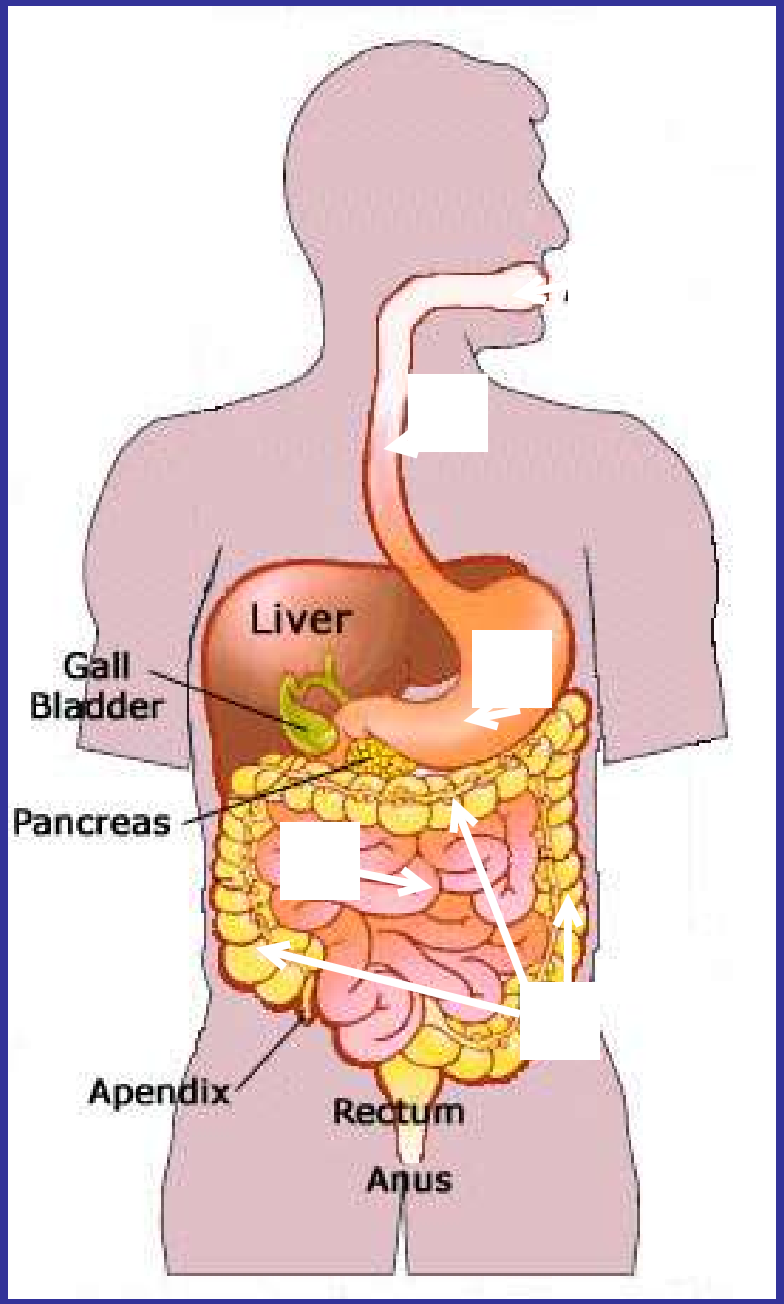


Body Systems Quiz

Add numbers 7 – 11 to your quiz. Then add the body part to the appropriate # on your paper.

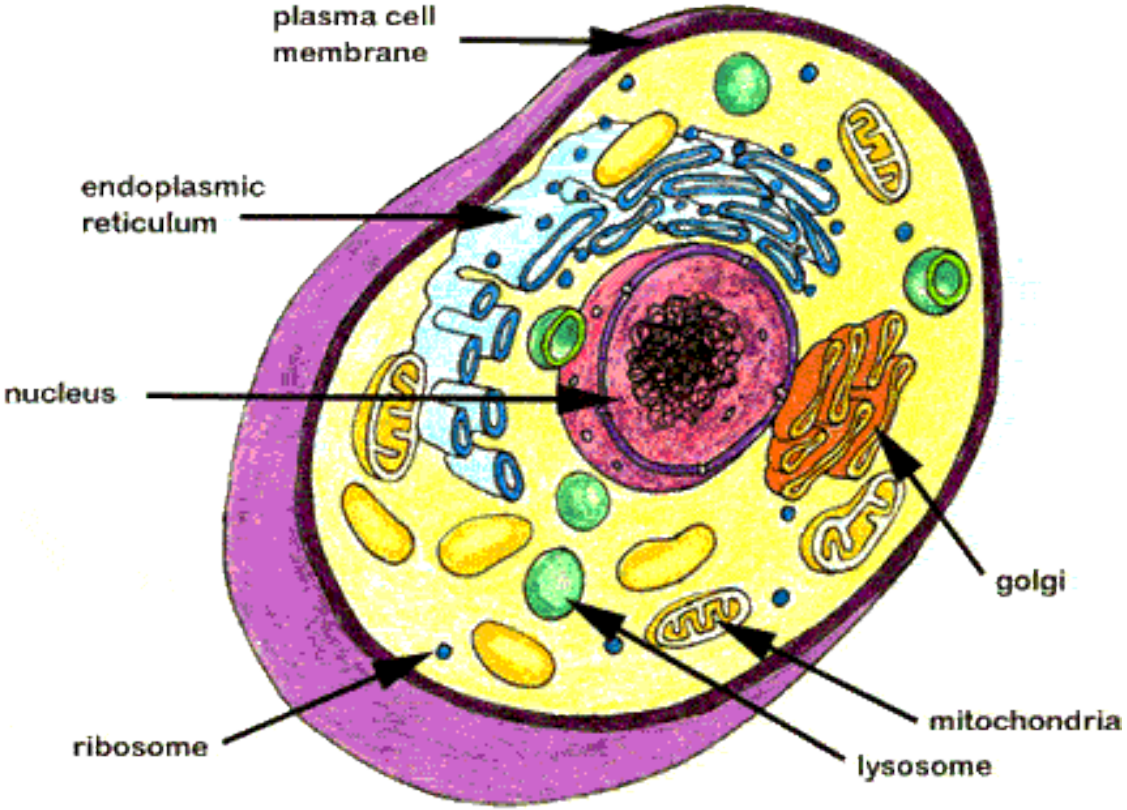
Which system is this ?

Body Systems

They all work together

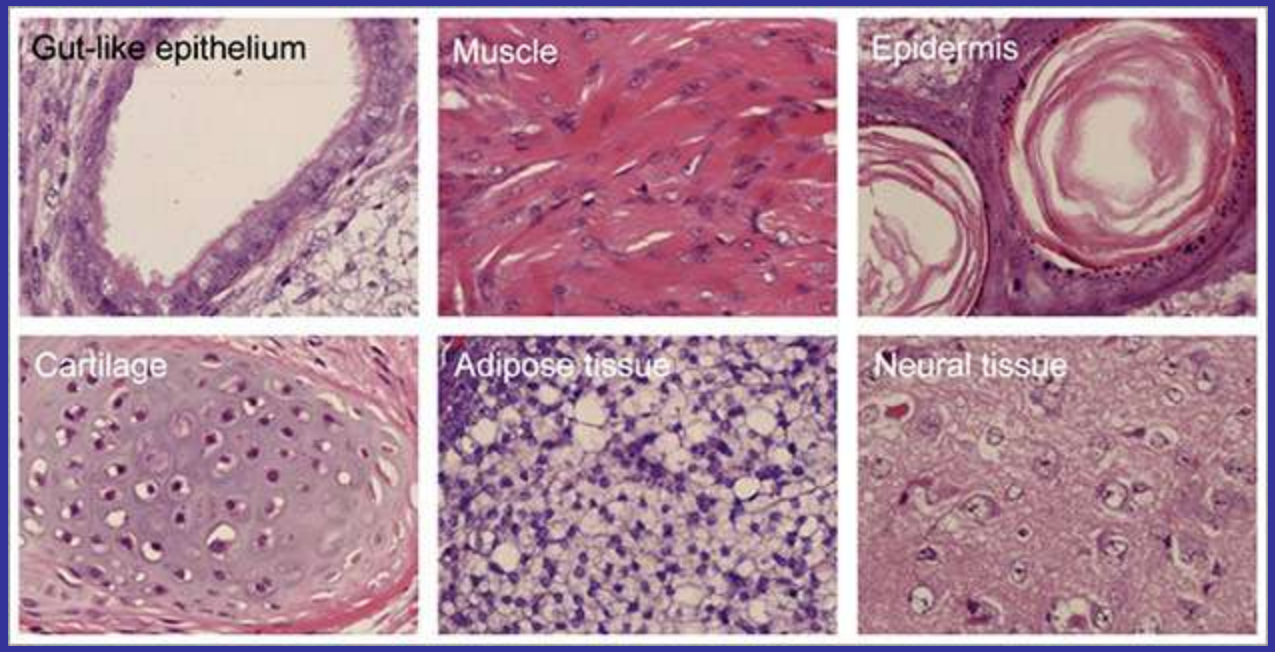
Organelles → Cells

Organelles all work together to make



Cells → Tissue

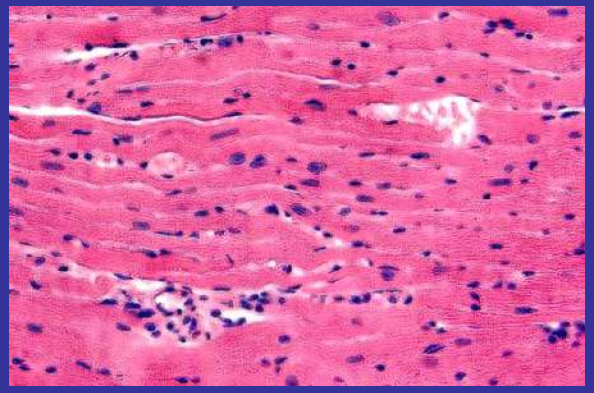
Cells work together to make **tissues**

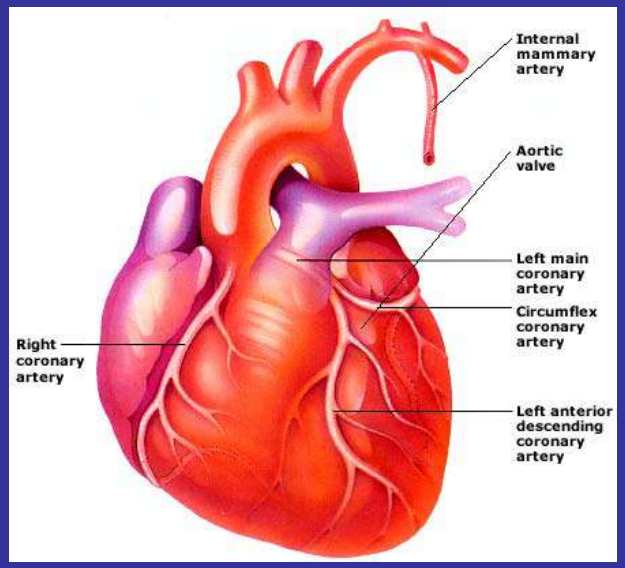


A group of cells that work together is called a tissue

Tissues → Organs

- Tissues work together to form Organs

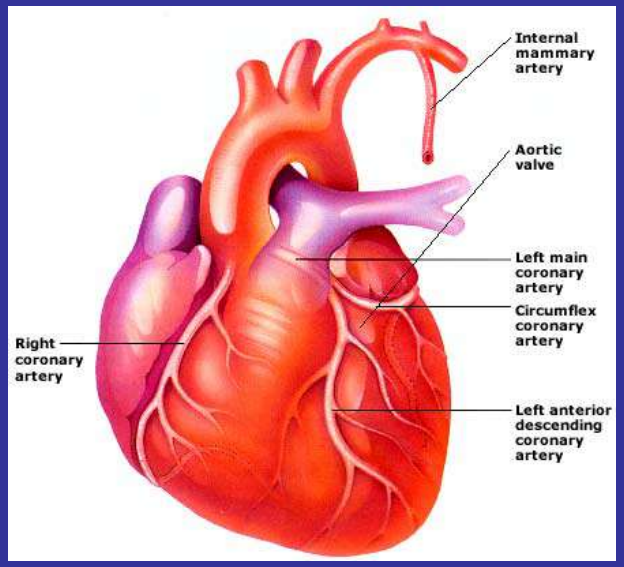


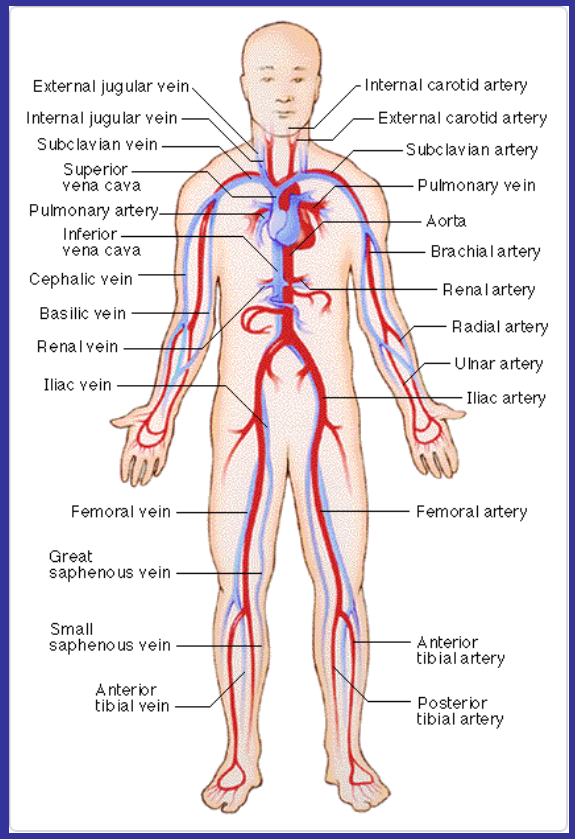


A group of tissues that work together for one function is called an organ

Organs → Organ System

- Organs work together to make an organ system

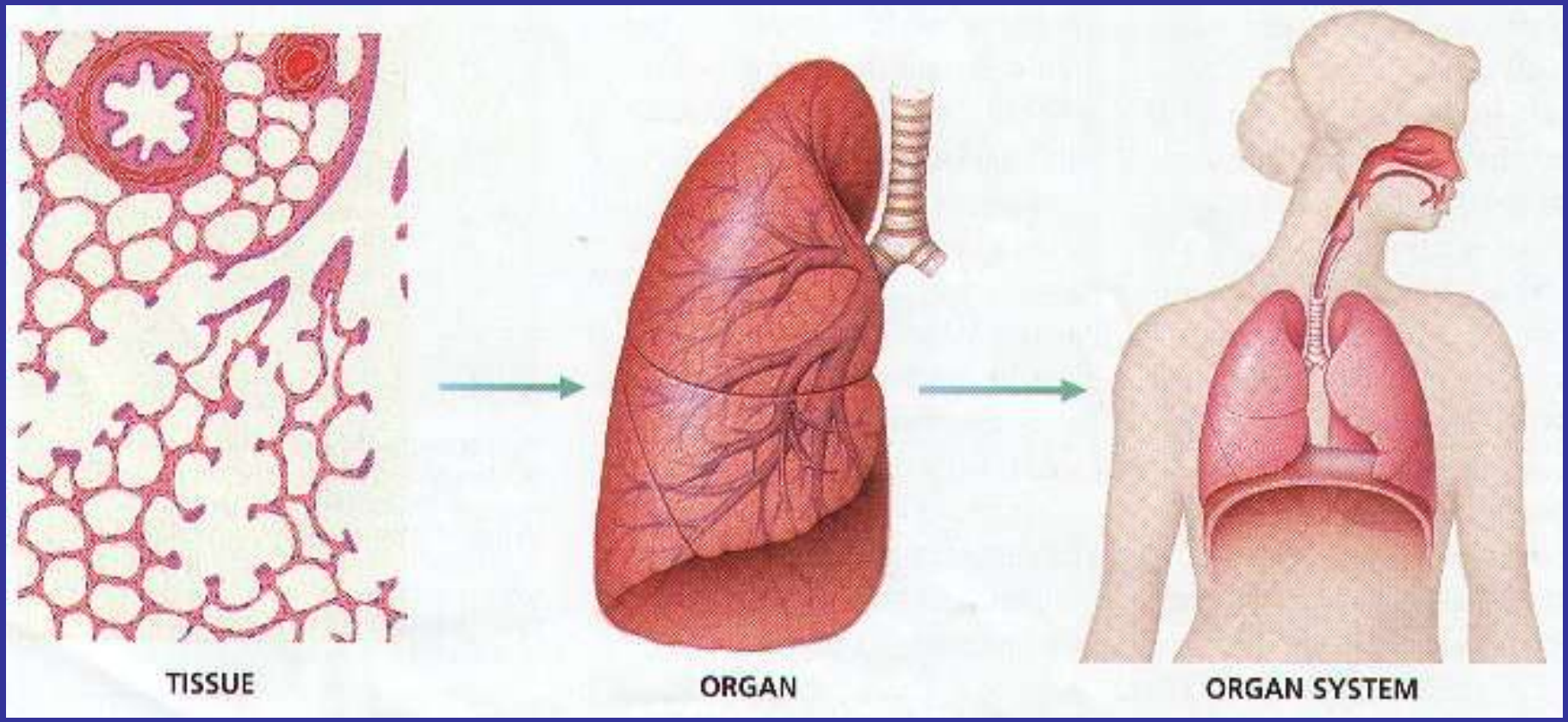




An organ system is a group of organs that work together

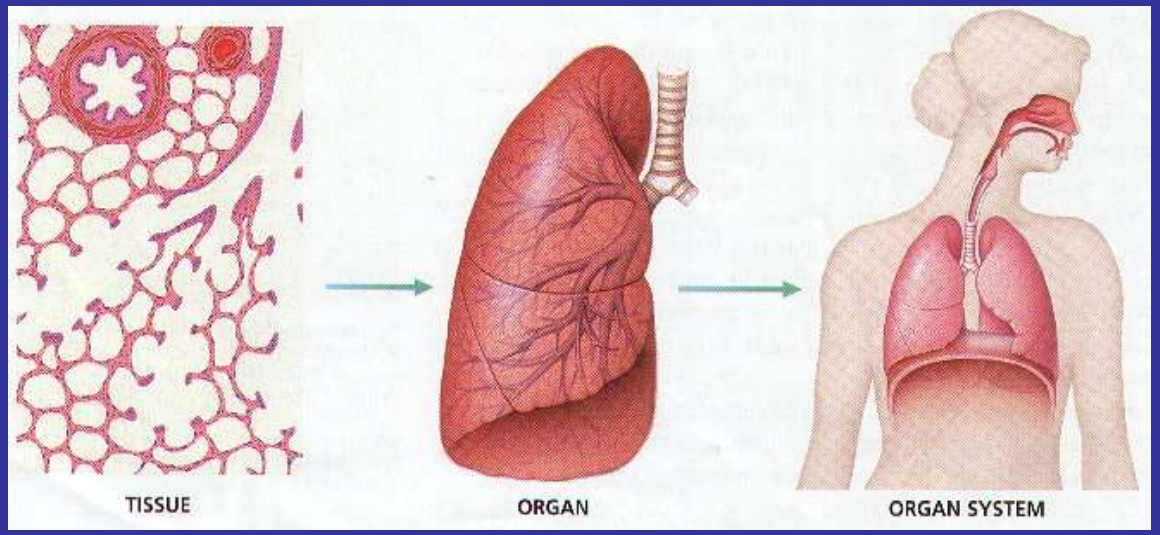
Hierarchy of Body Organization

Cells → Tissue → Organs → Organ Systems



Organ Systems → Organism

- All of the systems of a body work together so that an organism can live



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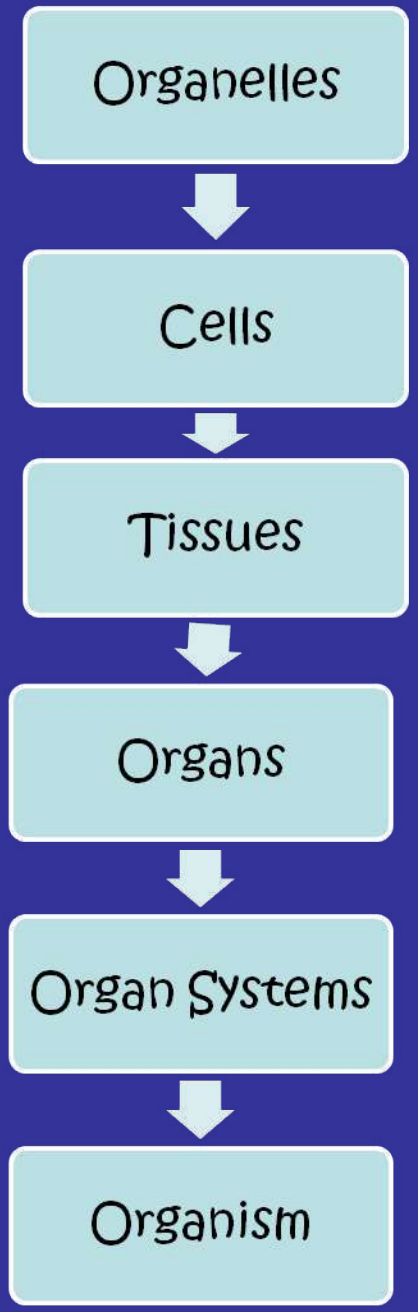
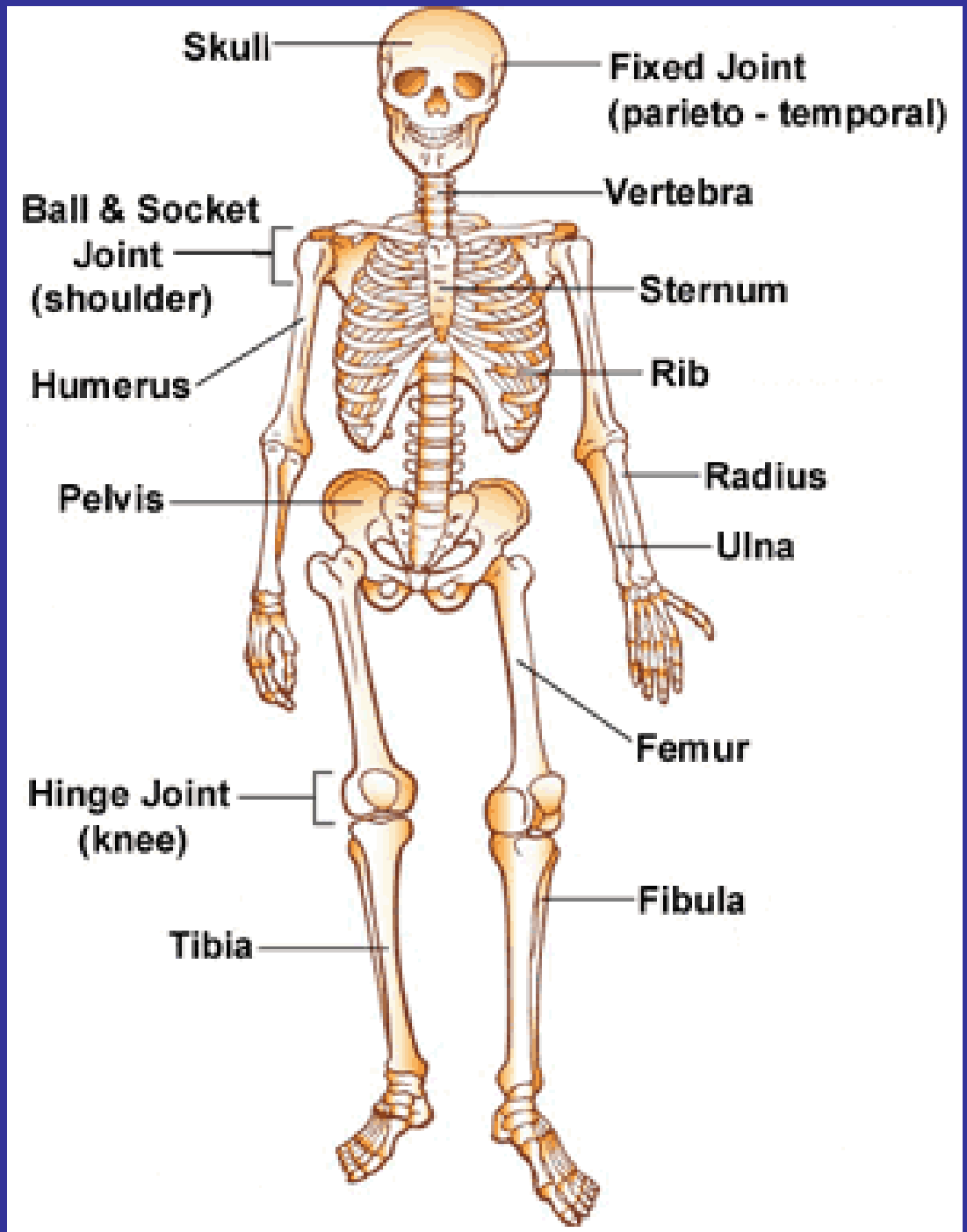
Work together to make




Skull
Fixed Joint
(parieto - temporal)
Vertebra
Ball & Socket
Joint
(shoulder)
Sternum
Humerus
Rib
Radius
Pelvis
Ulna
Femur
Hinge Joint
(knee)
Fibula
Tibia

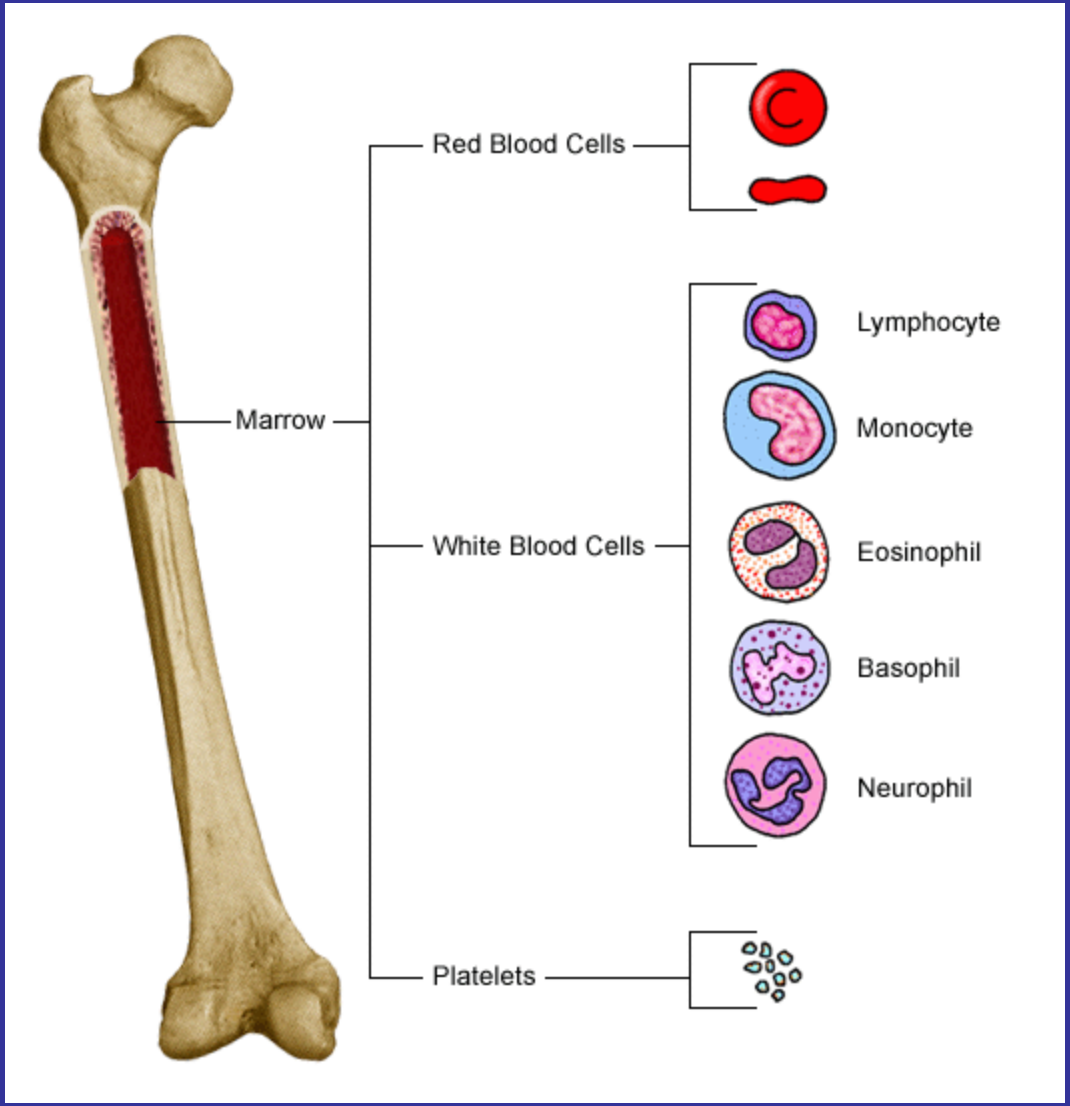
Skeletal System

Functions (what it does):

- Supports body.
- Protects organs.
- Works with muscles to move the body.
- Stores Calcium and Phosphorus for later use.
- Makes blood cells.

Bone Marrow

(no need to write this down)



Skeletal System Parts

(This goes in your notebook.)

Bones – They are alive! They are made of cells! Blood vessels feed them. Outside is "compact" inside is "spongy."

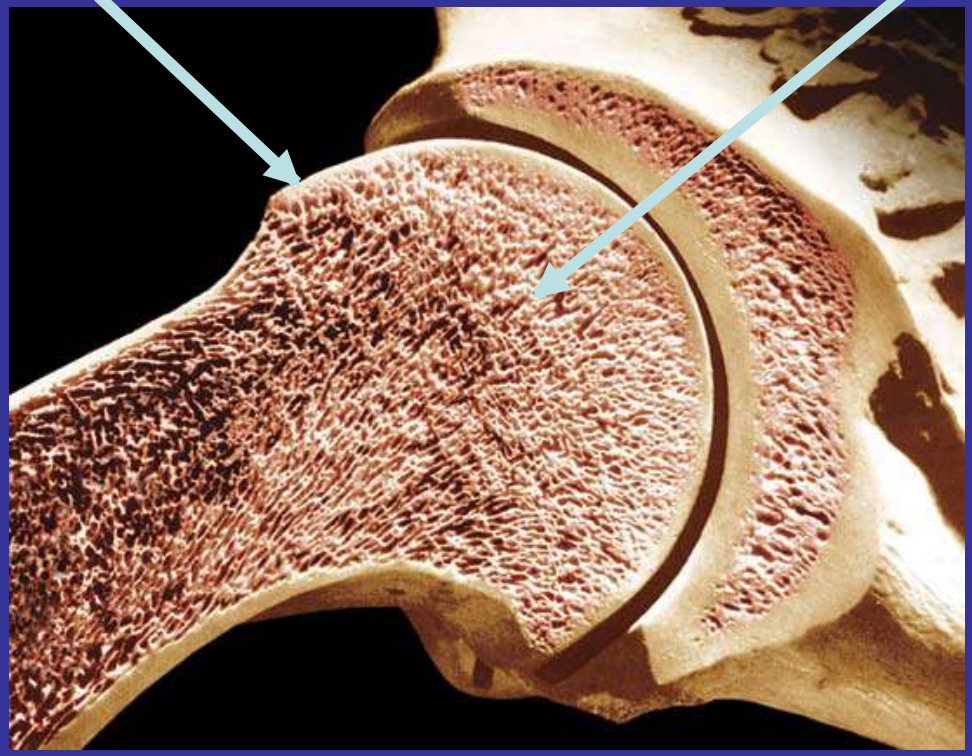
Cartilage – Smooth, slippery tissue that keeps bones from rubbing together. Found on the end of the bones, nose, and your ear.

Joints – Where two bones meet. Movement occurs here.

Ligaments – Tough bands (like rubber bands) that hold bones together.

A picture of compact and spongy bone

Compact – hard bone on the outside.

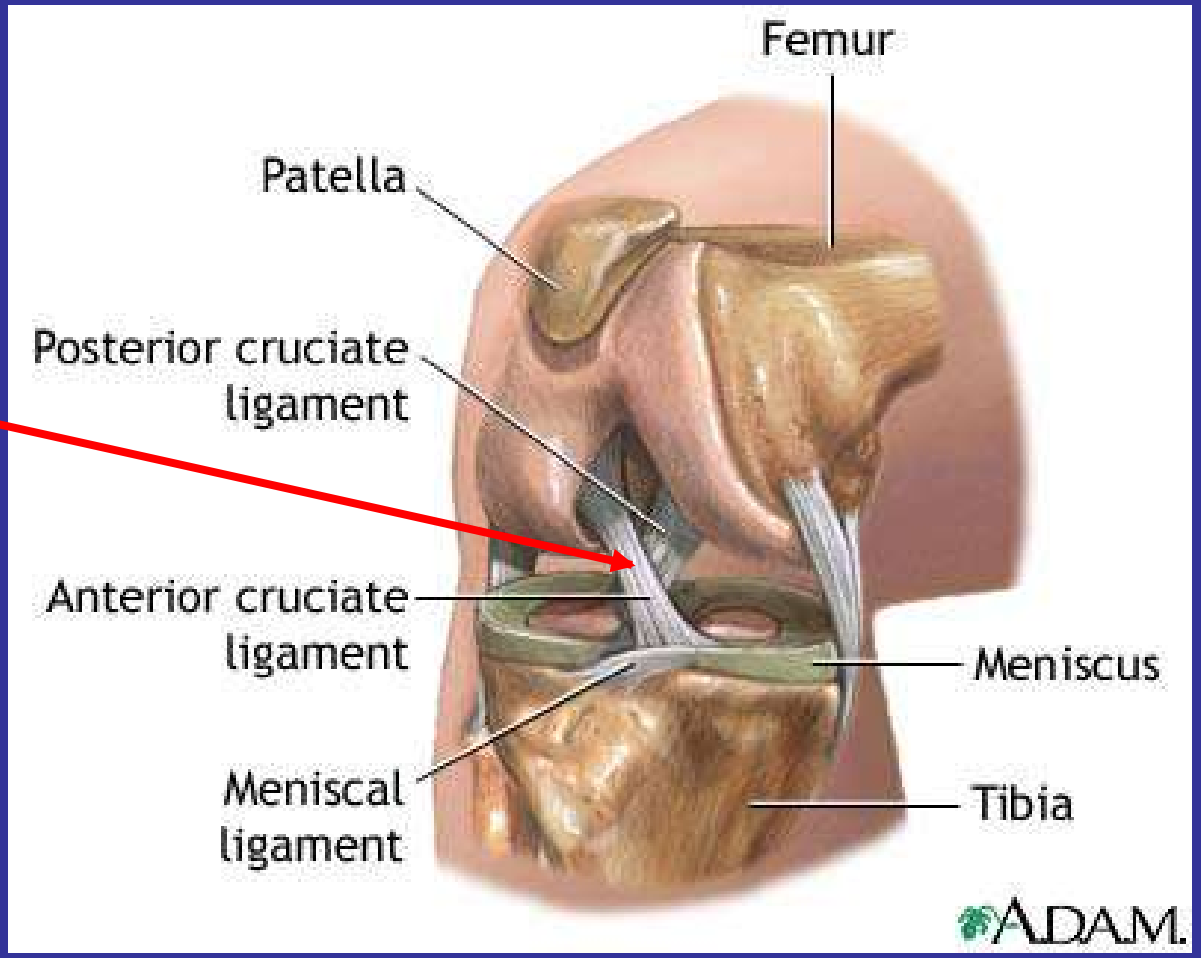


Spongy bone –near the end of bones where they are large. Keeps them light weight but strong.

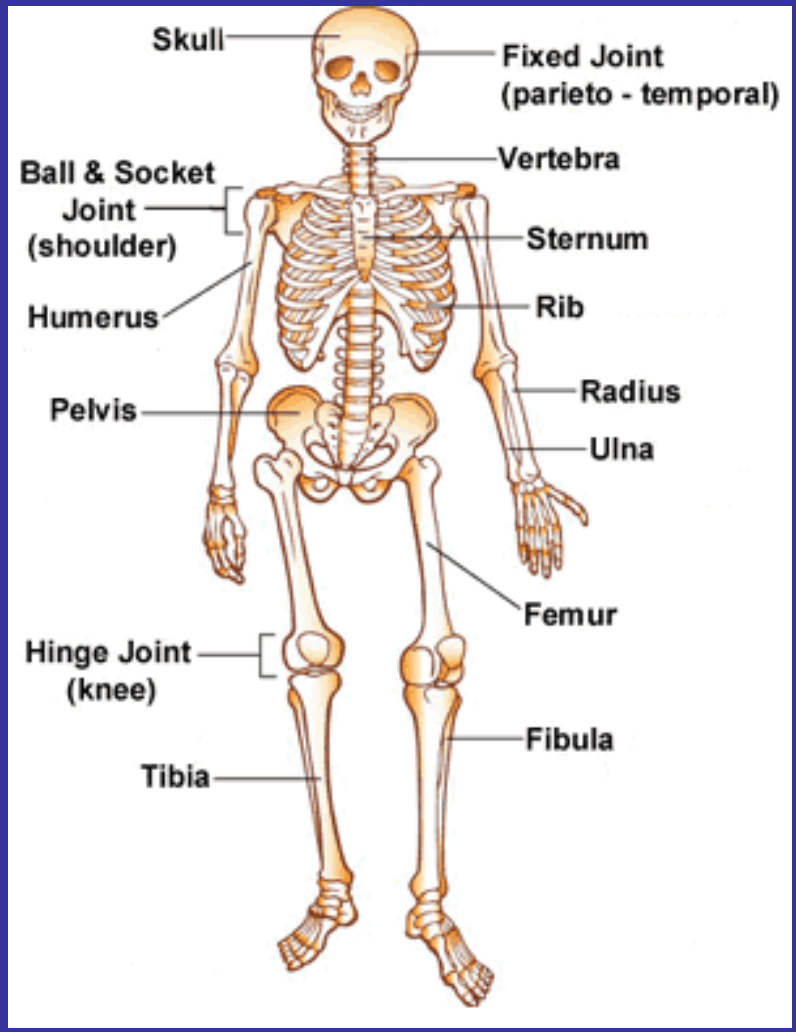
Ligaments – hold bones together

Knee Joint

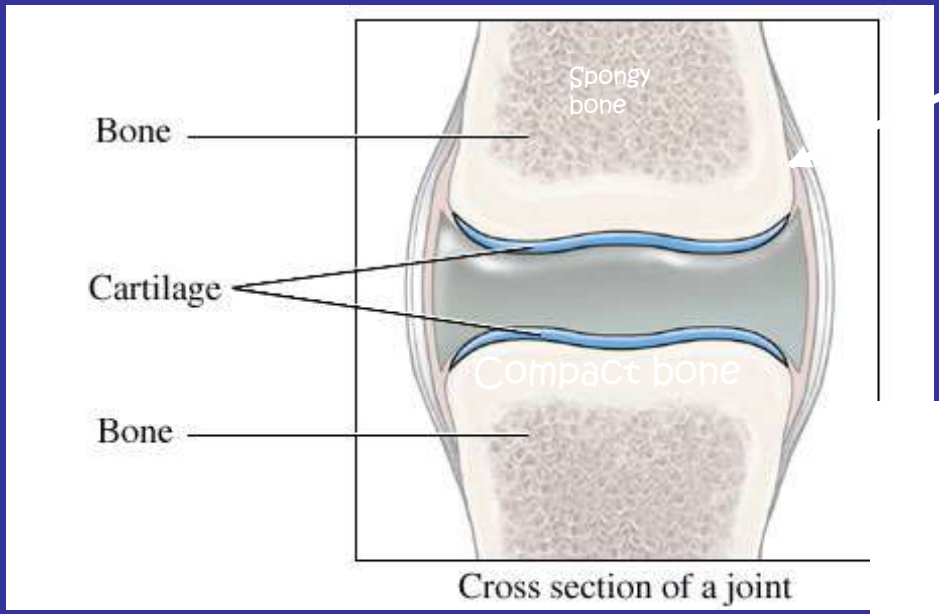
The most common injury in sports. Note the ACL. It is often torn in football.



Another picture: Add a rough sketch of this one to your notes. Label a few joints.



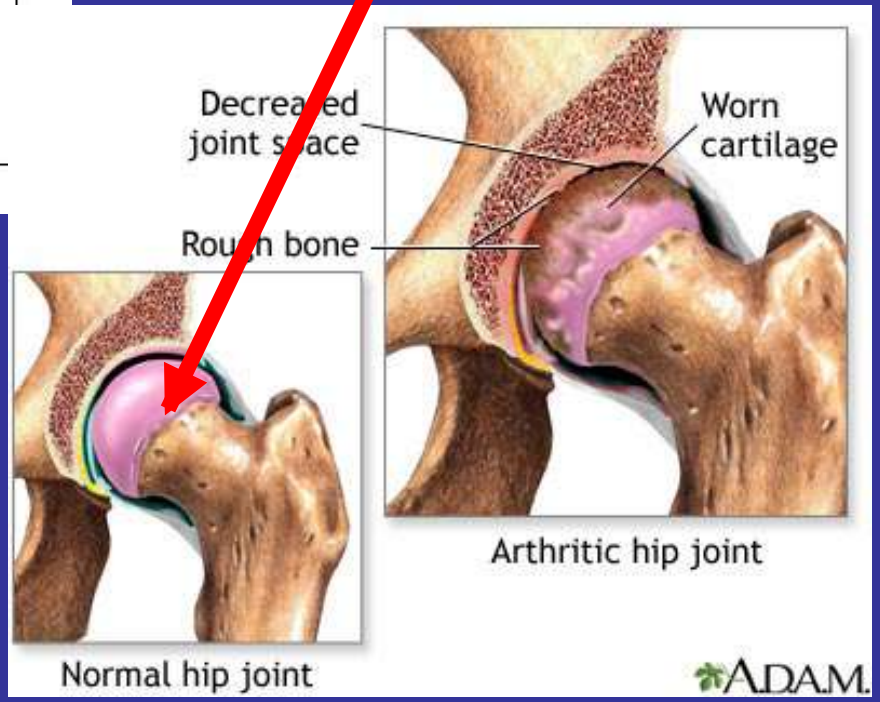
One more picture: Cartilage



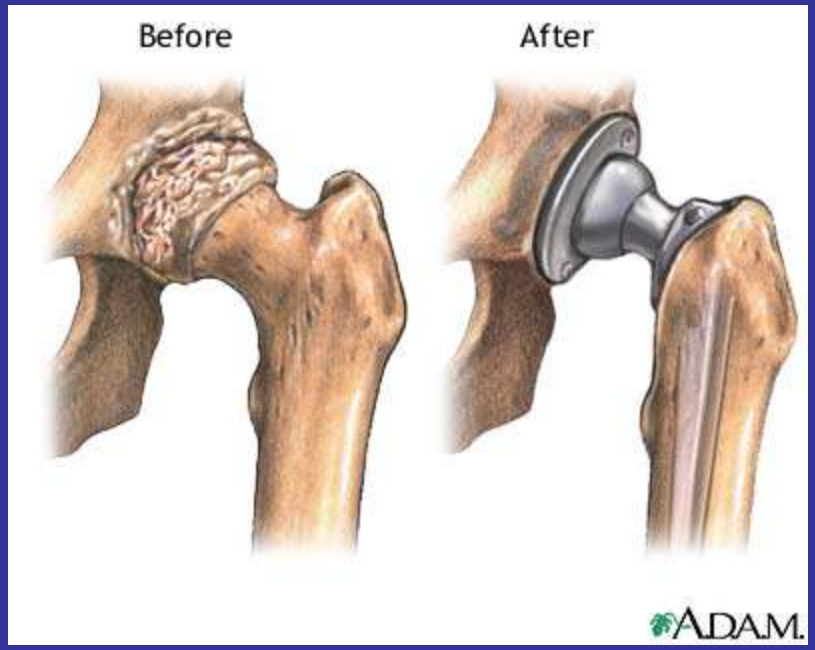
Cross section of a joint

Draw this one.

When cartilage wears out bone rubs against bone and the joint becomes painful. Doctors now replace worn and damaged joints.

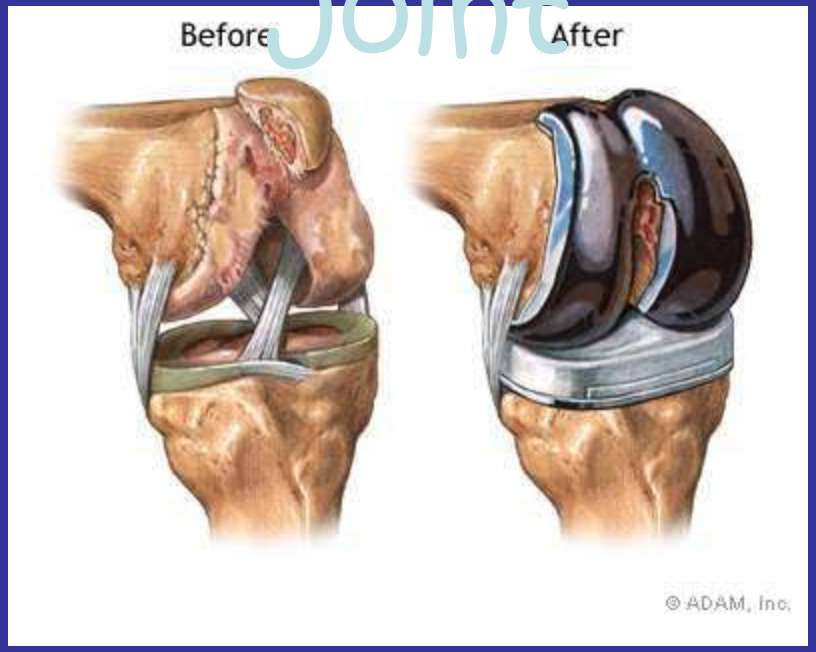


Joint replacement

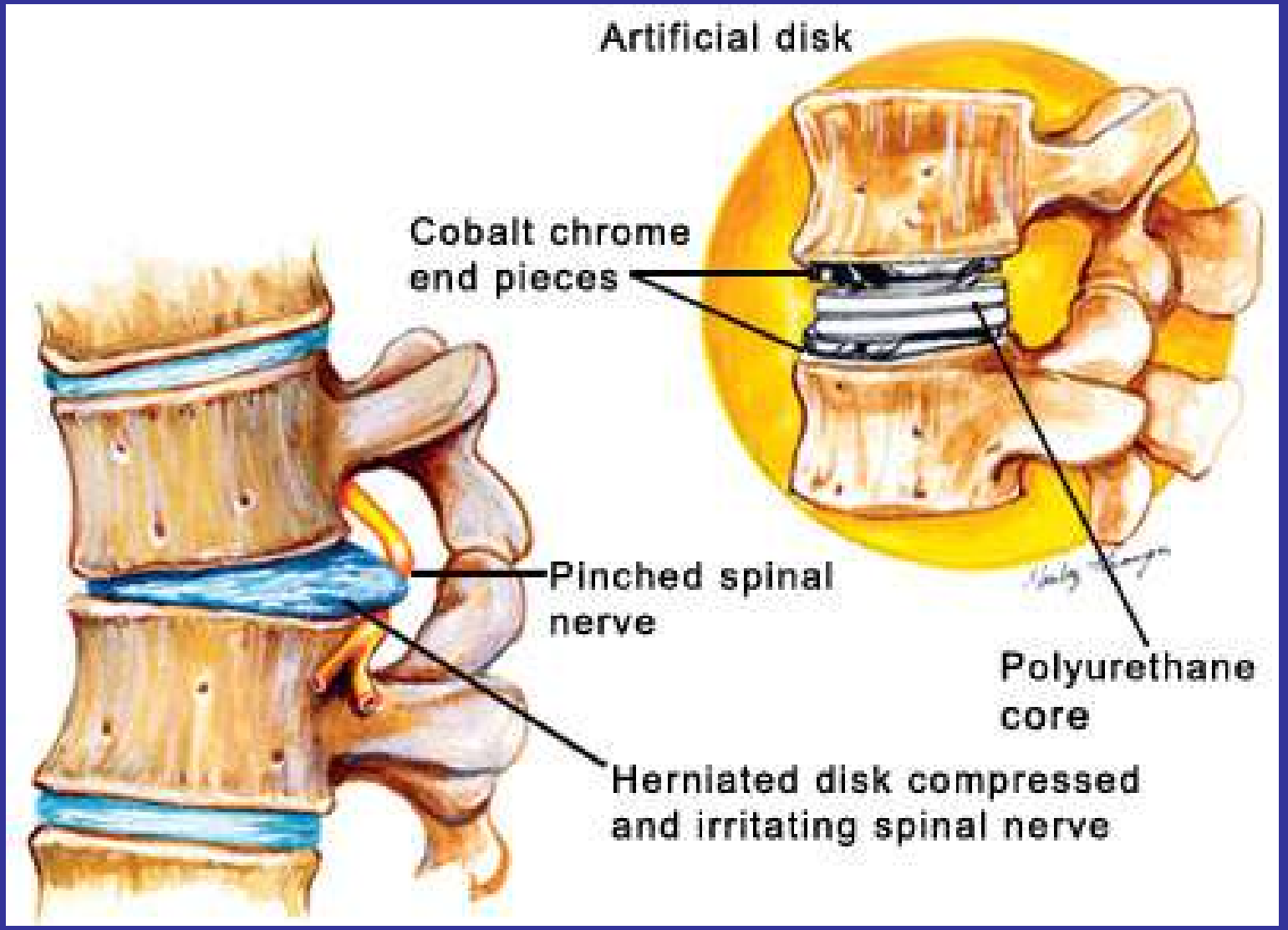


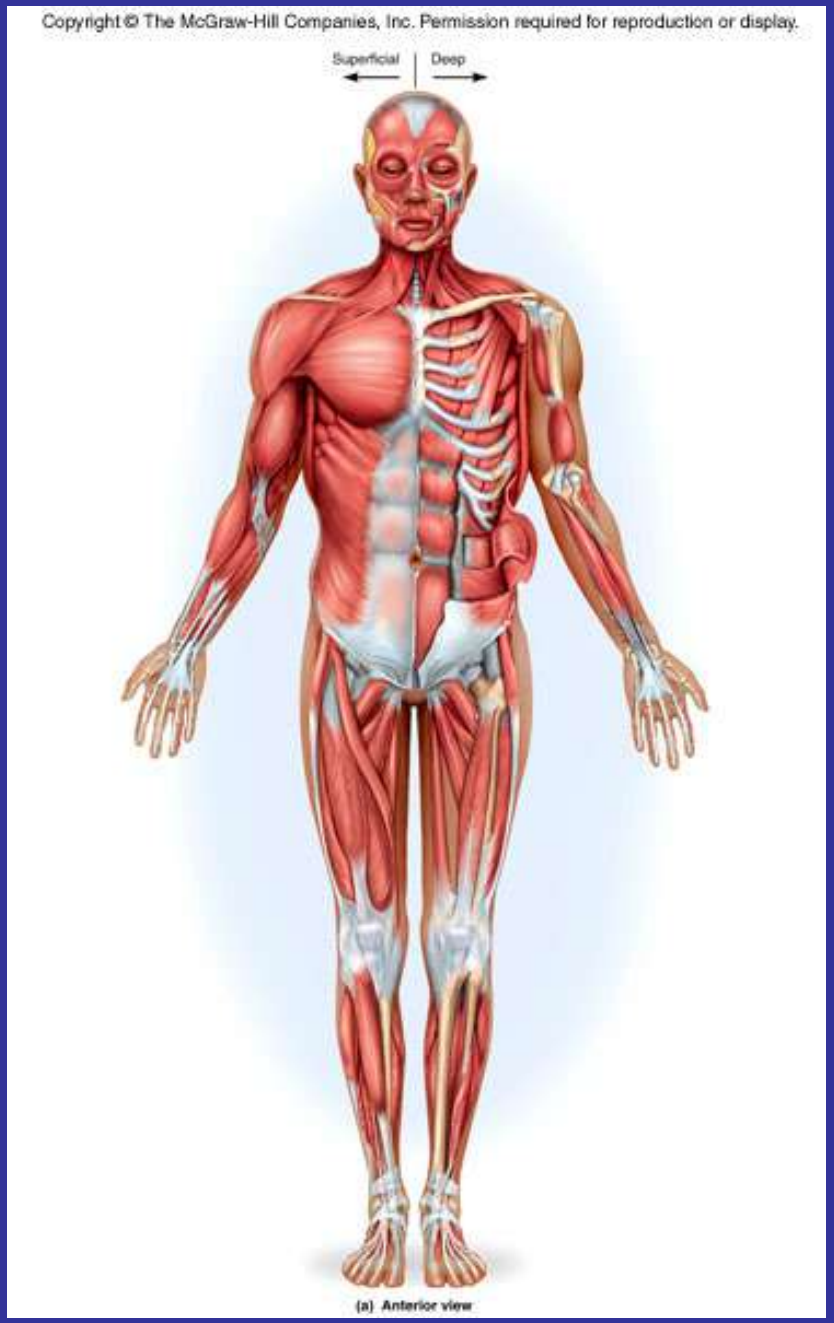
Hip Joint

Knee Joint



Cool huh?


Artificial disk
Cobalt chrome
end pieces
Pinched spinal
nerve
Polyurethane
core
Herniated disk compressed
and irritating spinal nerve



Muscular System

Function:

Involved in all movements of the body.

What is a muscle?

Muscle – fibrous organ that contracts and relaxes.

Voluntary - muscles that you are able to contract

Involuntary - muscles that you can't control

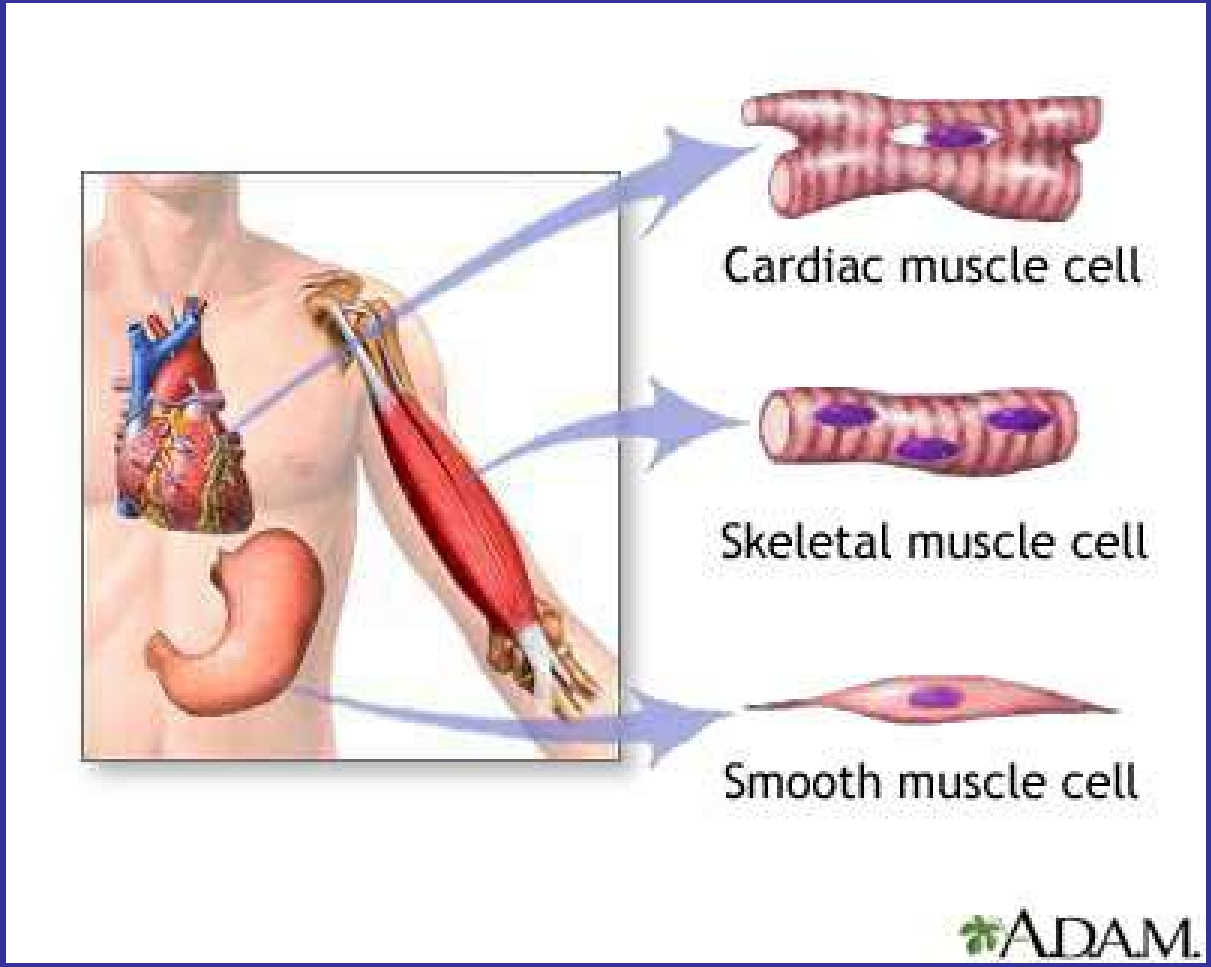
Types of Muscles

(Put this in your notebook)

1. Skeletal Muscle – works with bones to move you around.
2. Cardiac Muscle – found in your heart. Pumps the blood.
3. Smooth Muscle – Diaphragm helps you breathe. Arteries are muscular. Intestines have muscles to move your food along.

Types of muscles pictured:

You don't have to copy this. Just notice they are different.

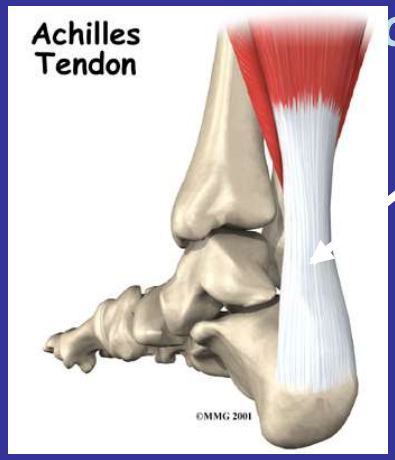


Skeletal Muscle Parts

This needs to go in your notebook.

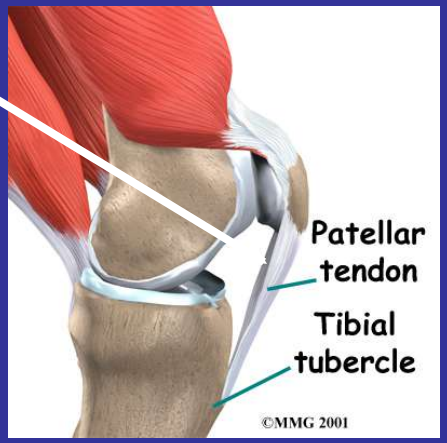
Muscle – fibrous organ that contracts and relaxes.

Tendons – tough bands that attach muscle to bone. (If they weren't attached to bone, they wouldn't move.)

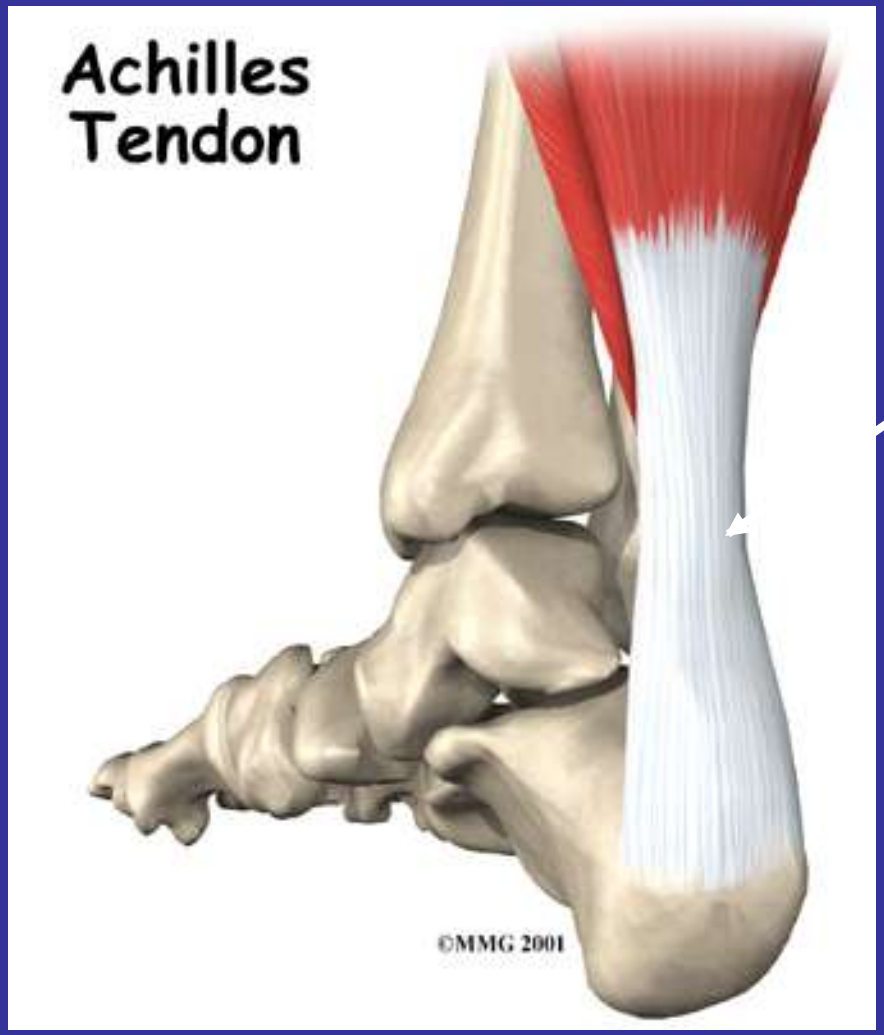


Hooks calf muscle to the heel bone.

Hooks thigh muscle to the lower leg bone.

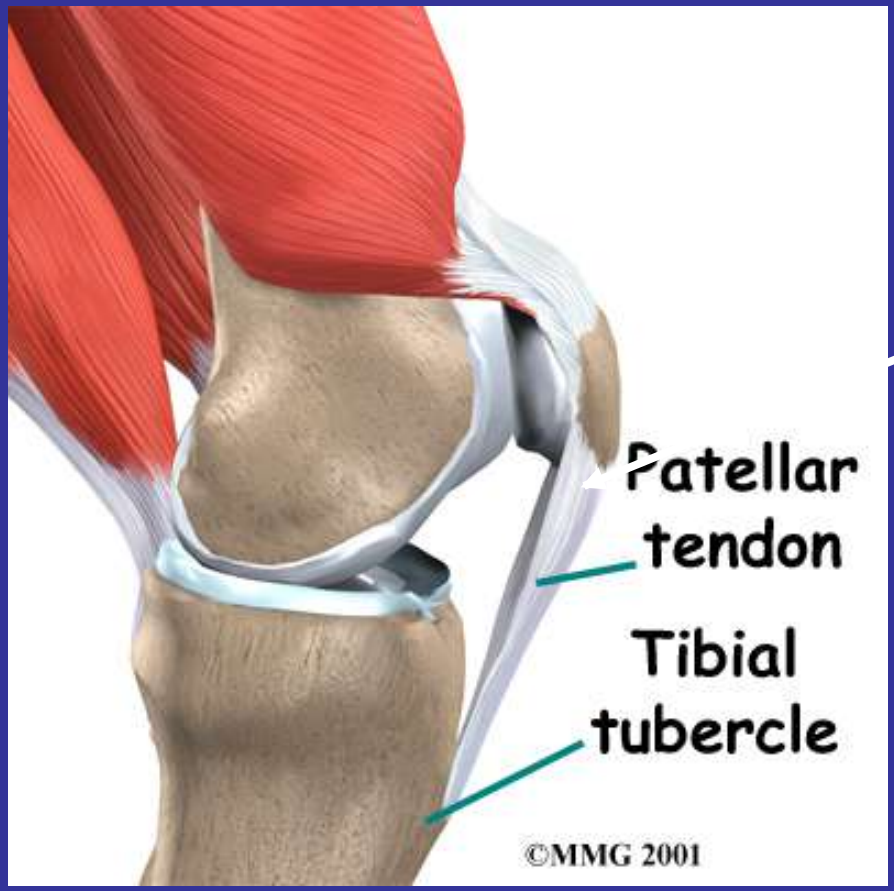


Tendons – tough bands that attach muscle to bone.



Hooks calf muscle to the heel bone.

Tendons – tough bands that attach muscle to bone

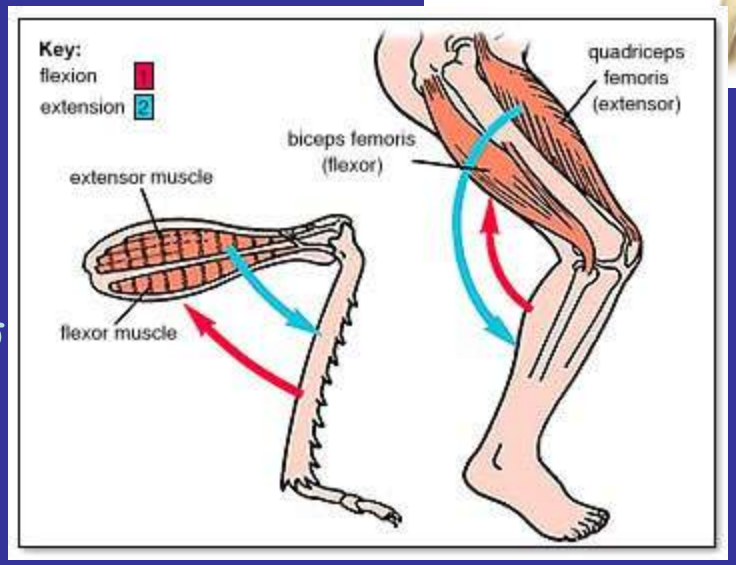


Hooks thigh muscle to the lower leg bone.

Some Muscular System Pictures

Skeletal Muscles often work in pairs – even in insects. One muscle bends your leg or arm and the other straightens it back out.

Move your arm and leg and note which muscles are tightening (contracting) and which are relaxing.

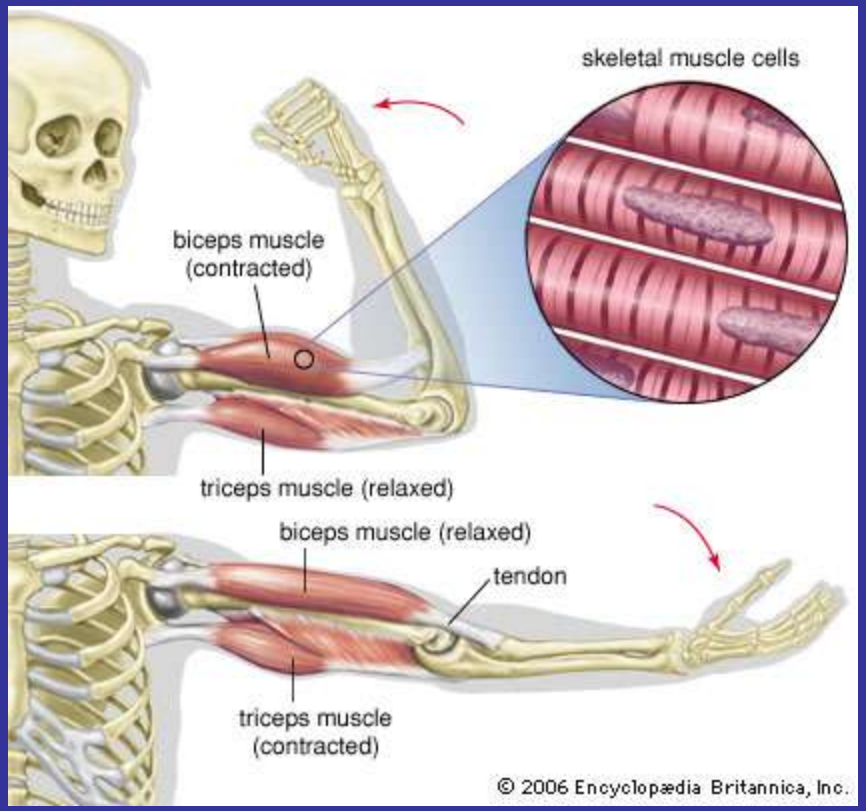


- Tightening = Contracting

You can feel it get bigger. ("flexing")

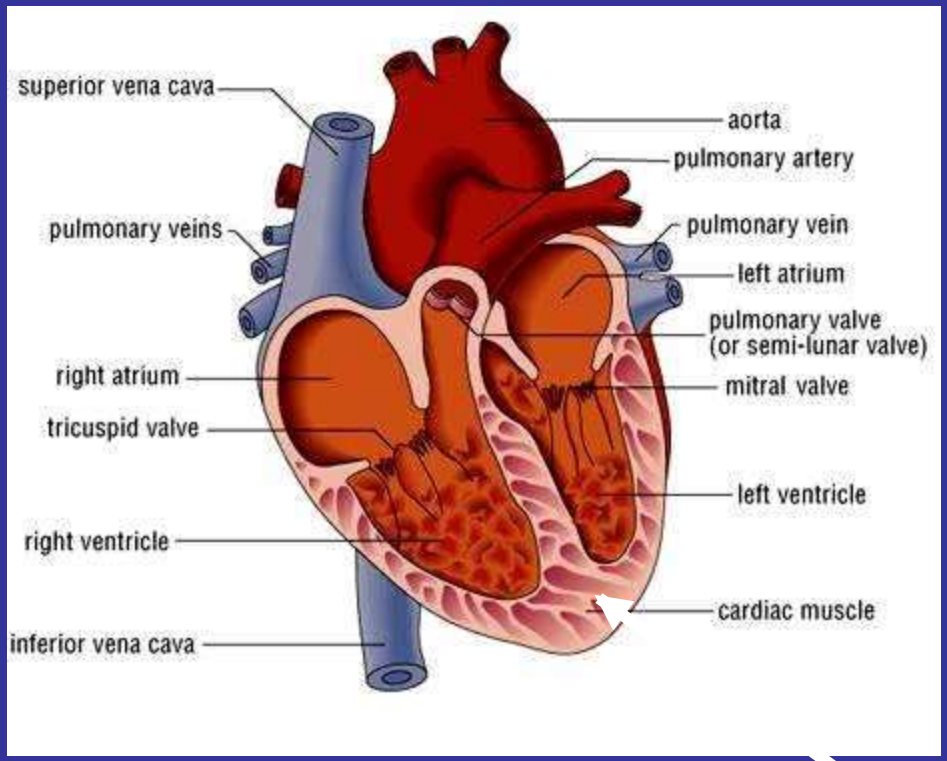
- Relaxing = the muscle doesn't get bigger

Don't forget muscles are organs and are made of cells!!! And tissues!!!!

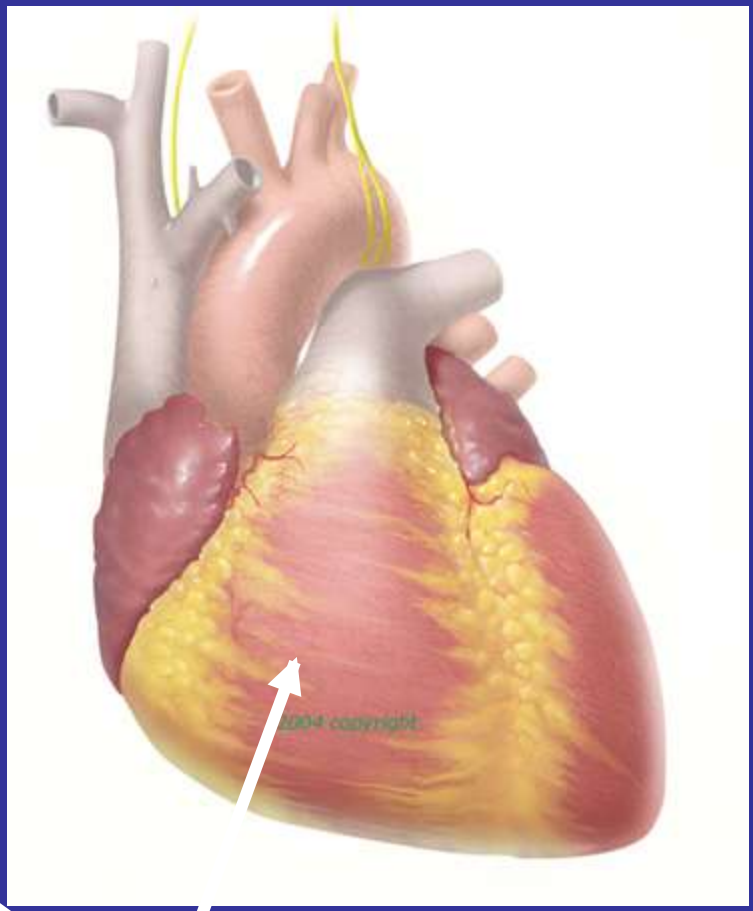


Cardiac Muscle

Heart cut open

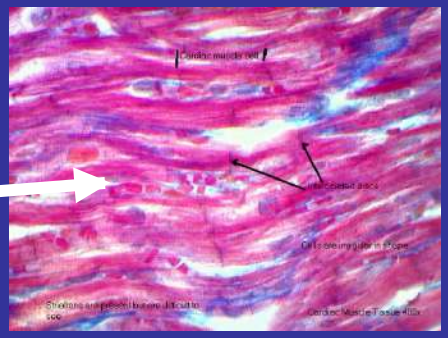


Outside of heart

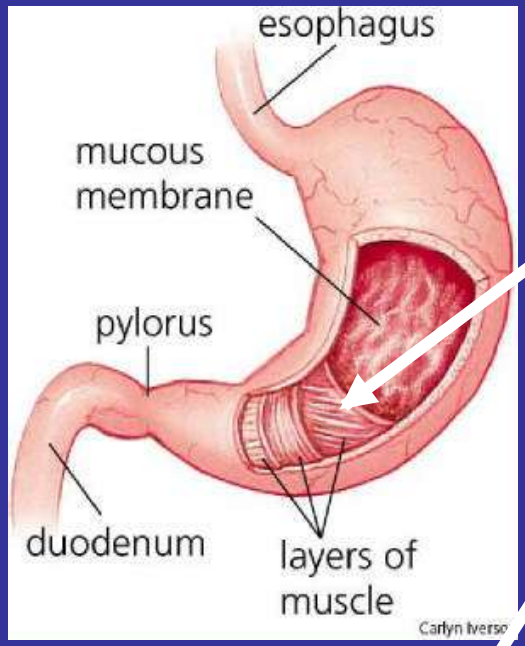


Heart muscle

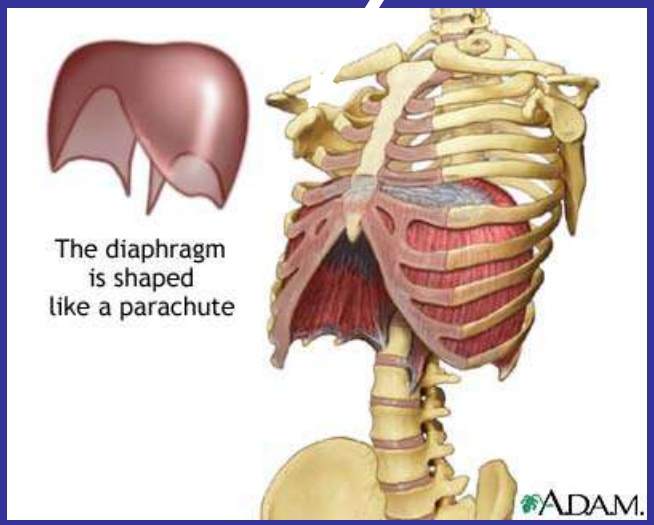
Cardiac muscle cells under the microscope.



Smooth Muscle



Smooth muscle is the one we often do not think about. It is part of our digestive system, respiratory system and circulatory systems.

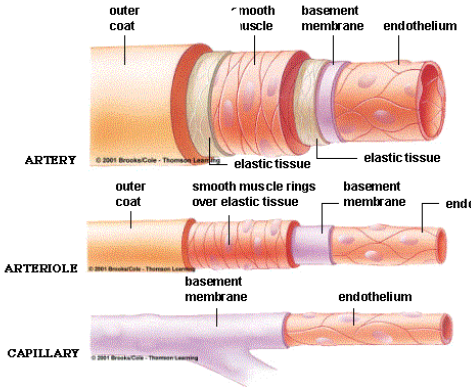


Blood Vessels

Arteries: main transporters of oxygenated blood

Arterioles: diameter is adjusted to regulate blood flow

Capillaries: diffusion occurs across thin walls

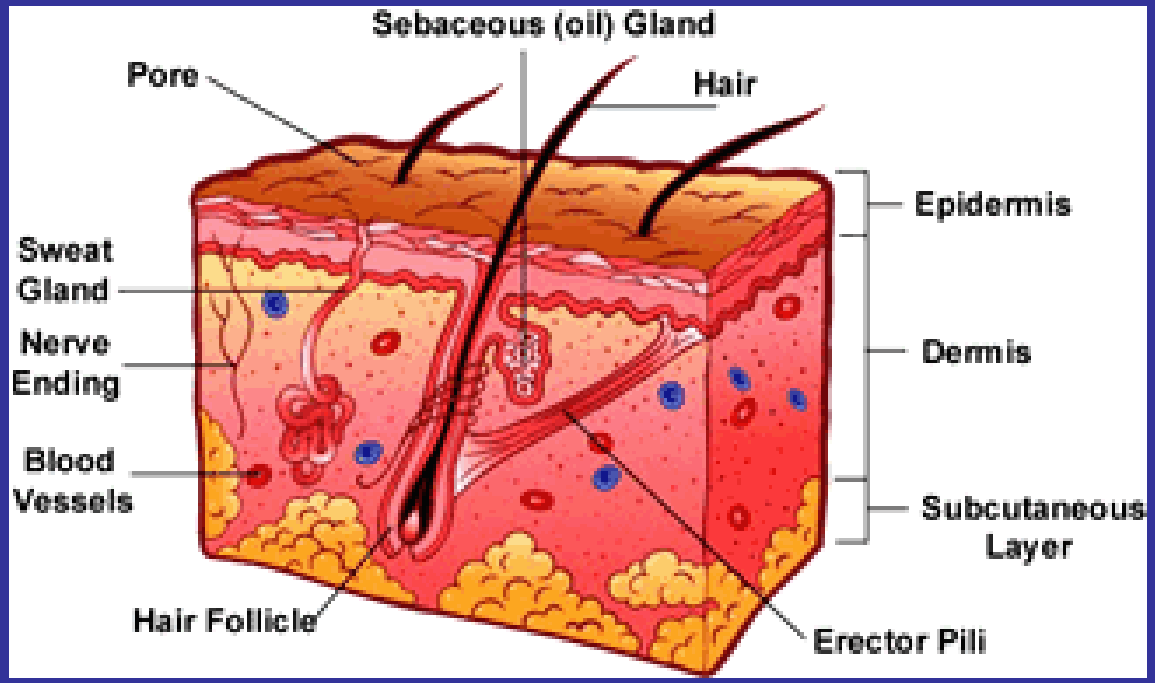


Skin

Purposes

1. Keeps bacteria and disease causing organisms out of the body.
2. Senses your environment.
3. Regulates body temperature.
4. Rids body of wastes.
5. Prevents injury to deeper tissues.

Skin parts



- Epidermis – outer layer (dead cells)
- Dermis – live cells underneath
- Fat – underneath dermis

- Oil glands
- Sweat glands
- Hair follicle

Digestive System

Purpose:

Breaks down food into small molecules the cell can use.

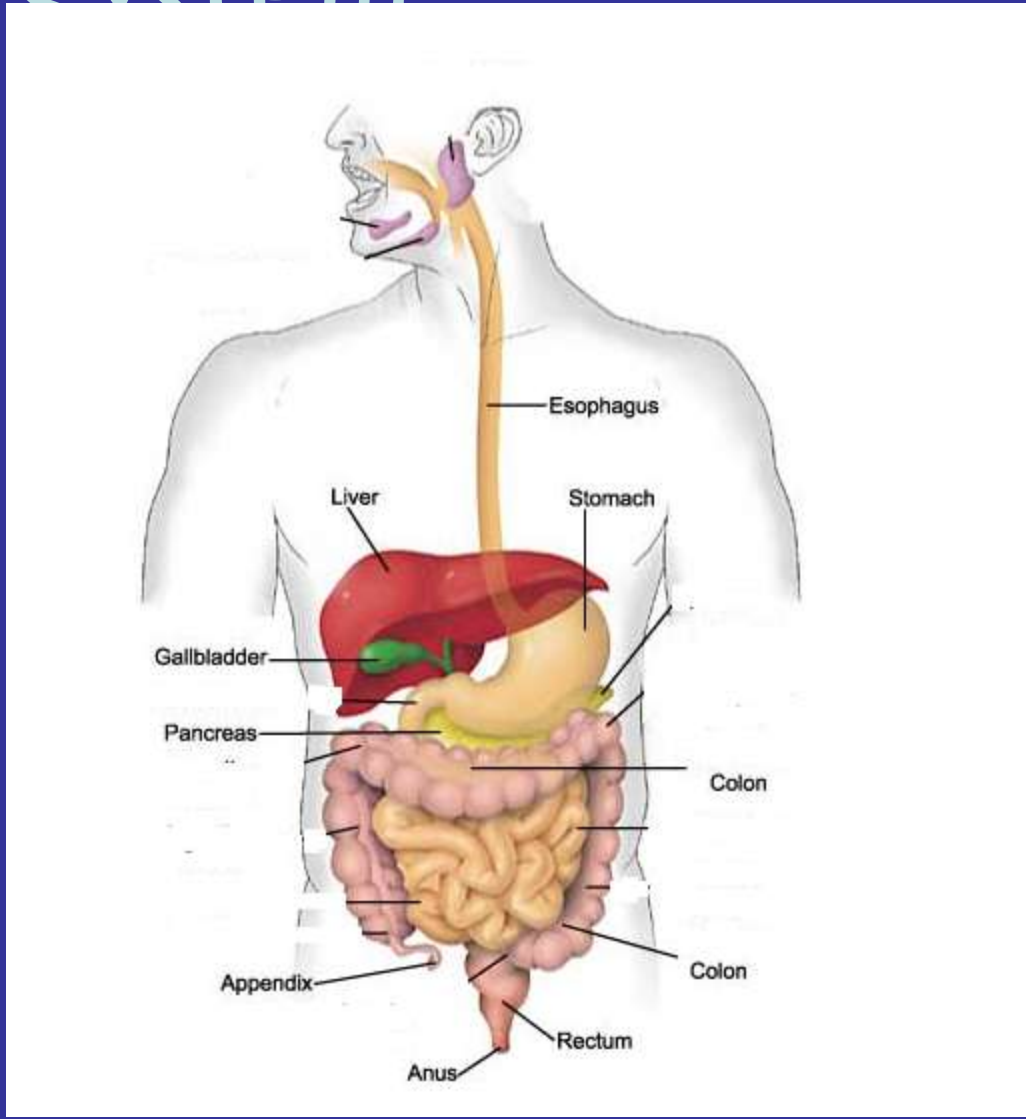
Organs of the Digestive System

Organs in the order food passes through them:

- **Mouth**
- **Esophagus**
- **Stomach**
- **Small Intestine**
- **Large Intestine**
- **Rectum**

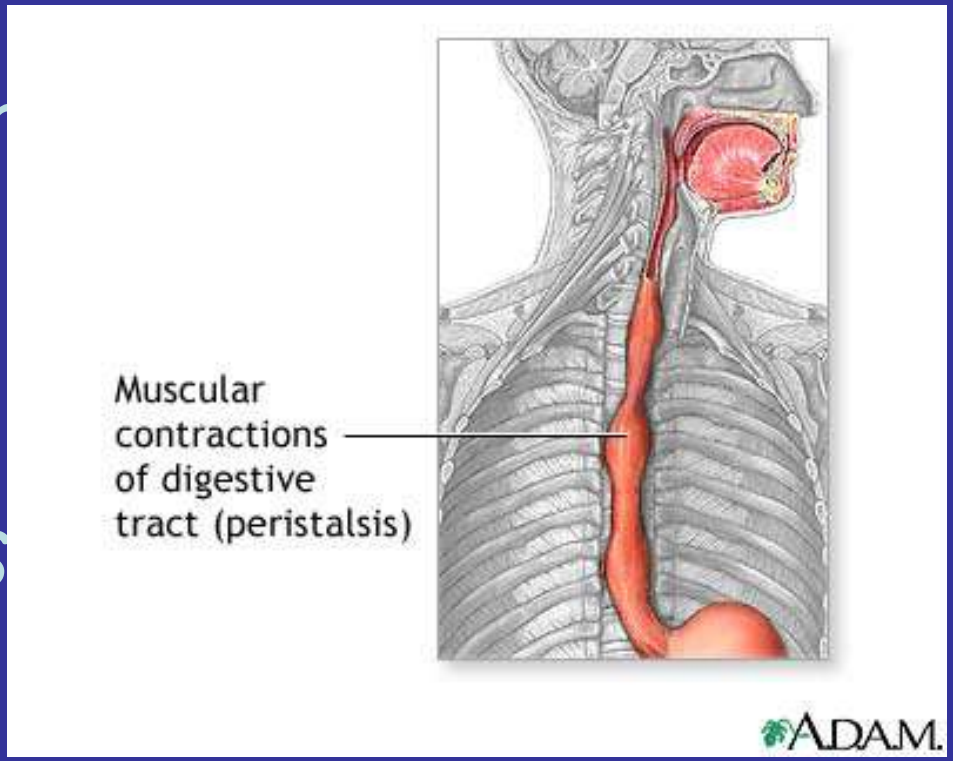
Organs that make or store digestive enzymes:

- **Liver**
- **Gall bladder**
- **Pancreas**



Parts of the digestive system and what they do

- Mouth – mechanical (chewing) and chemical digestion saliva released (digests carbohydrates).
- Esophagus – carries food to stomach. Peristalsis.



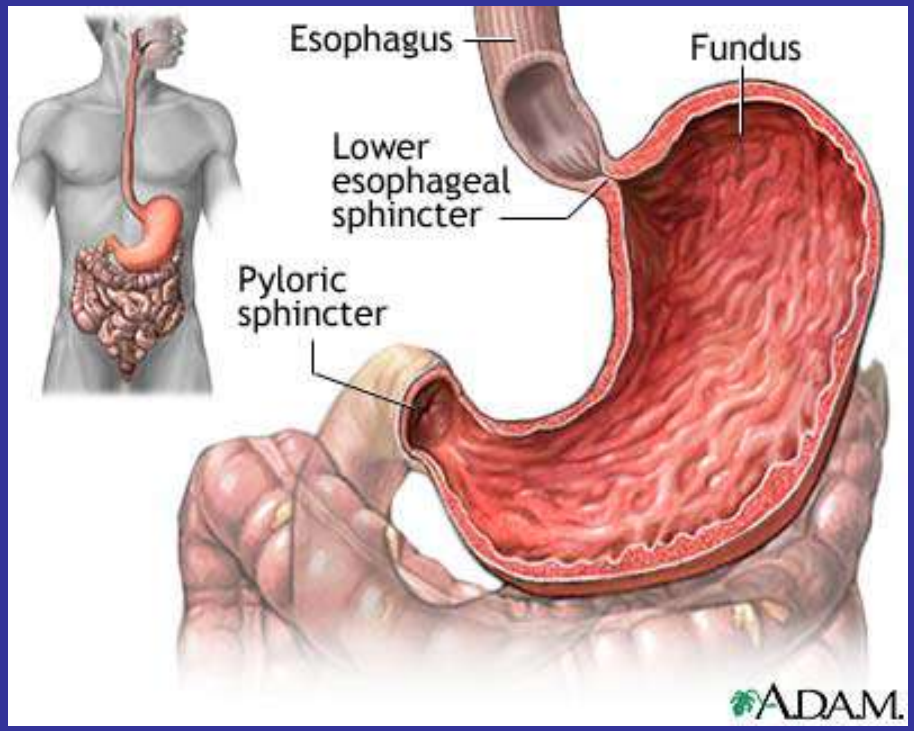
Peristalsis

- The contraction of the digestion tract to move food so it can be digested.

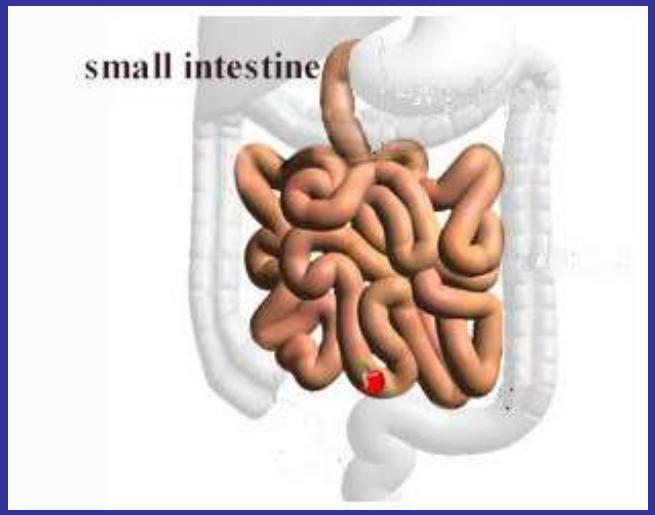
Stomach

- **Mixes food with enzymes and stomach acid.**

- **Kills bacteria you have eaten**

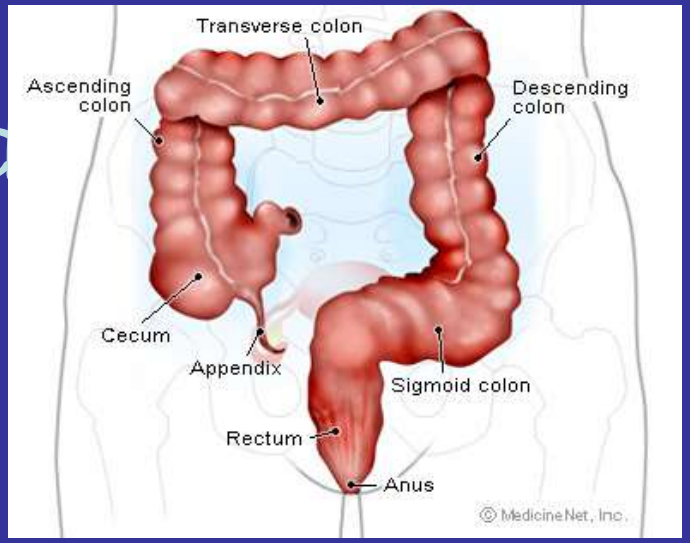


Parts of the digestive system and what they do



Small intestine – digestion continues and absorption occurs.

Large intestine – hold feces and absorbs water.

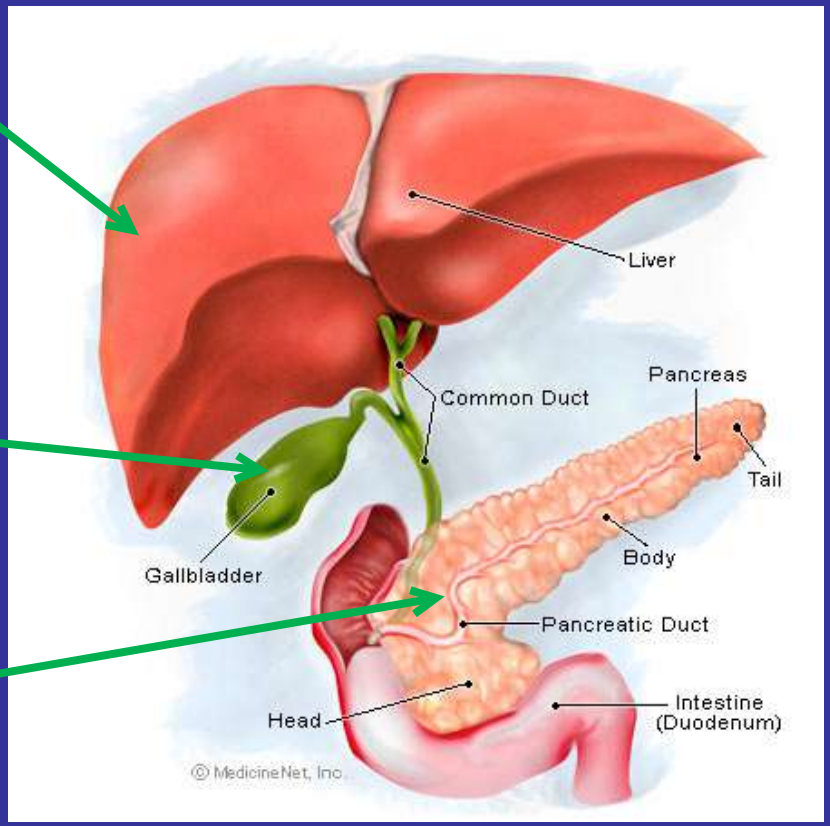


Parts of the digestive system and what they do:

Liver – makes bile (breaks down fats)

Gall bladder – holds bile until needed. (often removed)

Pancreas – makes digestive enzymes.



Circulatory System

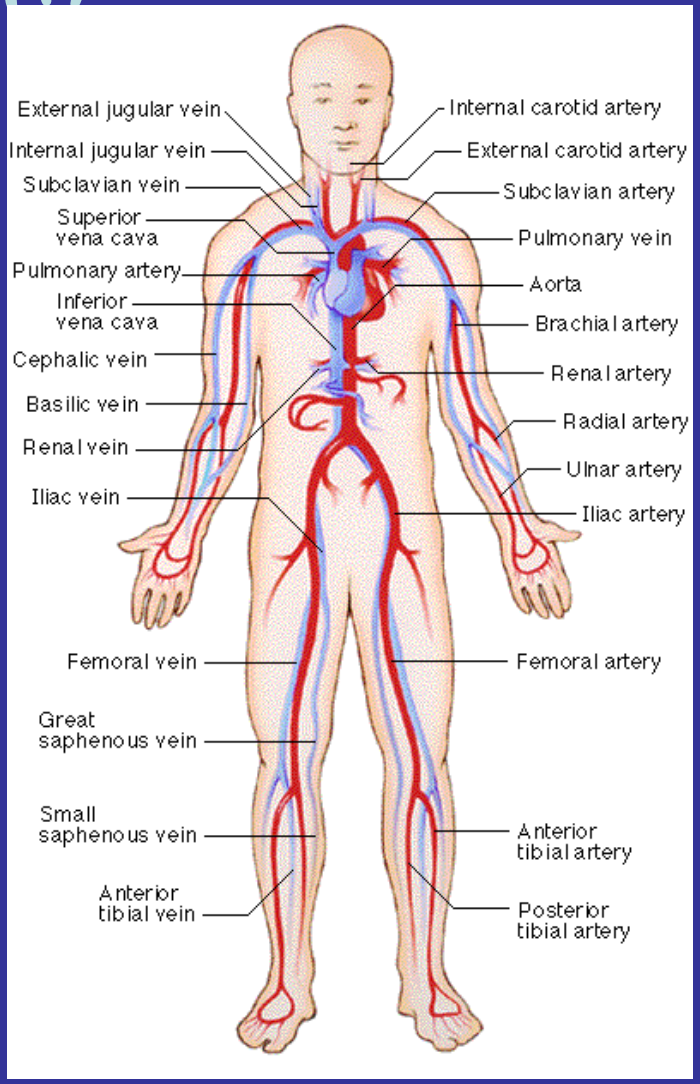
Body's Transportation System

Functions:

1. Carries oxygen from the lungs to the cells.
2. Carries carbon dioxide away from cells to the lungs.
3. Carries food from intestines to cells.
4. Carries hormones, minerals, vitamins, etc. (Carries, carries, carries, carries....)

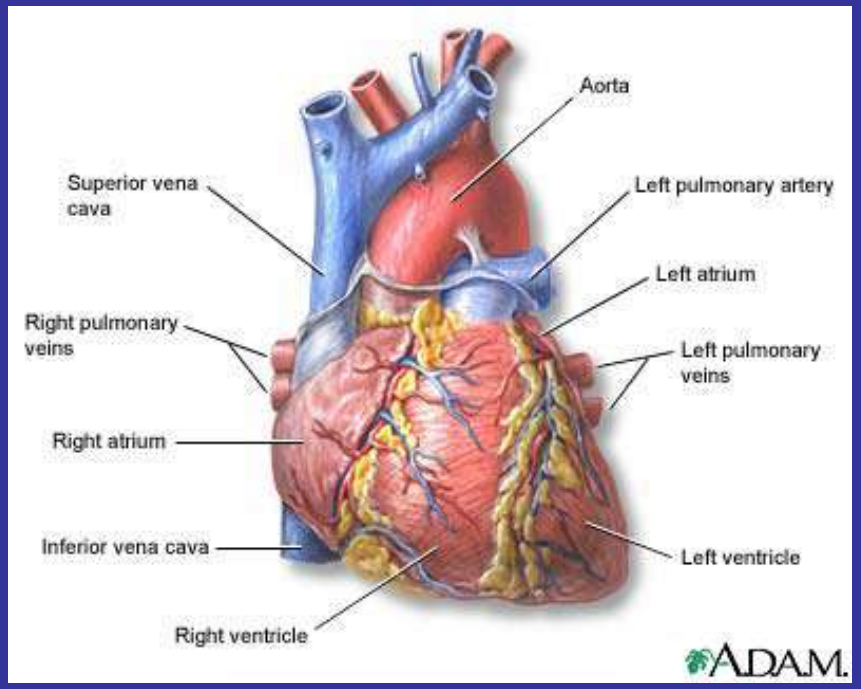
Parts of the Circulatory System

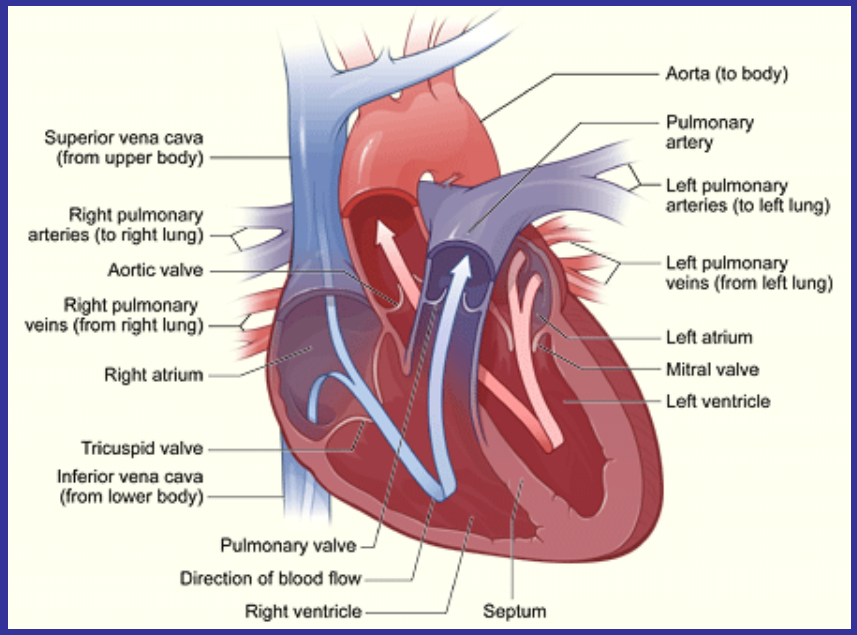
- Heart
- Blood Vessels
- Blood



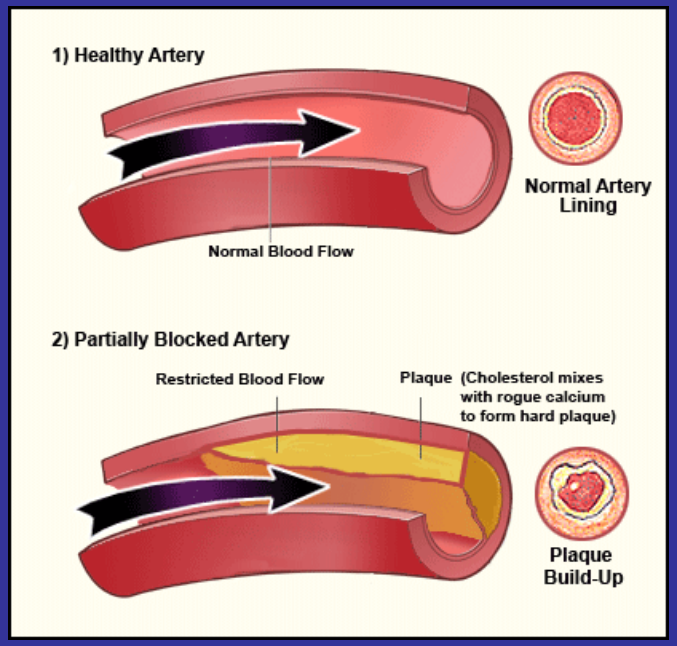
Heart

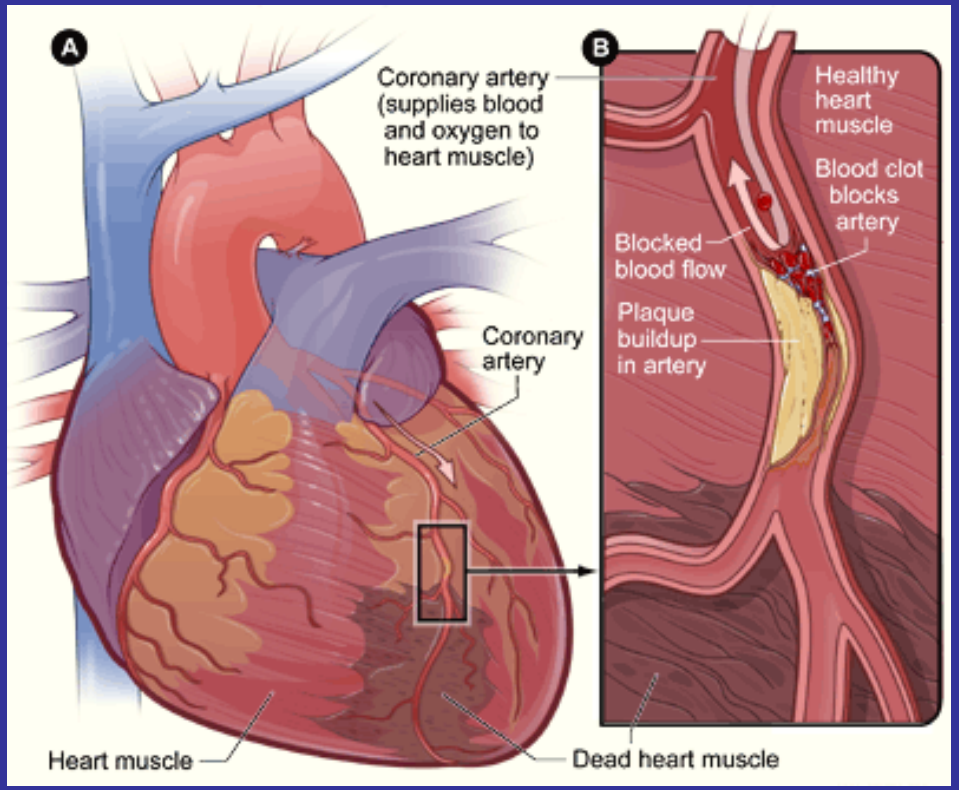
- Pumps blood
- Is mostly muscle
- Has 4 chambers inside.
- Has its own arteries and veins. When these get stopped up a heart attack occurs.





Heart attack – a part of the heart muscle dies when blood flow is stopped. Think **ASPIRIN** (not tylenol or advil but aspirin)! You might save someone's life!

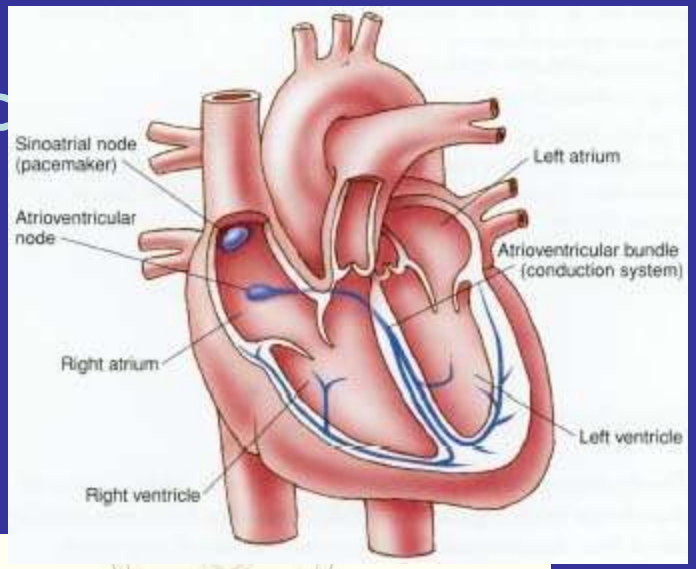


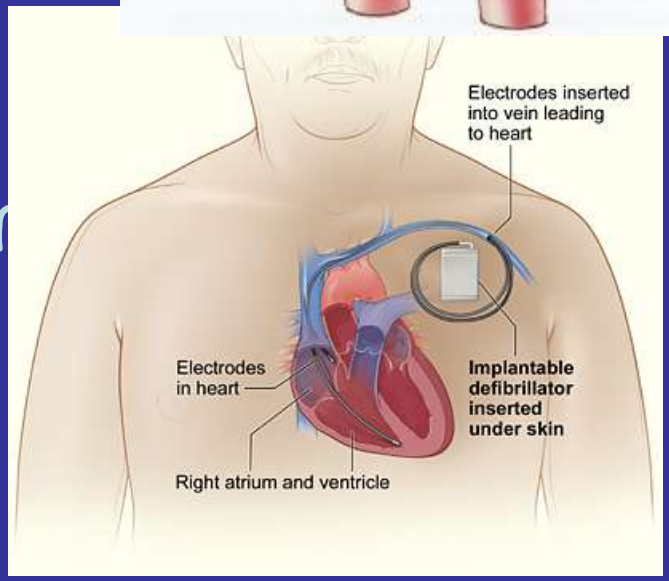


Cardiac Arrest

The heart stops beating due t

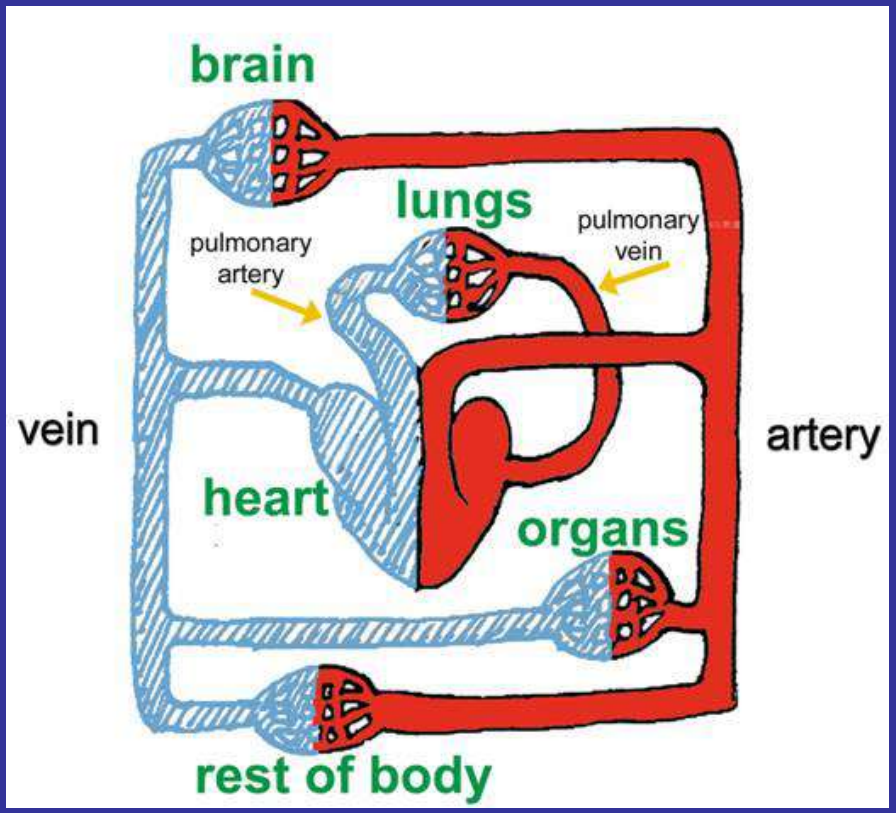
- Electrical shock
- A hard blow to the chest.
- Damage to the natural pacemaker due to a heart attack.
- Arrhythmia – odd rhythm
- Lack of nutrients.



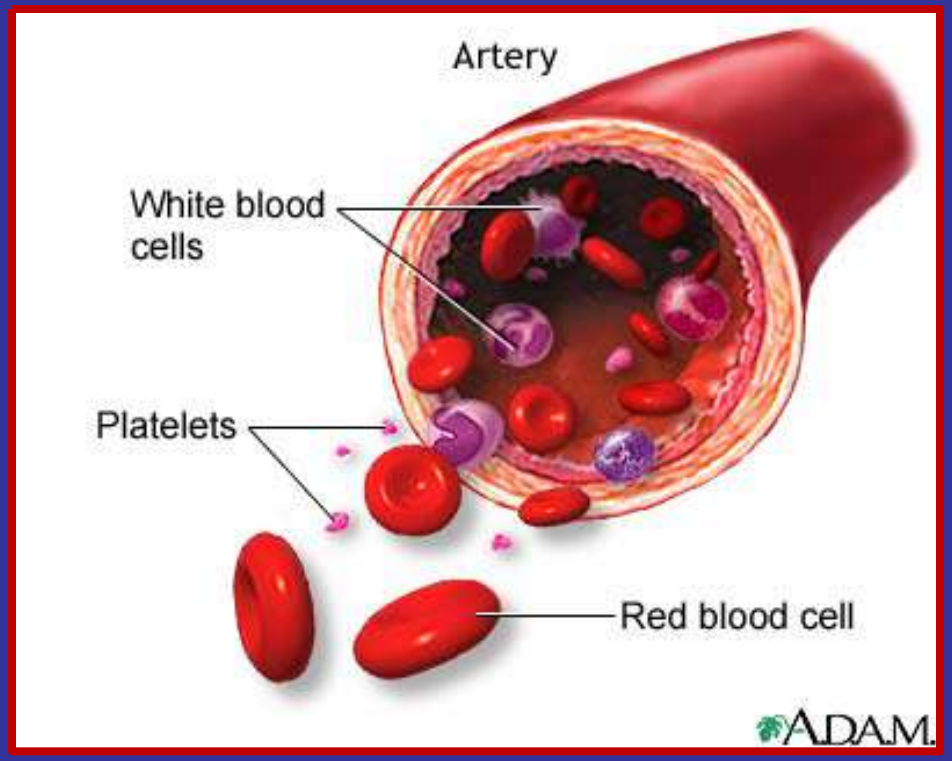


Vessels

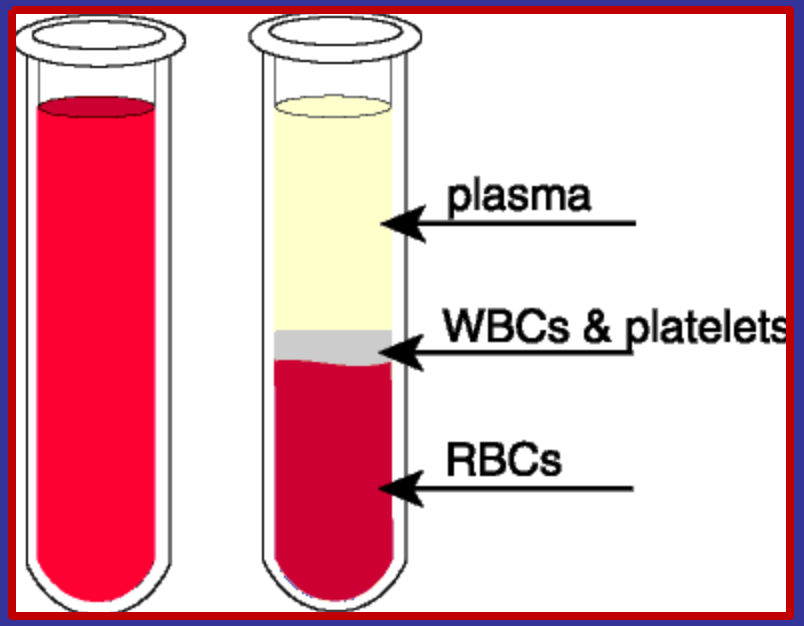
- **Arteries** – thicker than veins. Carry blood away from the heart.
- **Veins** – thinner than arteries. Carry blood back to the heart.
- **Capillaries** – tiny little vessels that reach all of your



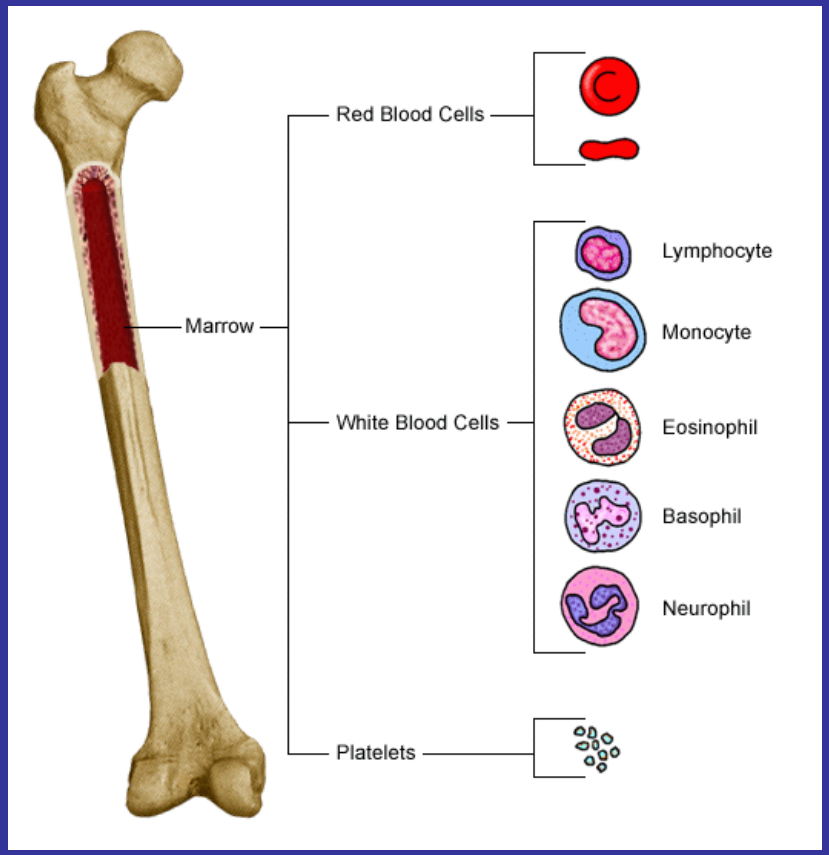
Blood Parts



- Blood cells
- Plasma



Blood Cells

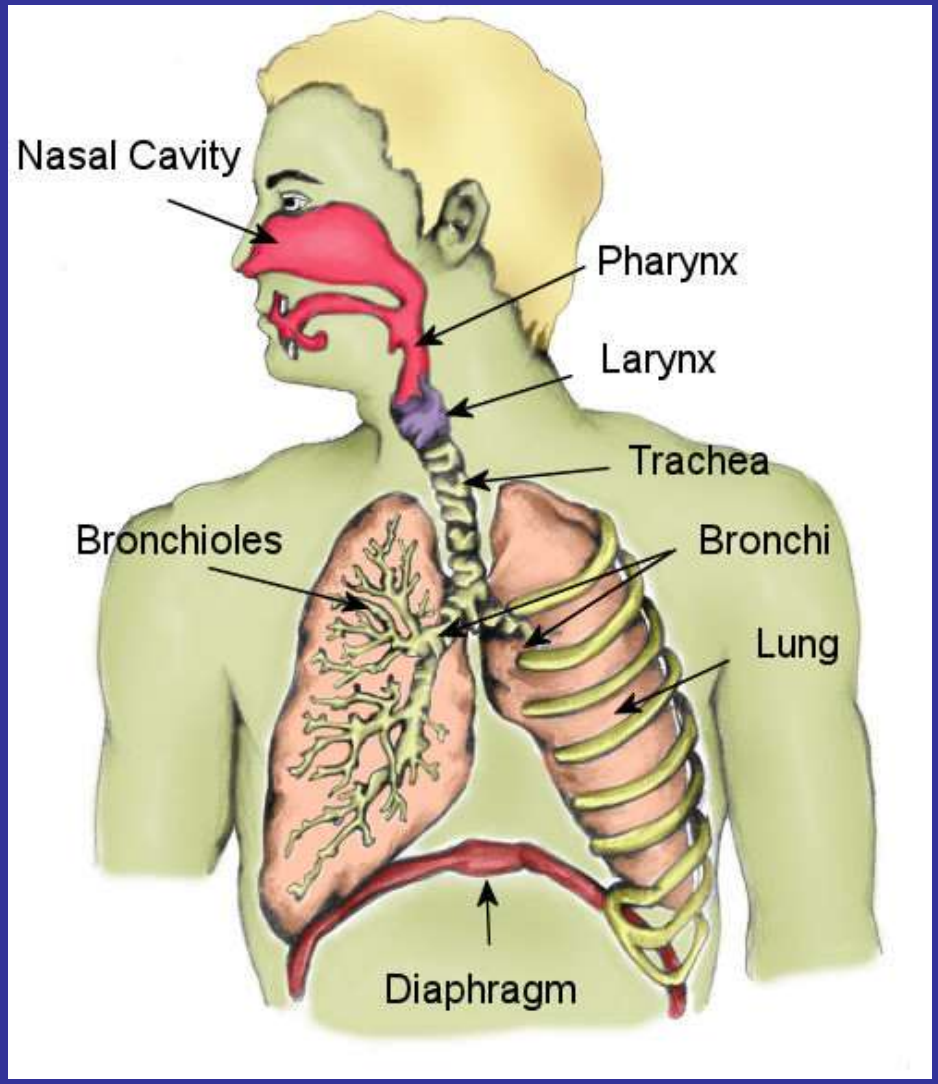


Red blood cells – carries oxygen from the lungs to the cells.

White blood cells – fight infection.

Platelets – help with clotting.

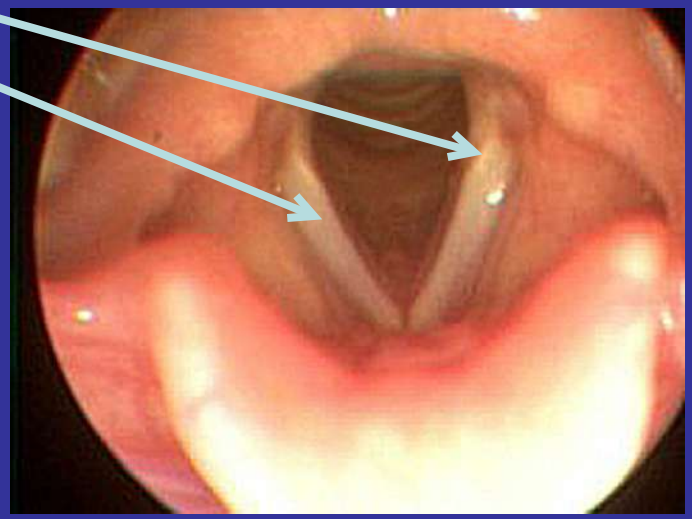
Respiratory System



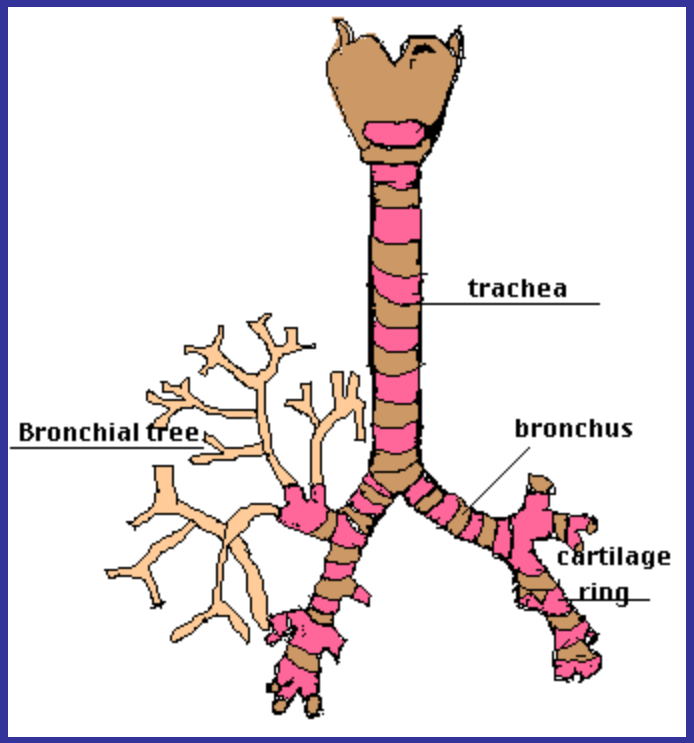
- Brings air into and out of the lungs.
- Allows oxygen and carbon dioxide to be exchanged between the blood and the air.
- Allows us to talk.

Larynx

- Commonly called your adam's apple or voice box.
- Holds your vocal cords



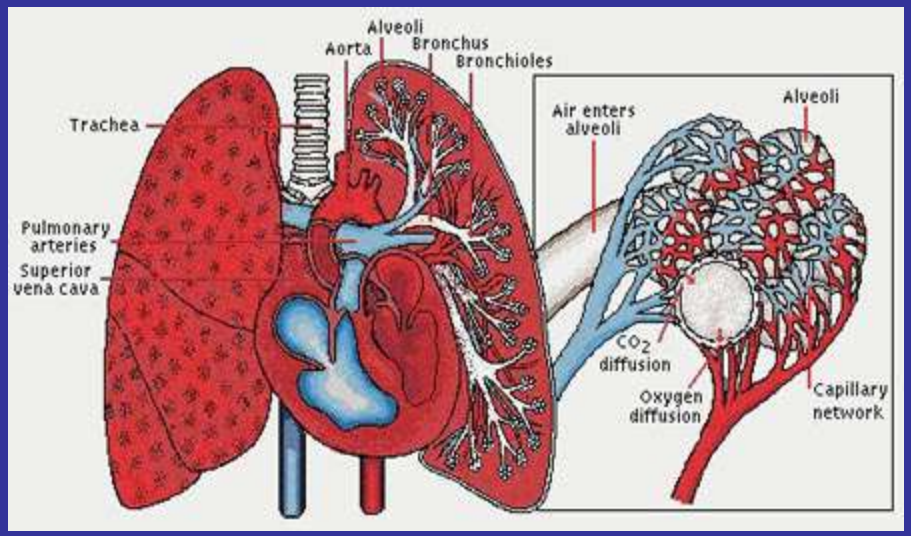
Trachea

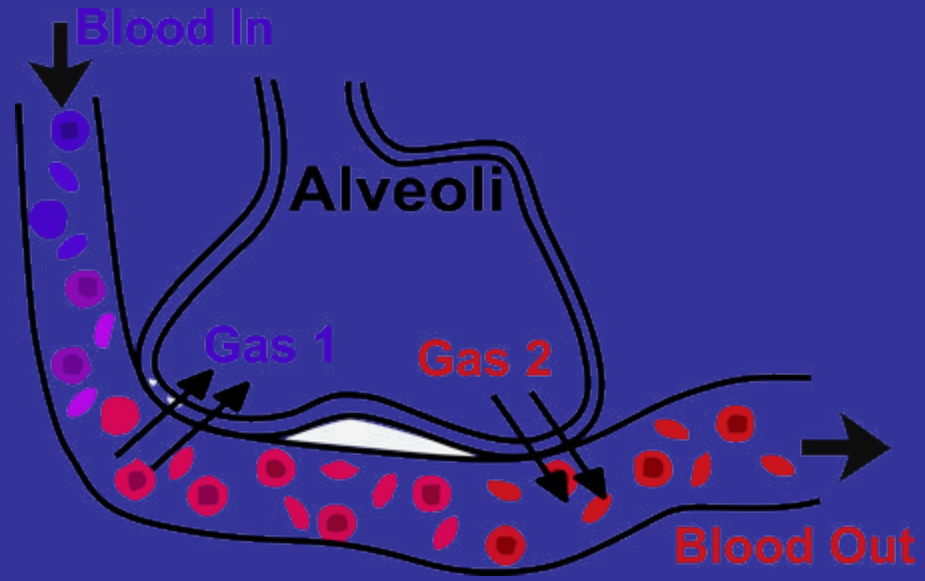


- Carries air from nose to lungs.
- Cartilage rings protect it from collapsing so that air can come through it.

Alveoli

- Al - ve – oh – li
- Little air filled sacs at the end of the "tree", where oxygen moves into the blood.





Path of Oxygen

Nose/Mouth

Trachea

Lungs >> Alveoli

Alveoli puts the oxygen into the blood

(Blood is the circulatory system)

The Excretory System

Function:

To remove waste from the body.

- Examples of waste:

1. Urine
2. Feces
3. Carbon dioxide
4. sweat

The Excretory System

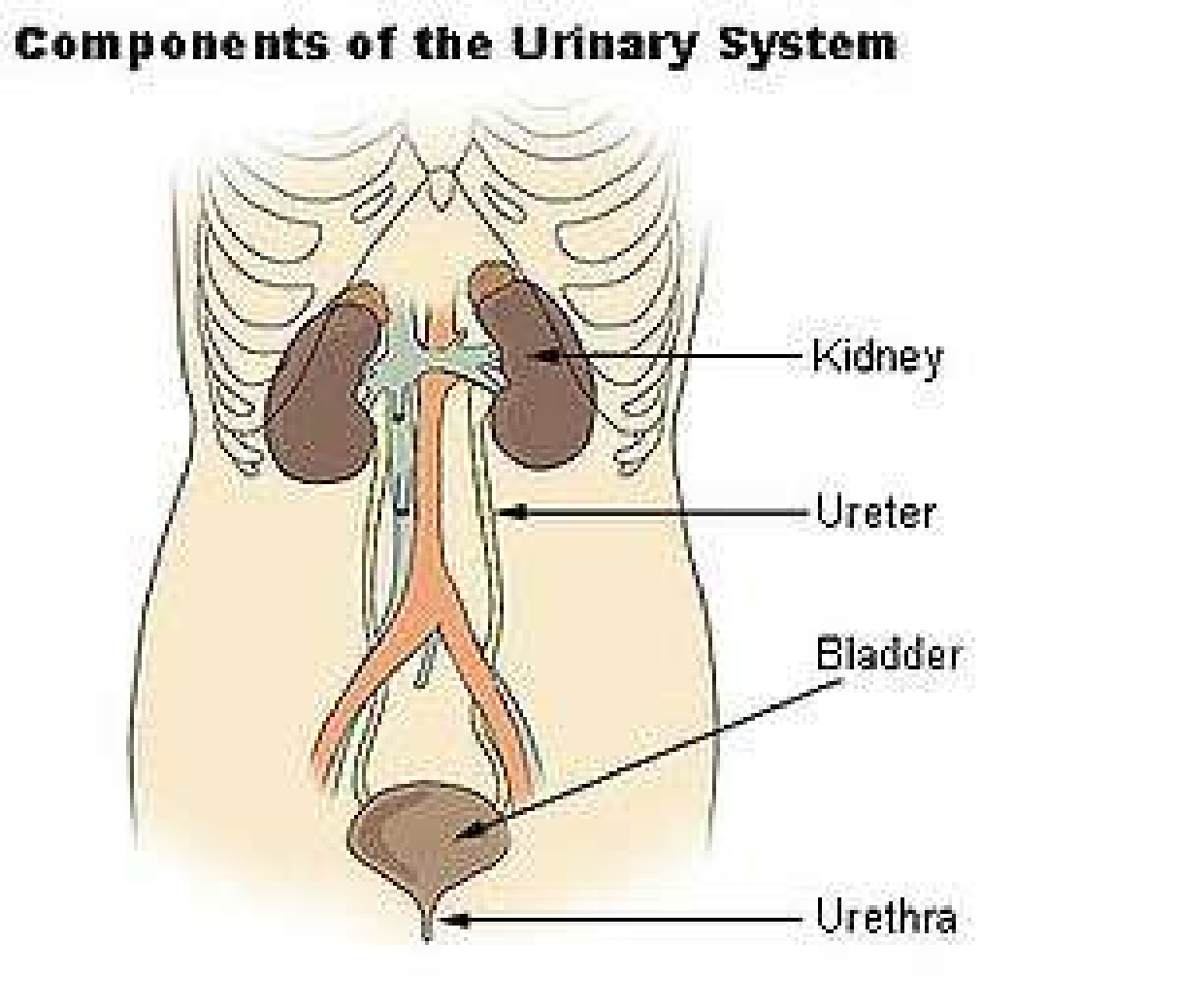
- What systems could are used in the Excretory System?

1. Digestive System
2. Respiratory System
3. Skin
4. Urinary System

The Excretory System

System	Excretion (What it puts out)
Digestive System	Undigested food
Respiratory System	Carbon Dioxide
Skin	Sweat (salts)
Urinary System (bladder, kidneys, ureters)	Excess water, salts, and other wastes

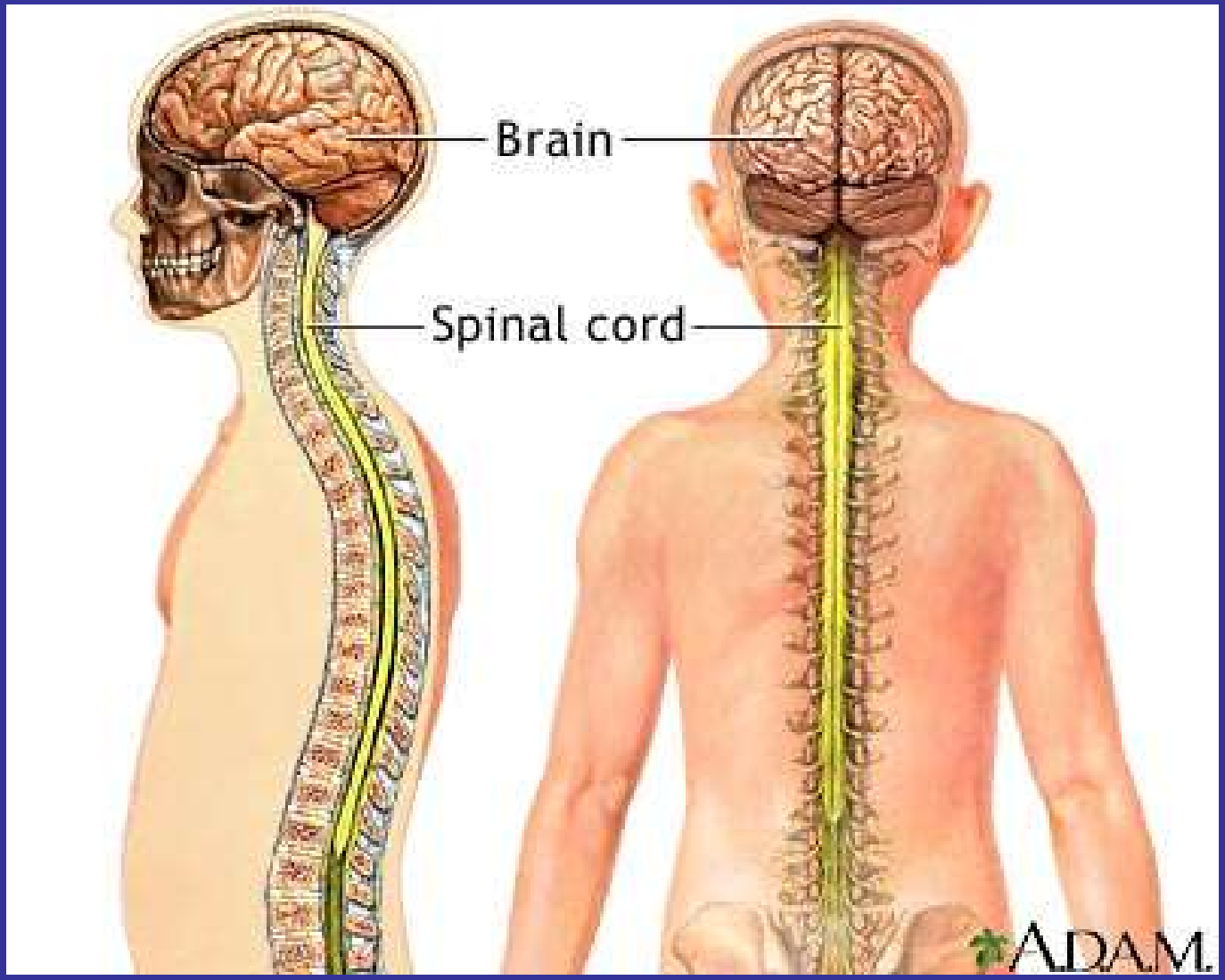
Excretory System



Excretory System

- What tissue/organs are part of it?
  - Kidneys- 2 bean-shaped organs that filter blood, producing urine.
  - Ureters- tubes that lead from each kidney to the bladder
  - Bladder- elastic, muscular organ that holds urine until it leaves the body.
  - Urethra- carries urine from the bladder to outside the body.
  - Liver- also filters blood to remove waste

Nervous System



Nervous System Organs

- Brain
- Spinal Cord
- Nerves

Nervous System

Functions:

- Control and coordinates the other systems
- Allows your body to adjust to changing stimuli

Stimuli

Stimuli- something your body senses and then responds to.

Examples:

- External: Noise, light, smell, temperature
- Internal: Chemical substances such as hormones

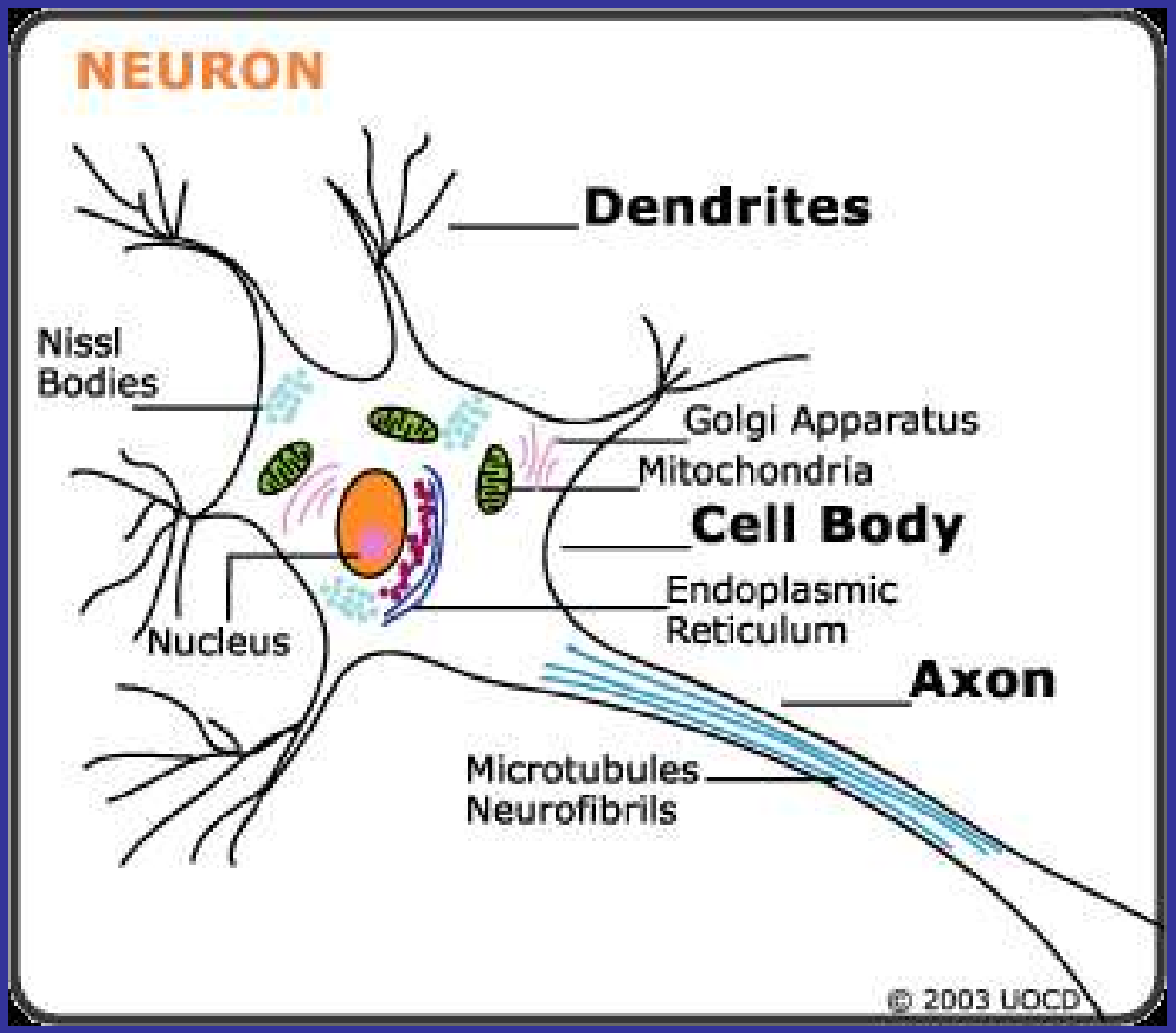
Homeostasis

Homeostasis- internal control and balance of the body.

Examples:

- regulation of breathing
- heartbeat
- digestion

Nerves cells = neurons



Brain

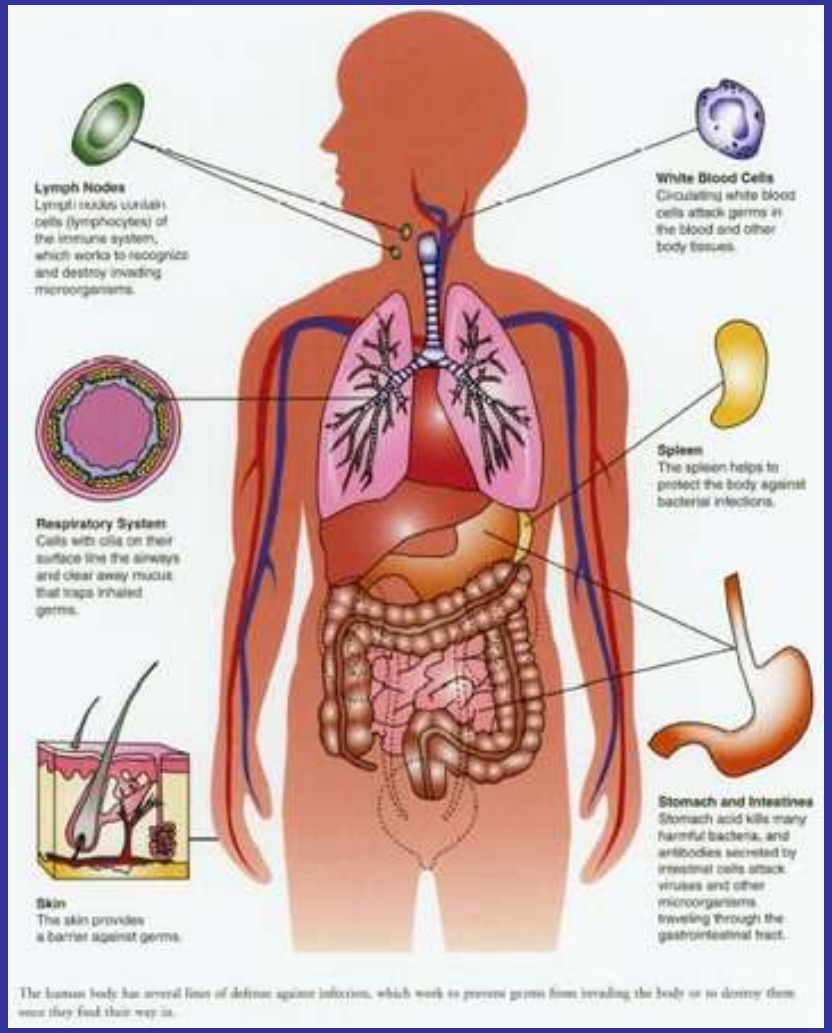
Endocrine System

- Regulates the body by sending out harmones
- Hormones- chemical that tell the body what to do.
- For example: to grow taller, to grow hair, to have a hot flash

Immune System

Function –

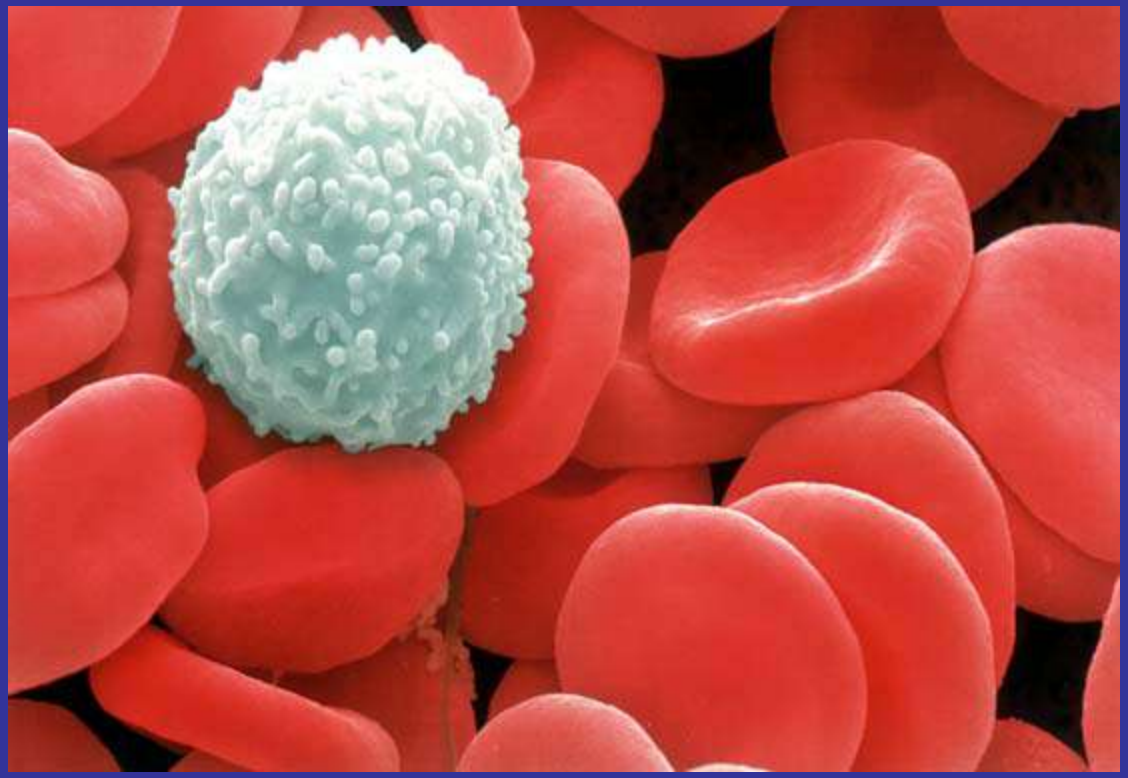
Keeps the body healthy and destroys invaders.



Immune System

White blood cells – attack invaders.

- Make antibodies.
- "Eat" germs



Reproductive System

Function:

To reproduce and make offspring (babies)

Organs:

Ovaries, Testies