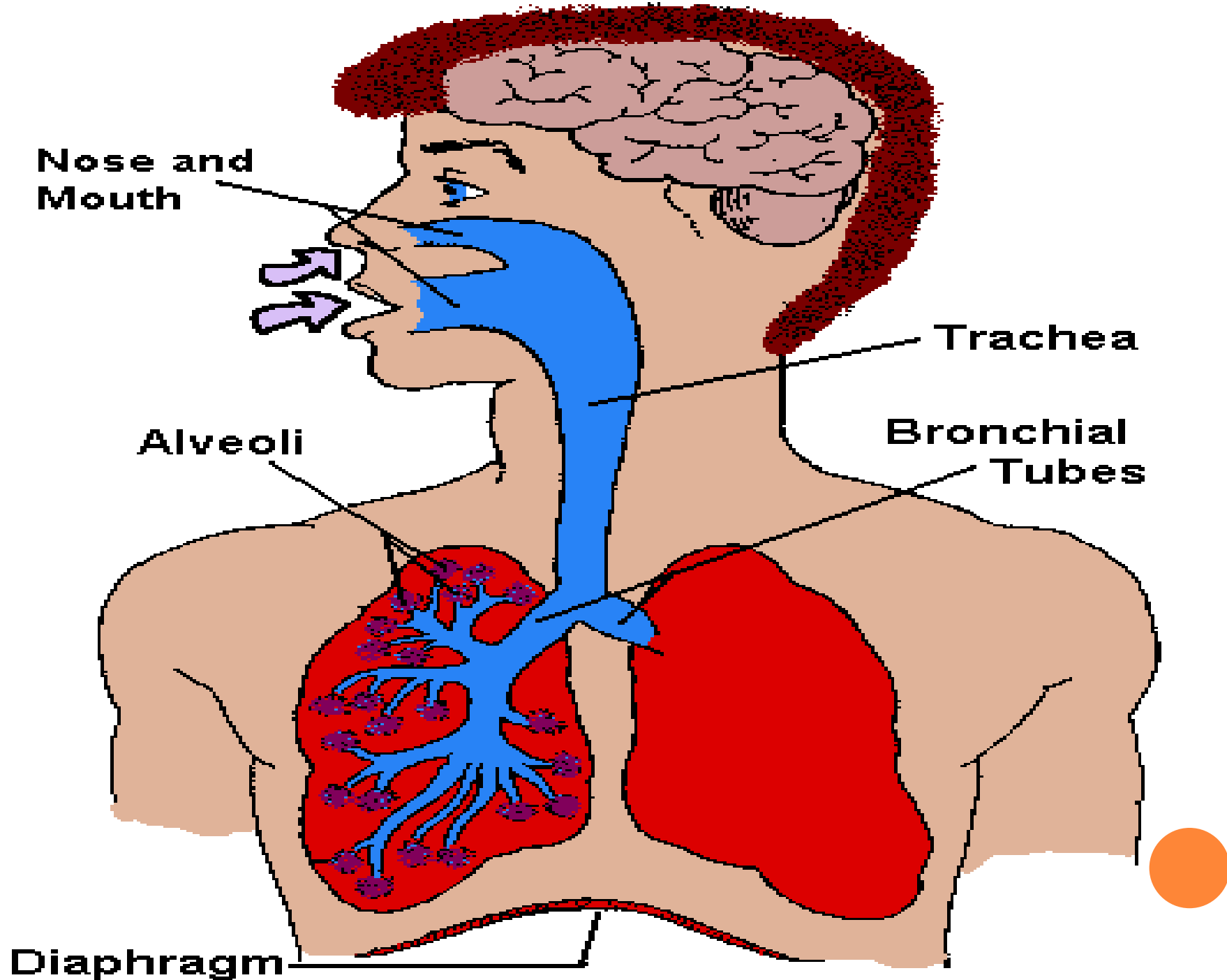
***This is the site of external respiration
-the exchange of gases between
the alveoli and blood capillaries***



LUNGS-

- The lungs are composed of bronchi, bronchioles, alveoli and supporting tissues.
- the lungs transfer oxygen to the blood the blood goes back to heart to be pumped to the rest of the body.





Nose and Mouth

Trachea

Bronchial Tubes

Alveoli

Diaphragm



Breathing is the mechanical process that moves air into the lungs.

- the diaphragm raises and lowers pressure in the chest-forcing air in and out of the lungs.
- the breathing rate is regulated by the nervous system.





Like other wind musicians jazz trumpeter Louis Armstrong used his diaphragm and chest to control the air flowing in and out of lungs, allowing him to produce a better quality of sound.

ENDOCRINE SYSTEM

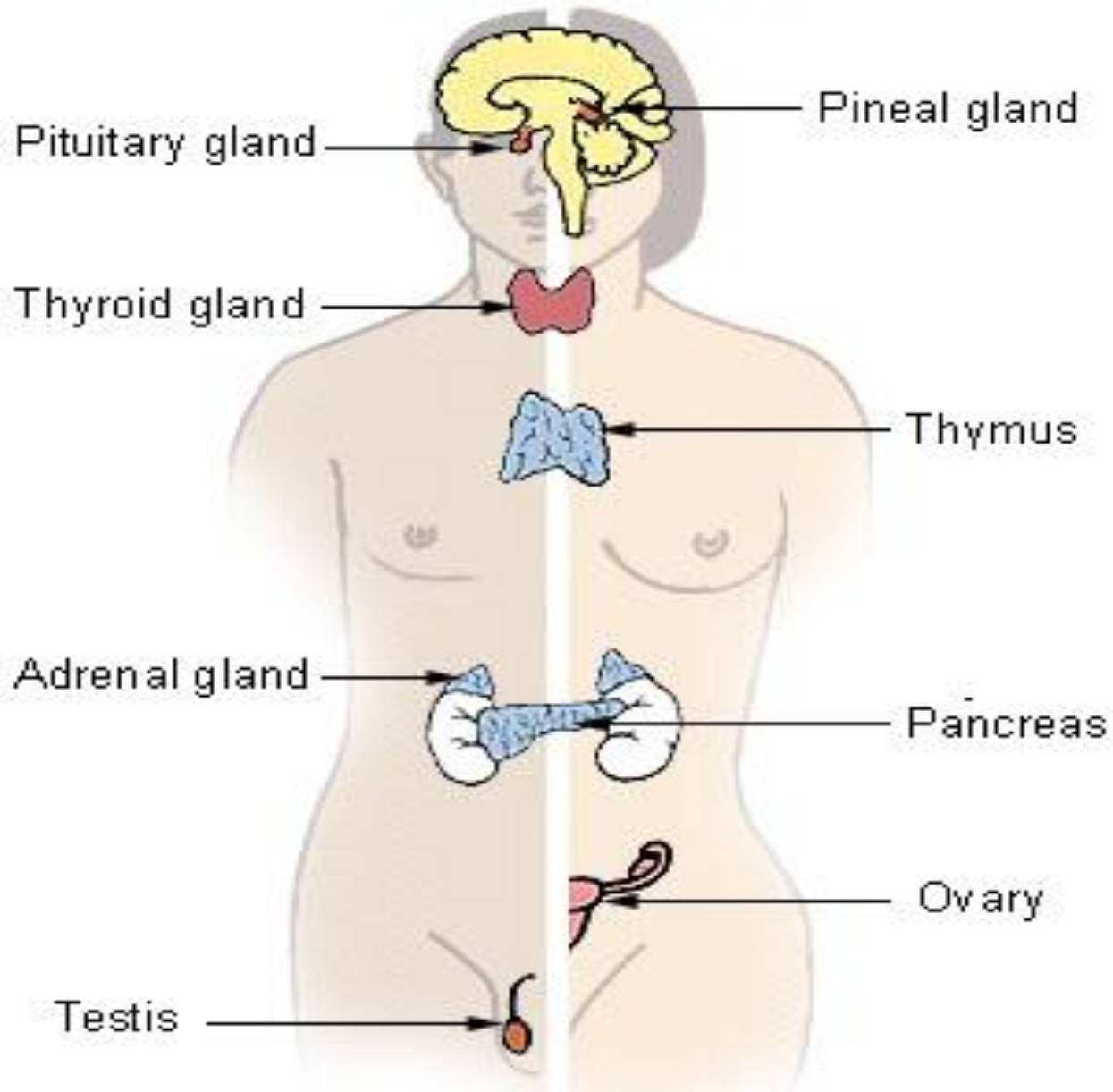
Endocrine regulation is carried out by a set of specialized tissue and organs.

1. consists of glands located at various points in the body.

2. hormones are secreted through the body by the blood stream.

Major Endocrine Glands

Male Female



ENDOCRINE CONTINUED-

Negative feedback controls many aspects of endocrine regulation.

Organs that assist in endocrine regulation:



Organs that assist in endocrine regulation:

- 1. *hypothalamus***- gland in the brain that operates the pituitary gland.
- 2. *Pituitary gland***-located under the brain, controls activities of other glands.



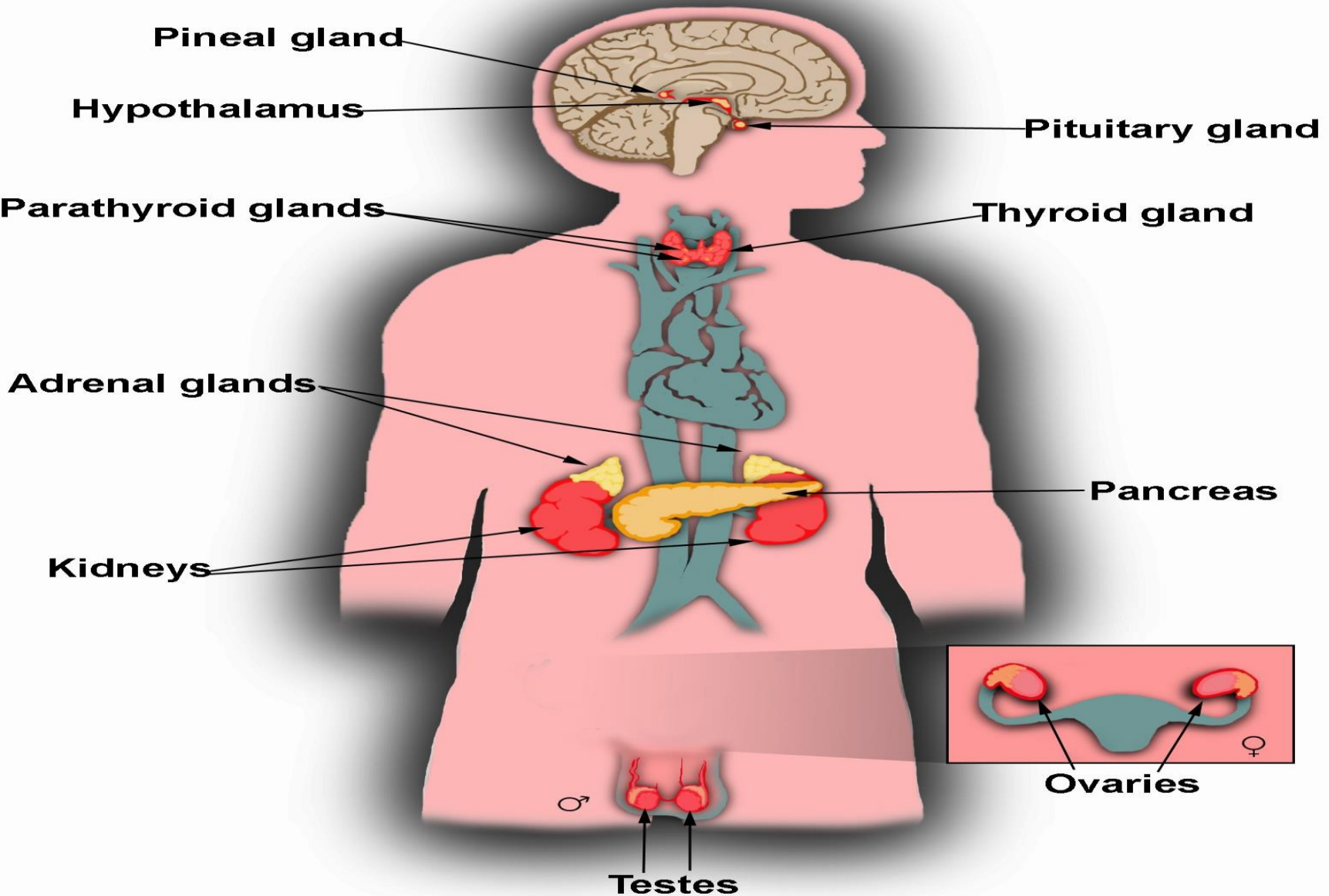
3. **Thyroid gland**- located in the neck
general metabolic rate of the body.

4. **Pancreas**-makes insulin, which
controls blood sugar.

5. **Adrenal glands**-make adrenaline
when the body is put under stress.



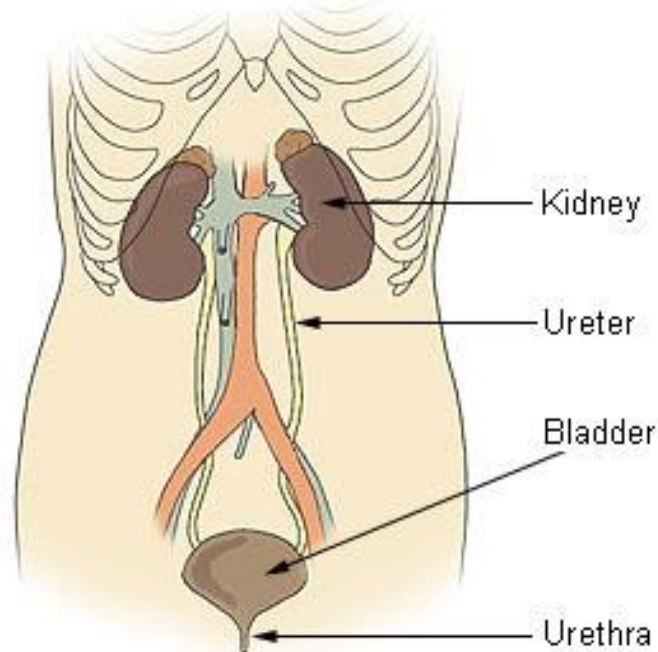
The Endocrine System



EXCRETORY SYSTEM:

Removal of metabolic wastes from cells.

Components of the Urinary System



Lungs- excrete carbon dioxide and water vapor. Expelled when exhaled.

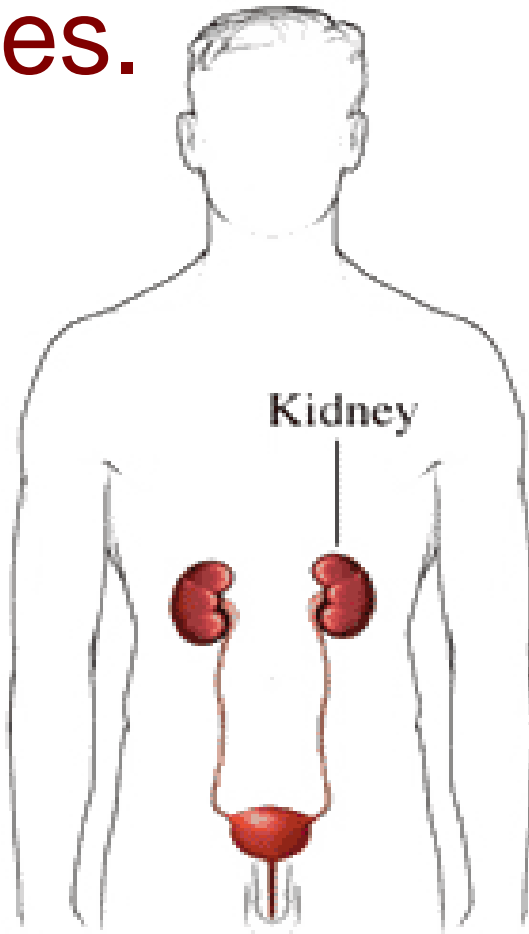
Liver-recycles worn out red blood cells production of urea.

Sweat glands-all over skin, remove water, salts and urea from the blood excreting as sweat.

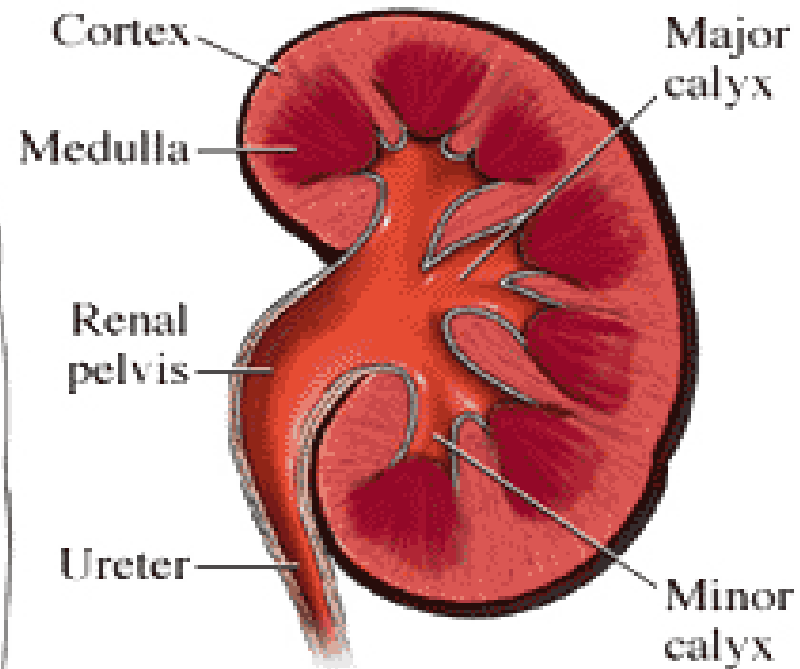


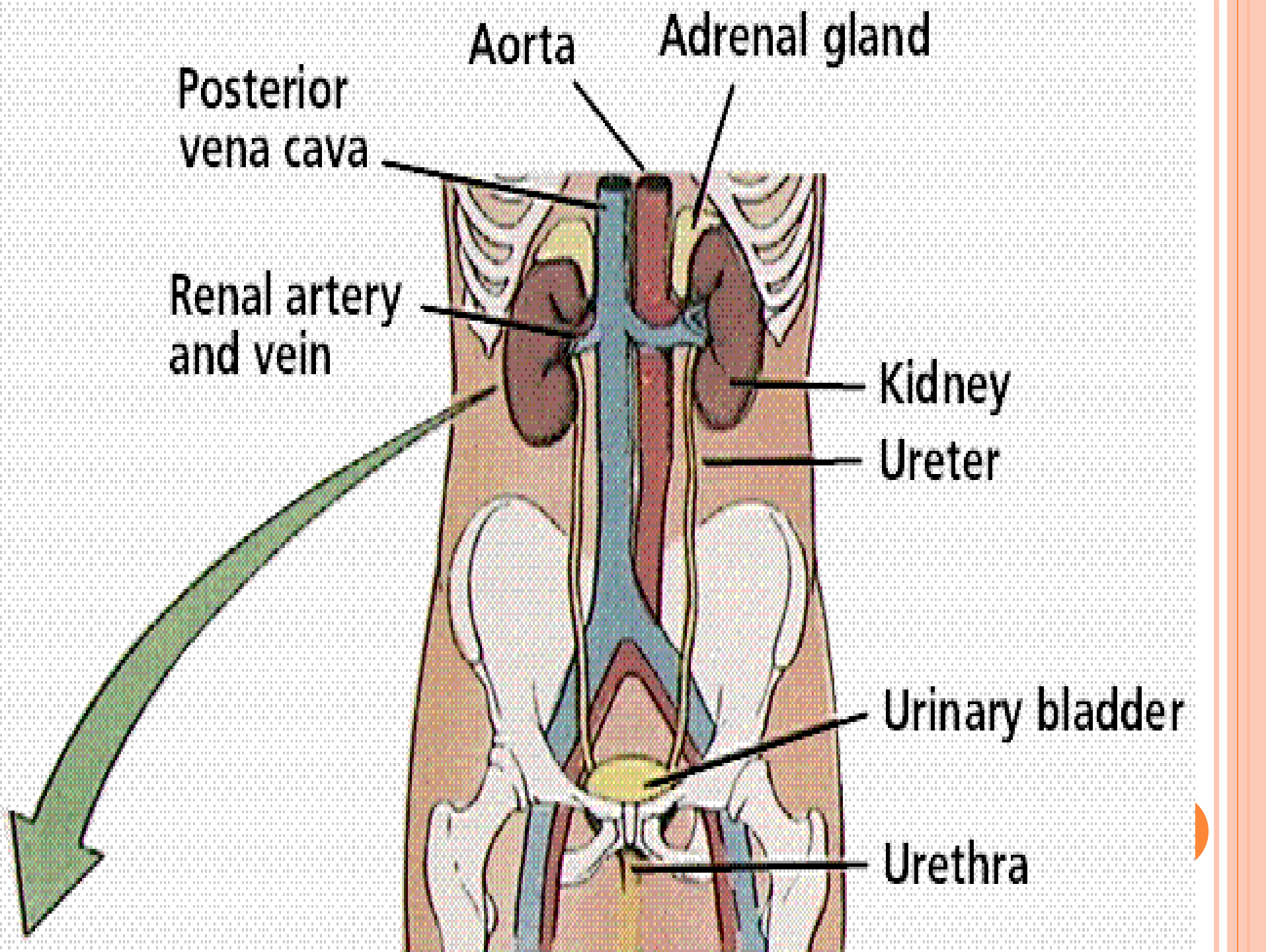
Kidneys-in the urinary system.

1. regulate the chemical composition of the blood and body tissues.



Cut-away of kidney



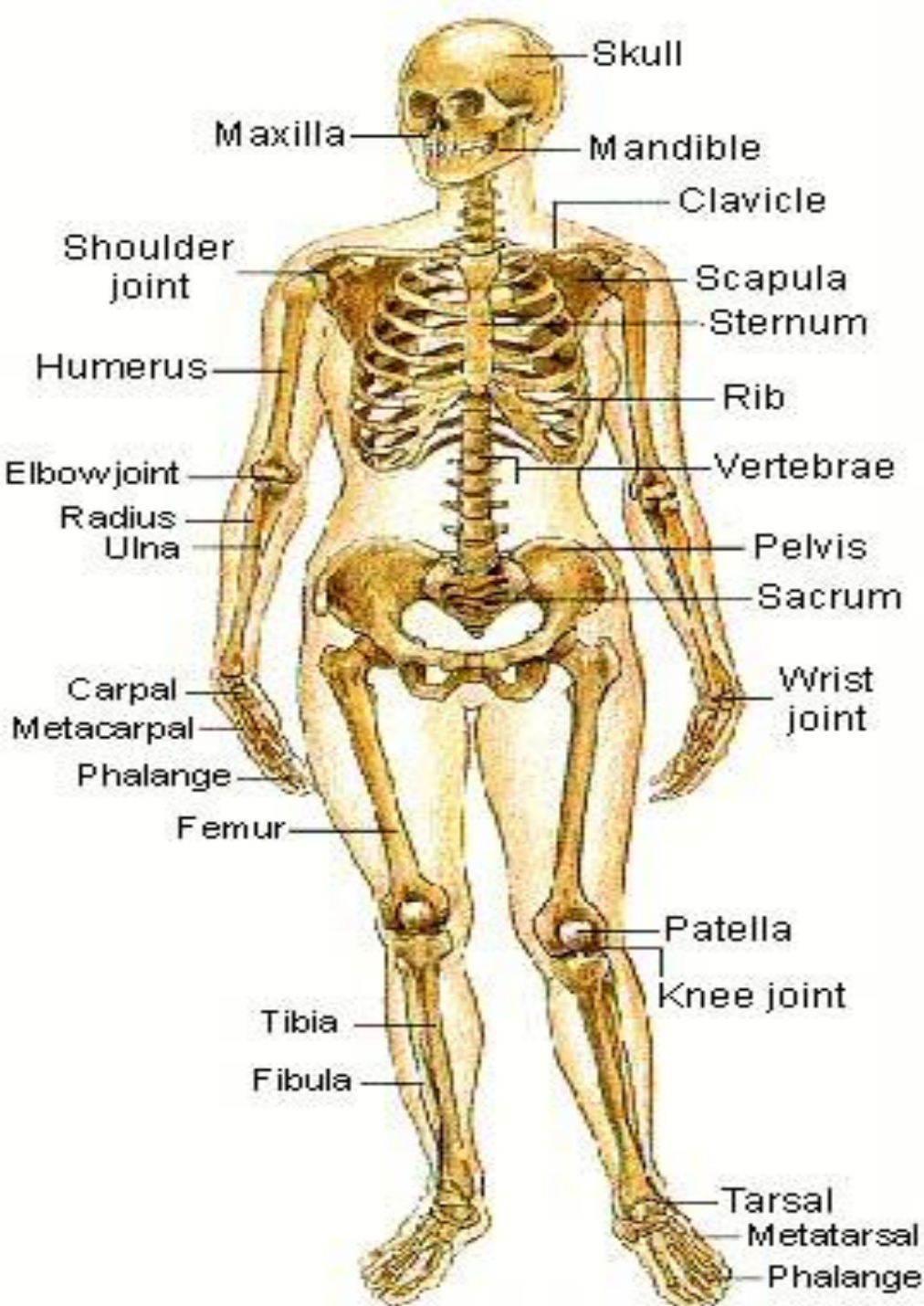


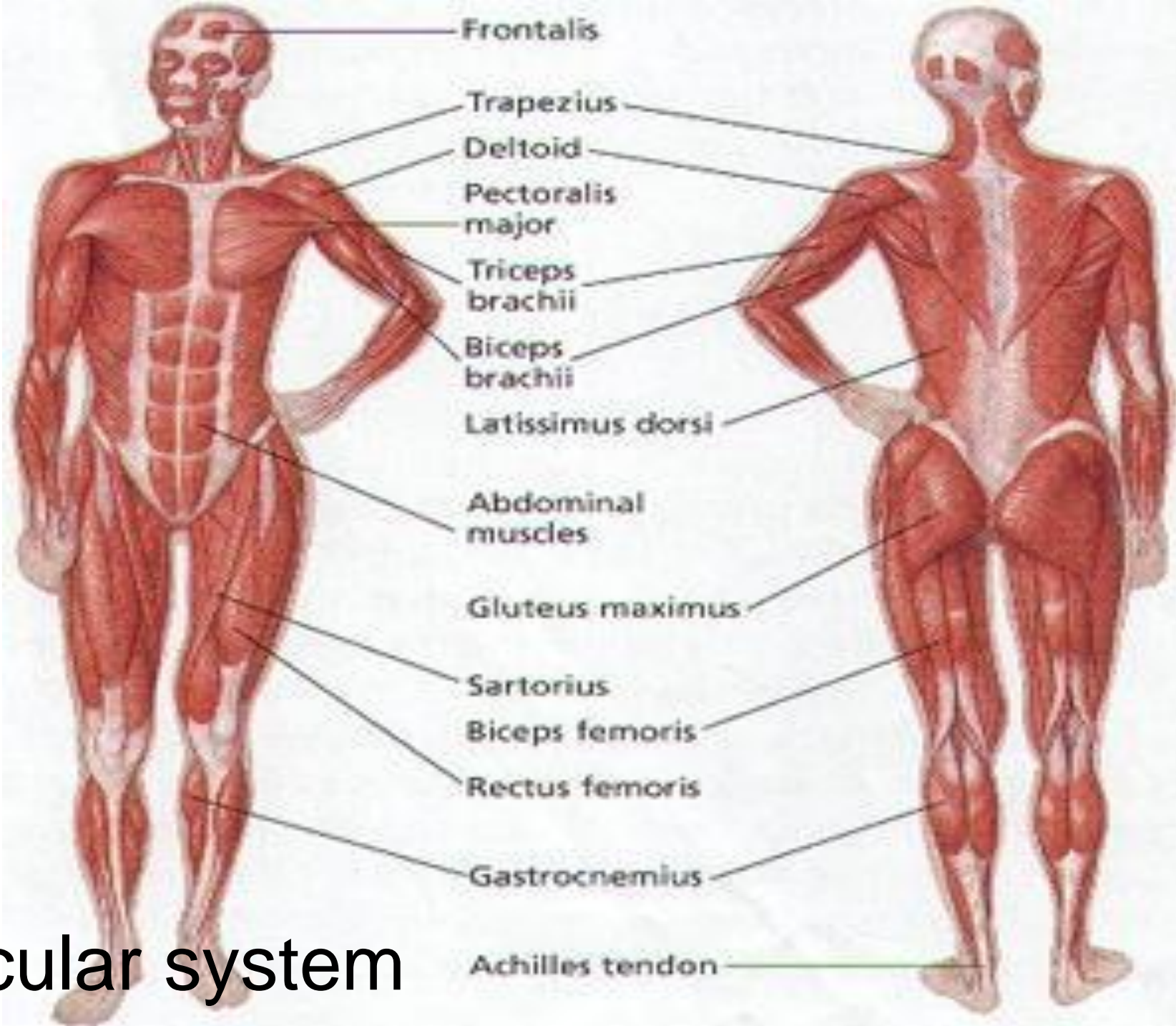
SKELETAL AND MUSCULAR SYSTEM

The ability to move (locomotion) is because of our and their muscle attachments.



Skeletal system





Muscular system

Bones-

1. provide support and protection for the body and internal organs.
2. there are over 200 bones in the human body.
3. where bones join together is known as a joint.



Cartilage-

1. flexible, connective tissue that pads joints between bones.
2. your nose , outer ear, are made up of cartilage.



Muscles-3 types

1. visceral and cardiac- involuntary controlled by the nervous system.

2. skeletal muscles-voluntary and mostly involved in locomotion.

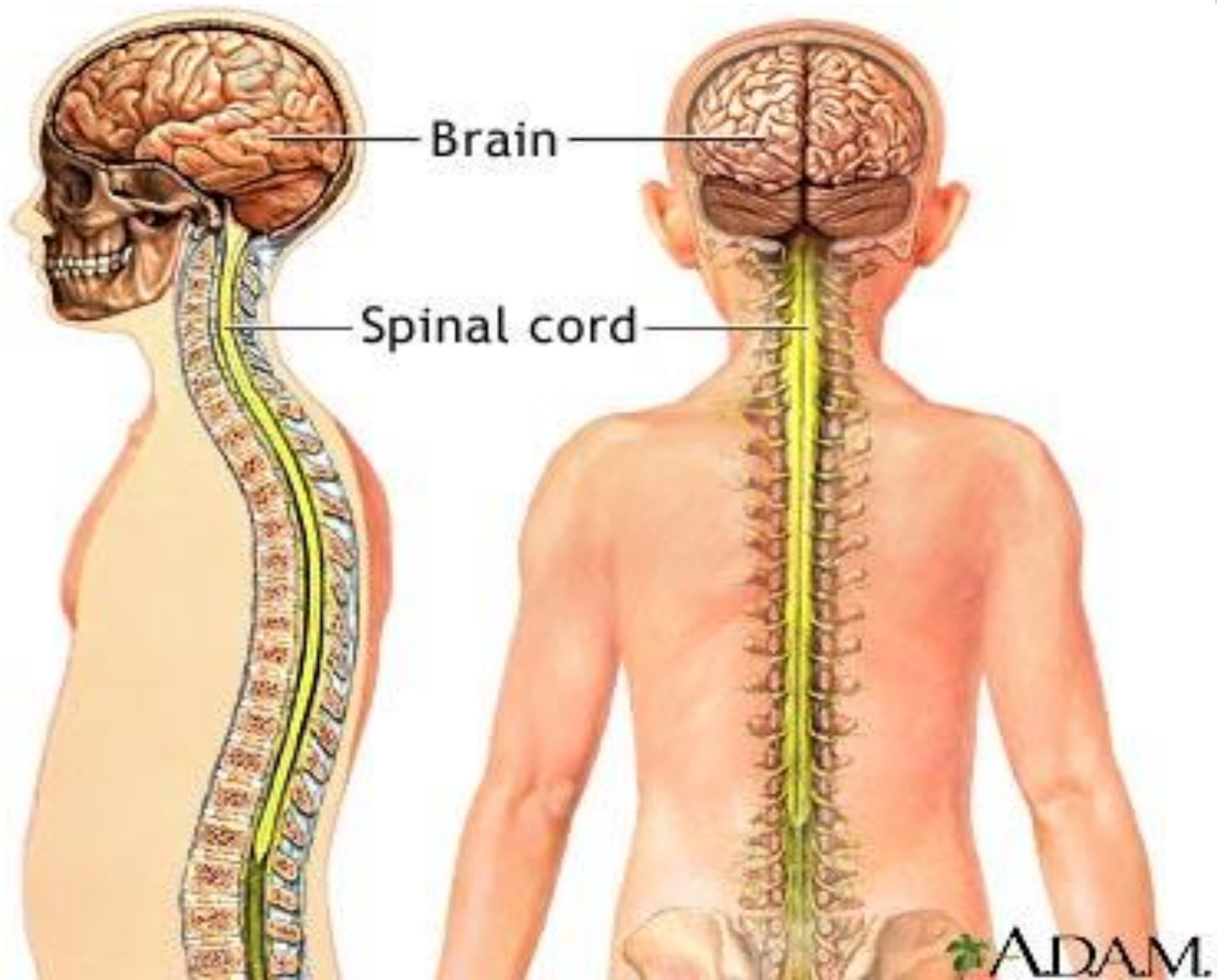


NERVOUS SYSTEM:

The nervous system regulates your body using electrochemical nerve impulses.

A. The spinal chord controls reflexes and brings impulses from the nerves to the brain.





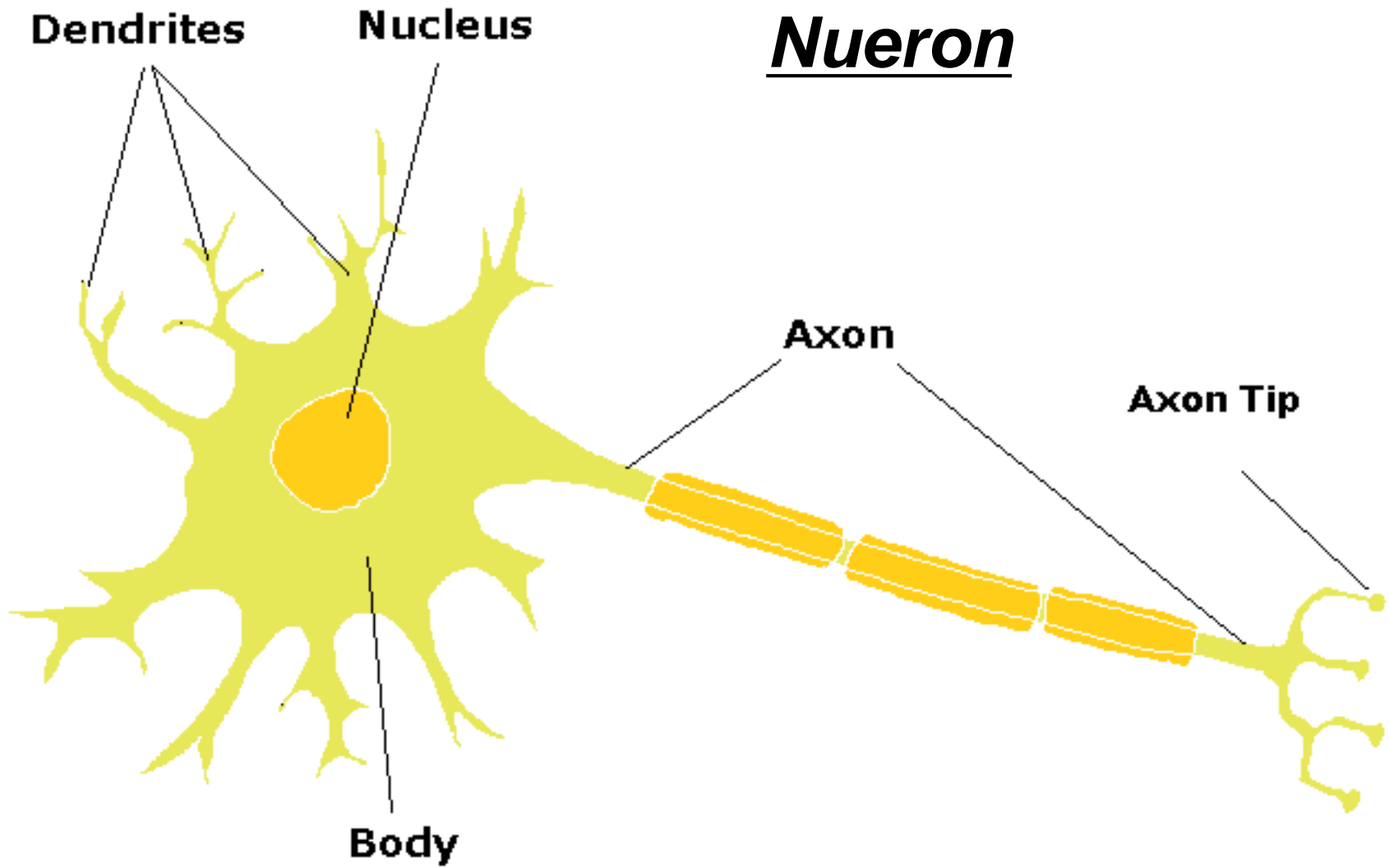
1. **Nuerons** – basic functional units of the human nervous system.

-they transmit nerve impulses from place to place.

-impulses are transmitted from cell to cell by means of a **neurotransmitter** (chemicals)



Nueron



TYPES OF NEURONS:

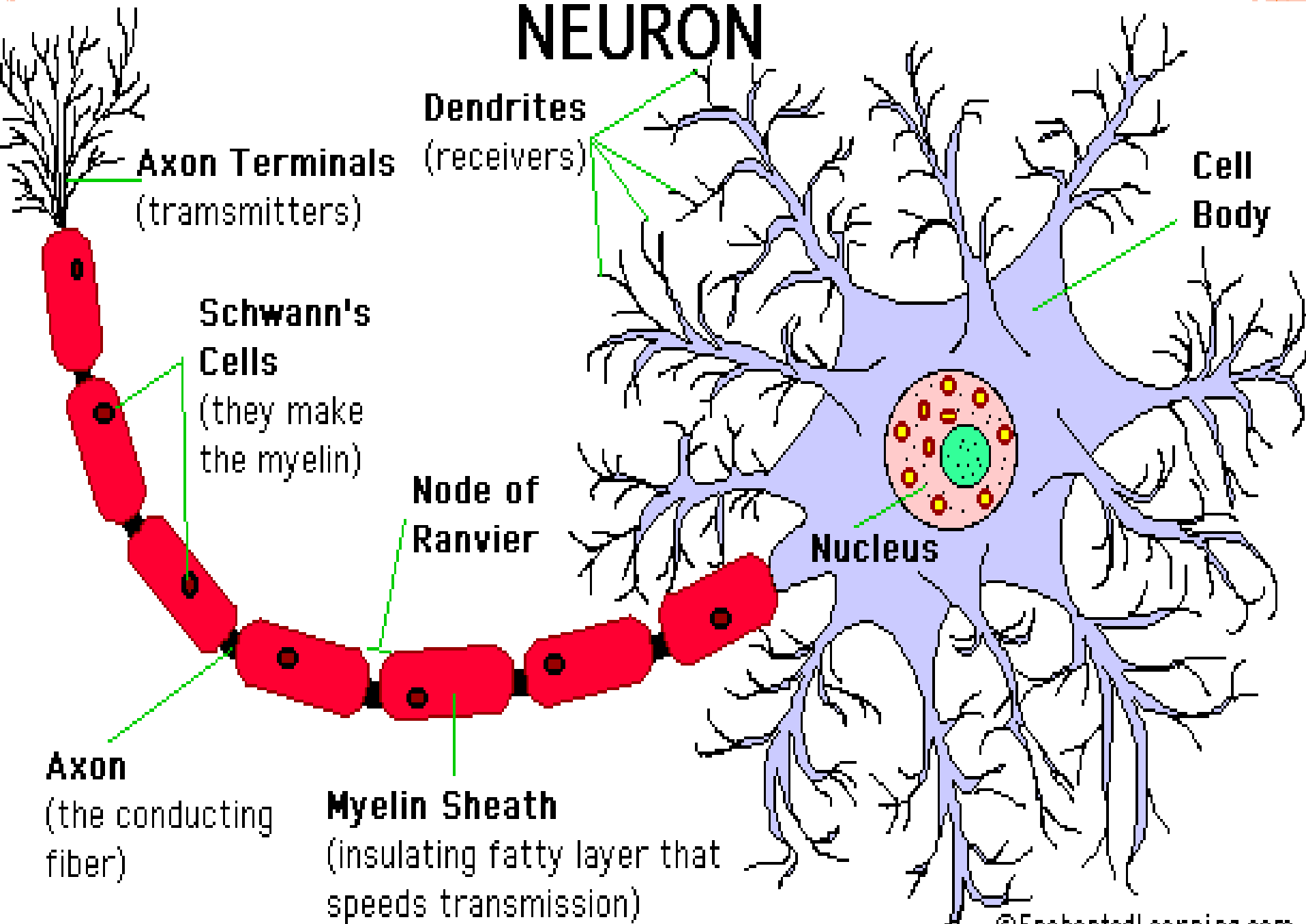
1. sensory neurons-eyes, ears, nose, tongue and skin.

2. interneurons-central nervous system-muscles or glands.

3. motor neurons- muscles and glands.



NEURON



Nerves- bundles of neurons that
_contain a single type of neuron
(sensory or motor nerves)

1. a fatty sheath or covering
protects the neurons in a nerve
from coming in contact with each
other.



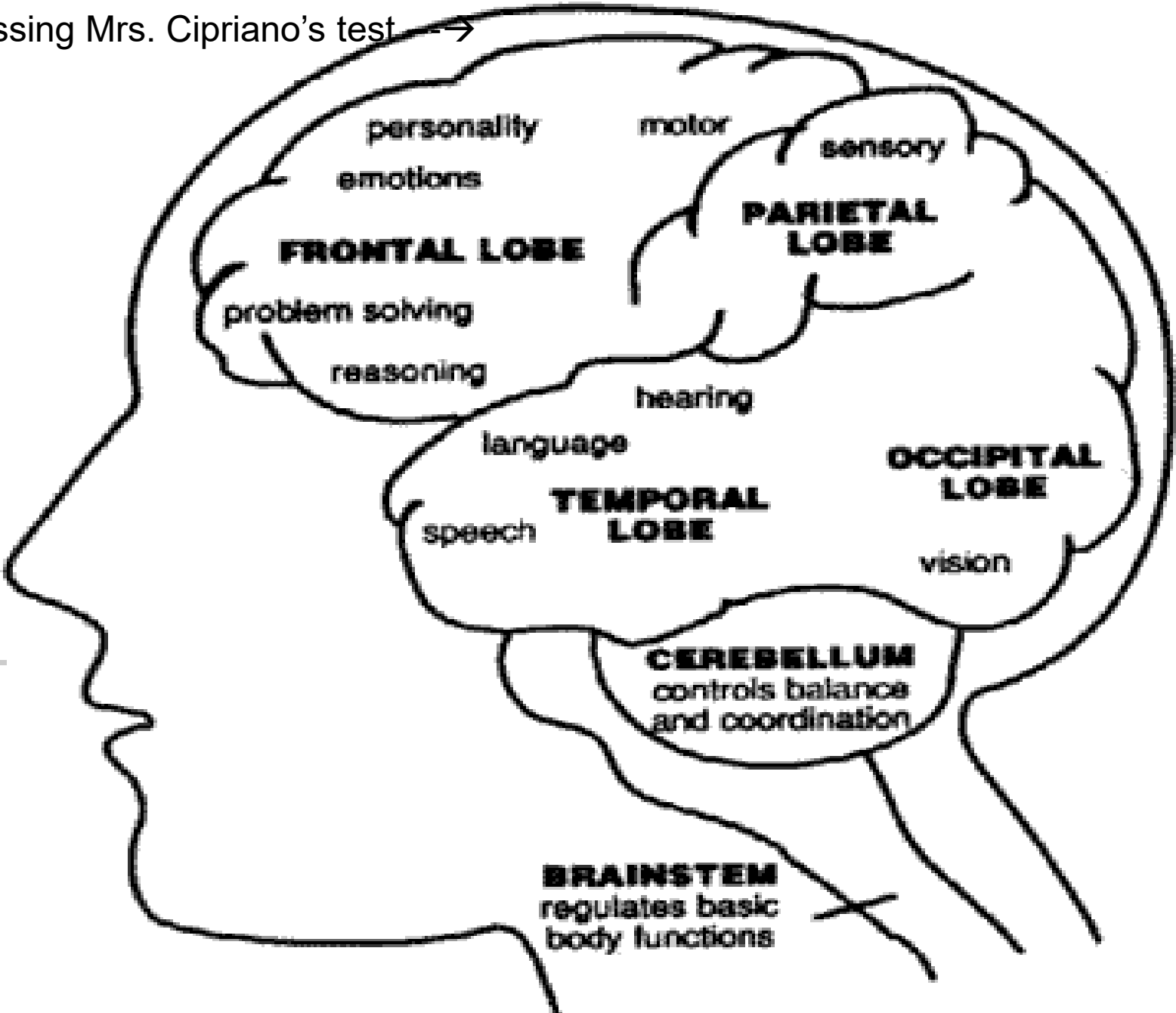
Brains- Composed of a mass of Interneurons located within the cranial cavity.

1. it is a highly specialized part of the human body


2. responsible for regulating all body functions.



Passing Mrs. Cipriano's test →



PARTS OF THE BRAIN:

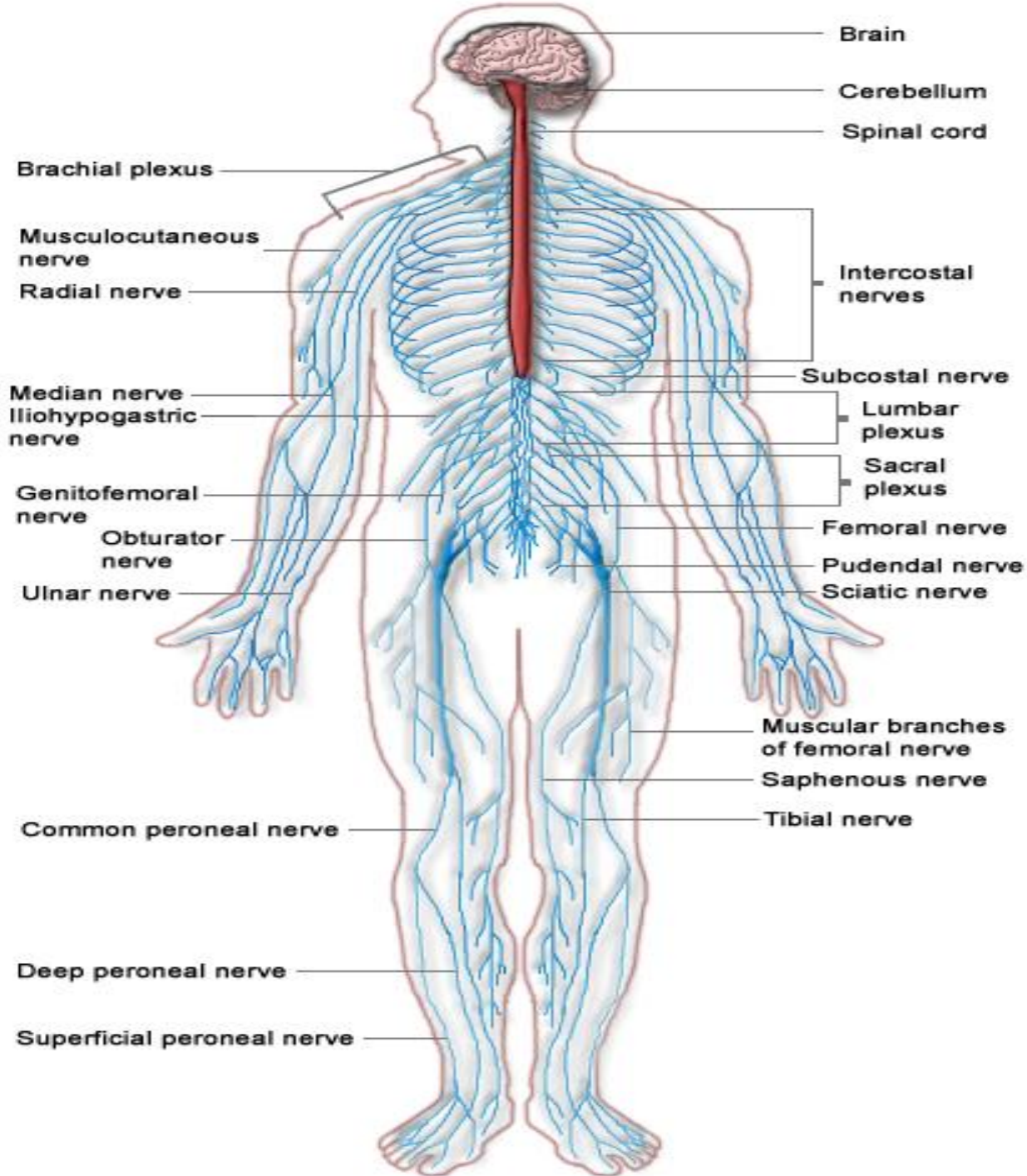
1. cerebrum-conscious thought, memory, sense interpretation, reasoning and other voluntary activities.
 2. cerebellum-coordinates muscular activities and maintaining physical balance.
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Spinal cord- continuous with the brain.

1. it is encased in the bony vertebral column-which protects it.

2. connects brain to peripheral nervous system.





CIRCULATORY SYSTEM

The circulatory system transports
gases, nutrients, hormones
and
antibodies through the body.



THE HEART-

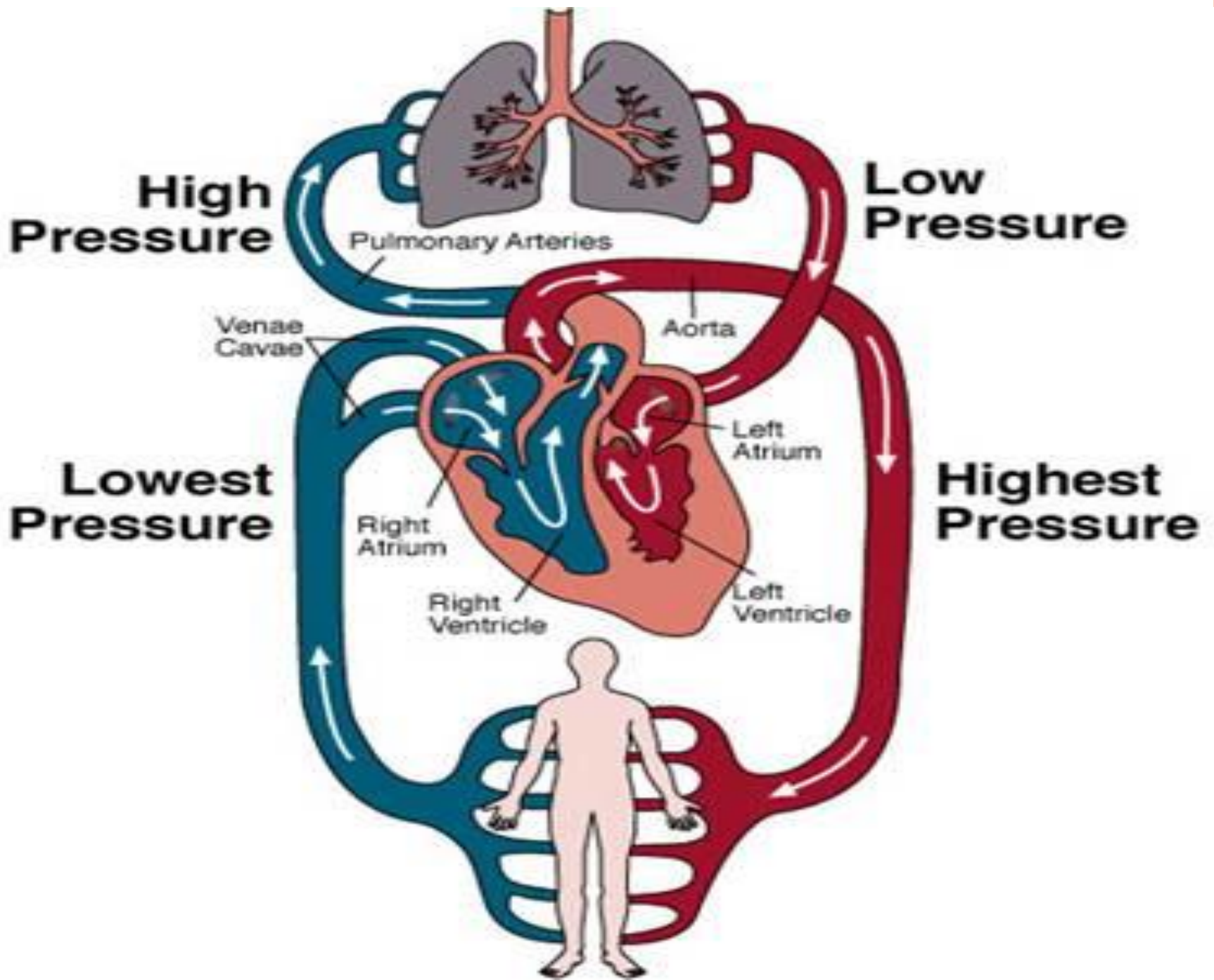
1. Like a pump, the heart drives the circulatory system.
2. composed of a system which brings deoxygenated (no oxygen) blood into lungs to oxygenate it (with oxygen)-then back to the heart to be pumped through the body.



THE ORDER OF THE BLOOD'S PATH:

Deoxygenated blood goes through
The VENA CAVA->RIGHT ATRIUM->
RIGHT VENTRICLE->PULMONARY
ARTERIES->CAPILLARIES IN THE
LUNGS (where it oxygenates the
blood)->PULMONARY VEINS->LEFT
ATRIUM->LEFT VENTRICLE->AORTA
->BODY TISSUES AND ORGANS





HEART MOTIONS:

Physical:

Valves
opening
and closing

Condition
of veins
and
arteries



Electrical heart motions:

-AV node controls electrical contractions to pace the heart beat.

-the heart “beat” is when the heart pulls and pushes the blood through the body to keep it oxygenated.





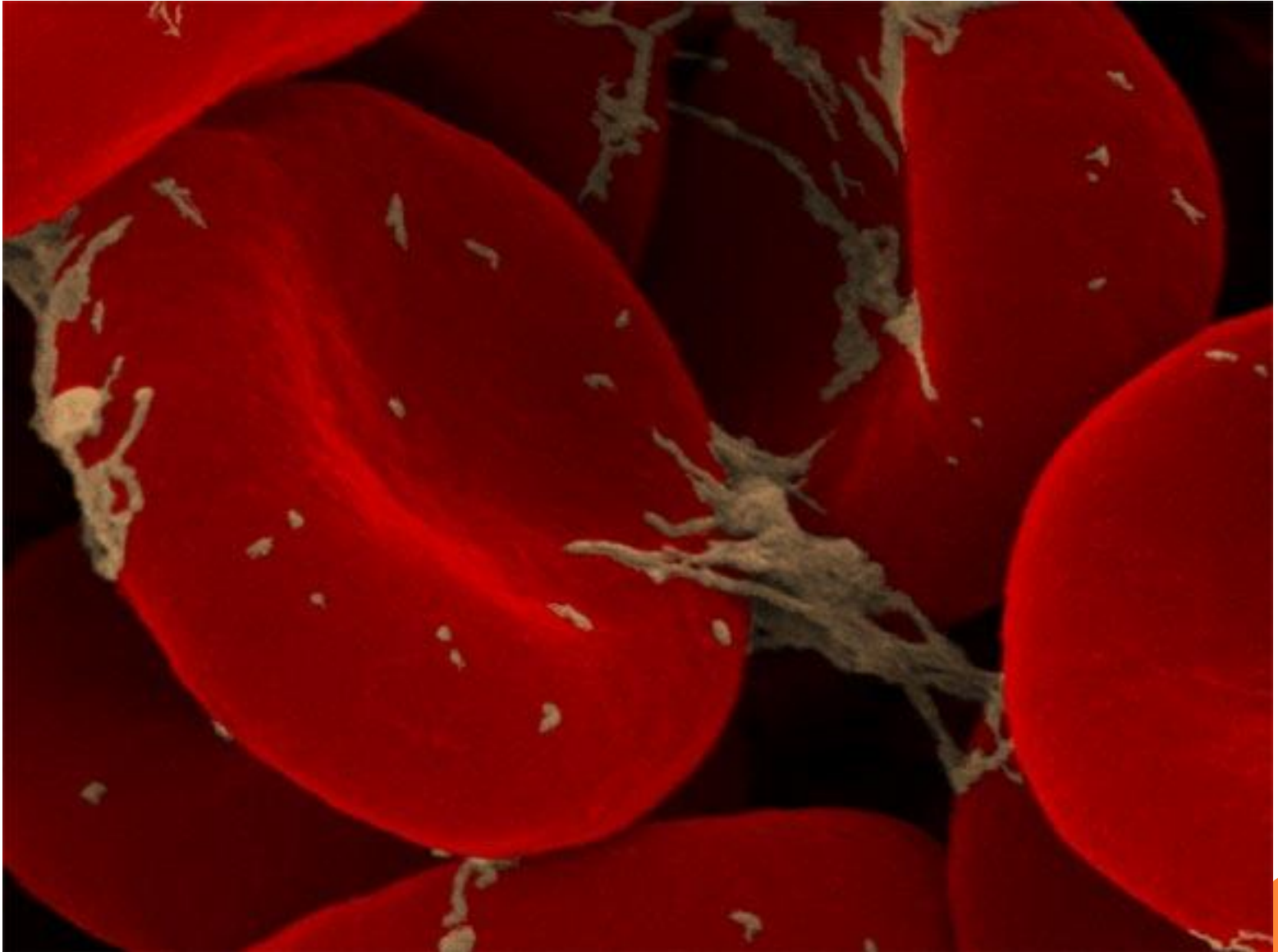
Red blood
cells
carry
oxygen

White
blood
cells fight
disease

The rest
is plasma
and
platelets



Red blood cells

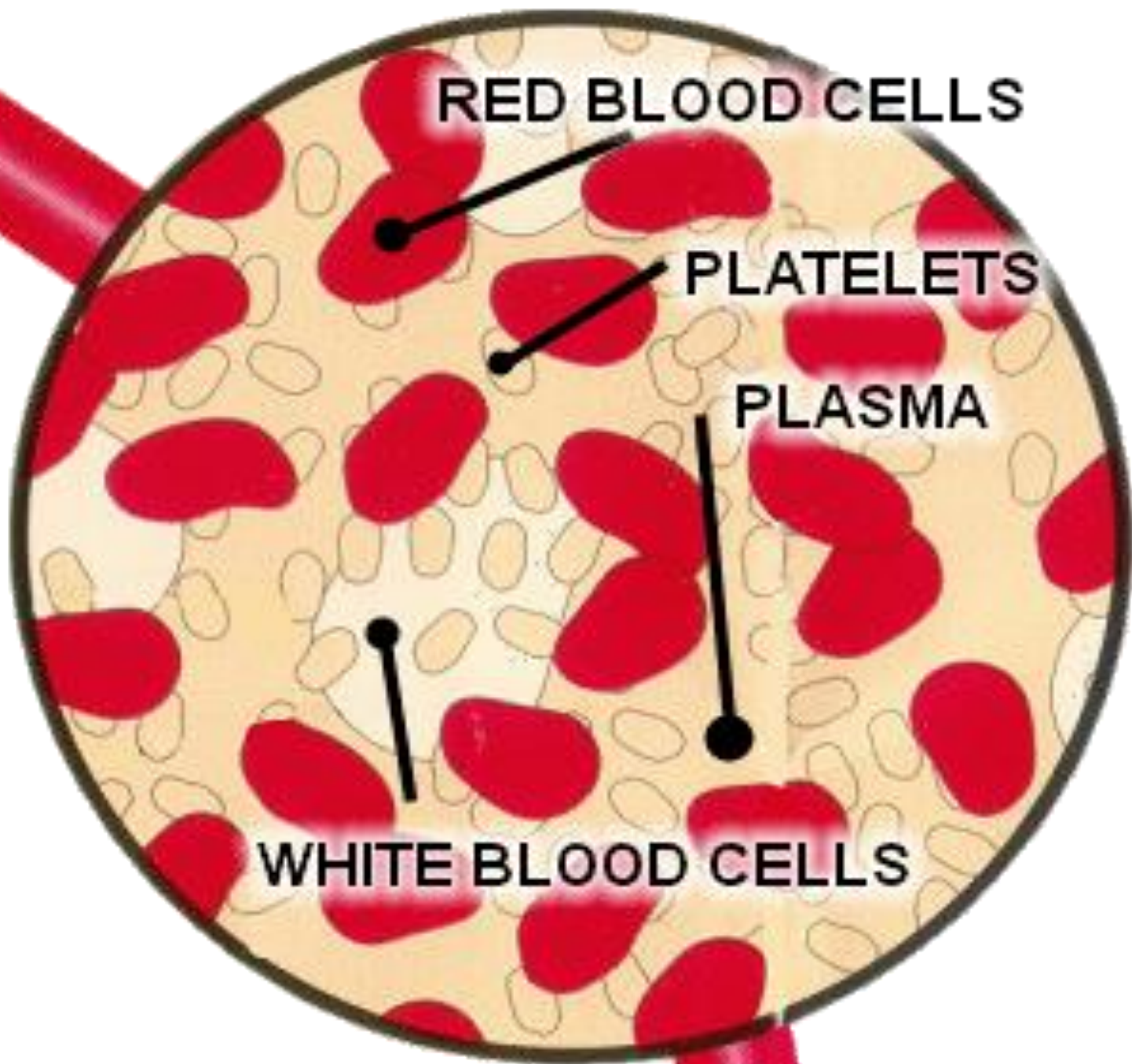


RED BLOOD CELLS

PLATELETS

PLASMA

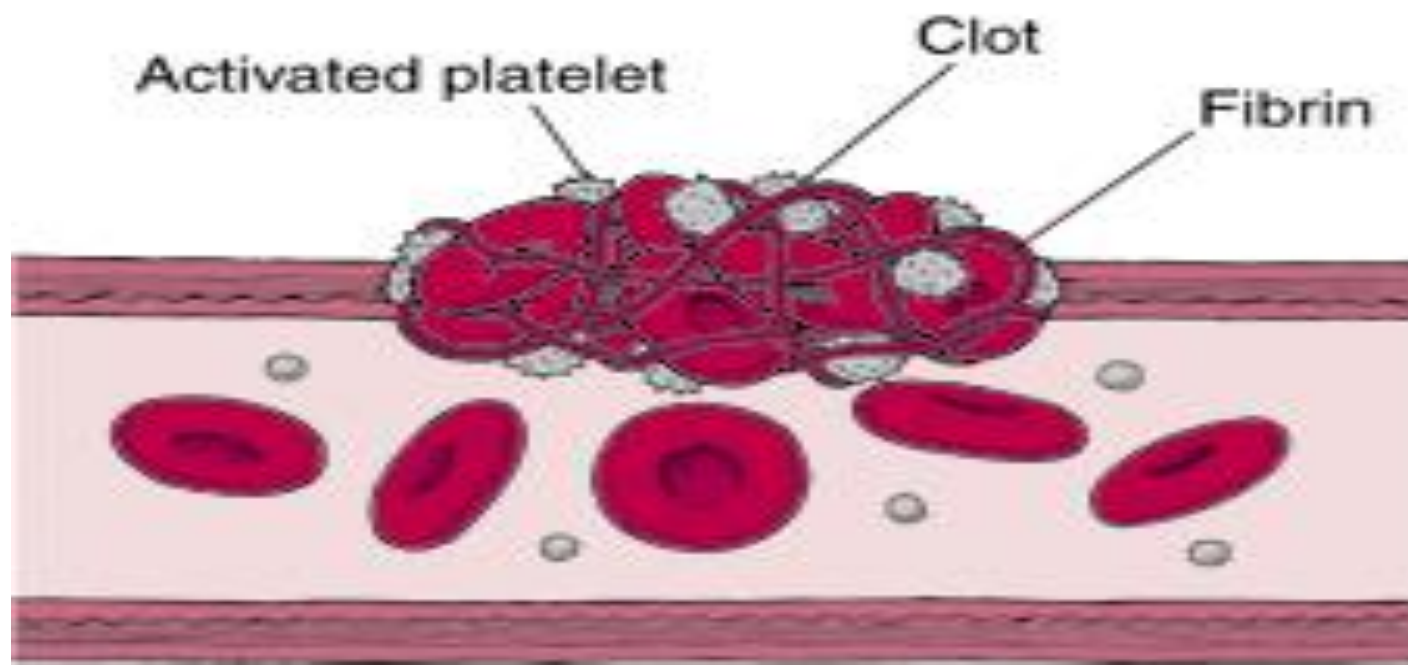
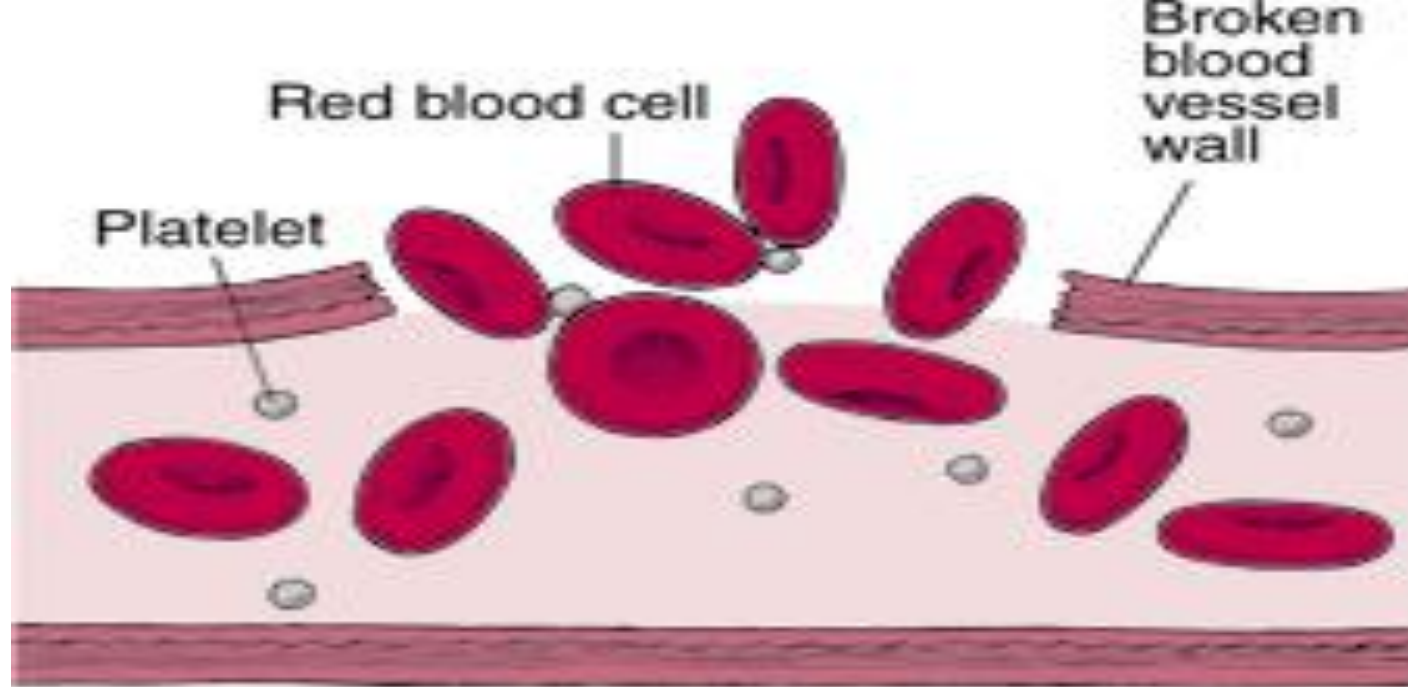
WHITE BLOOD CELLS



Plasma is the fluid of the blood. It transports everything except oxygen.

Platelets clot the blood (otherwise you would bleed to death if you got a cut.





Father's Blood Type

A

B

AB

O

Mother's Blood Type

A

A or O

A, B, AB,
or O

A, B, or
AB

A or O

B

A, B, AB,
or O

B or O

A, B, or
AB

B or O

AB

A, B, or
AB

A, B, or
AB

A, B, or
AB

A or B

O

A or O

B or O

A or B

O

Child's Blood Type



FEEDBACK MECHANISMS

Help maintain Homeostasis!

1. changes in the heart or respiratory rate in response to increased activity in muscle cells.
2. changes in blood sugar levels by insulin from the pancreas.



3. changes in the stomate openings in plant leaves to regulate water loss and gas exchange.

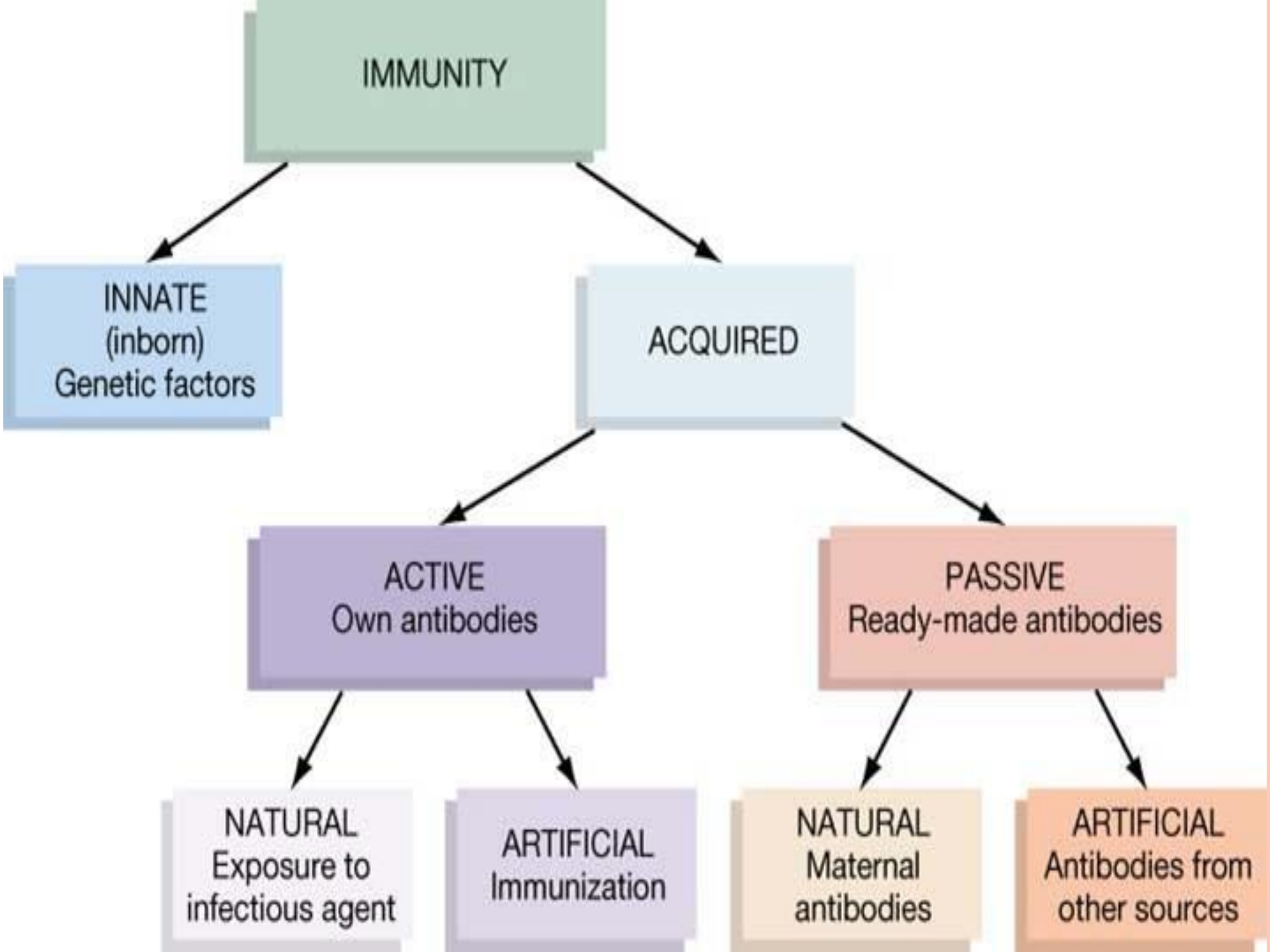
**A feedback mechanism is any process in which the body adjusts in response to internal stimuli.



IMMUNE RESPONSE:

A special function of the blood is to defend the body against disease to provide immunity.





A. The blood provides immune response to help it react to viruses, bacteria, fungi and parasites.

B. White blood cells can engulf (surround) invaders. Other white cells produce antibodies to fight off viruses and disease.



1. **vaccination**-an inoculation (shot you get from the doctor) of dead or weakened microbes. The body makes antibodies against the type of virus and if the virus enters the body again- it will be fought and eliminated.

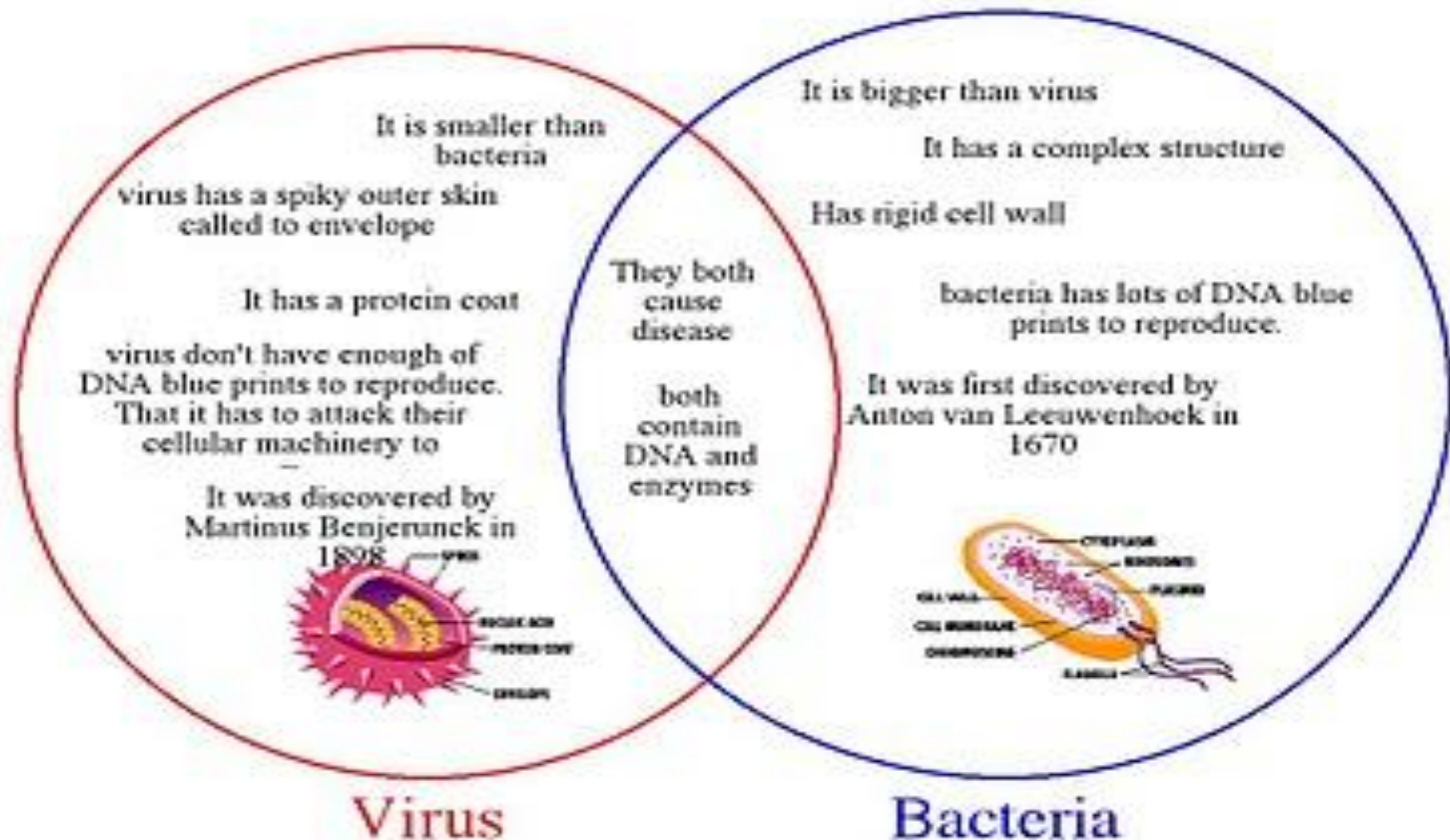
Ex. Chicken pox, measles, small pox, and polio



**"This will make
you feel better"**



Compare and Contrast



Viruses CAN'T be killed with antibiotics-bacteria CAN!

No vaccines are available for :
AIDS(virus),

various cancers(some cancers are
viruses,

Multiple Sclerosis(autoimmune
disease),

diabetes(pancreas malfunction)
for example.



Disease

-failure of homeostasis of the body leads to disease.

-the body must react to environmental changes by the use of feedback mechanisms. Without these it would lead to death.

