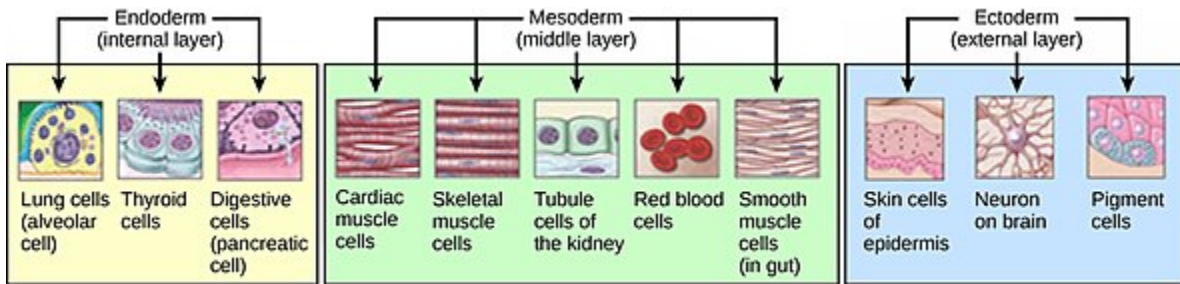



Anatomy Unit 2 Notes

Tissue, Integumentary, Skeletal, Muscular

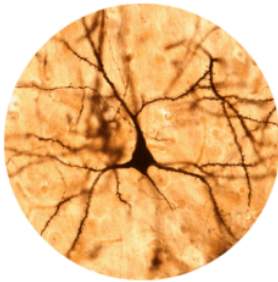
Anatomy Chapter 5 Notes



Types of Tissues

 sciencenotes.org

Nervous Tissue



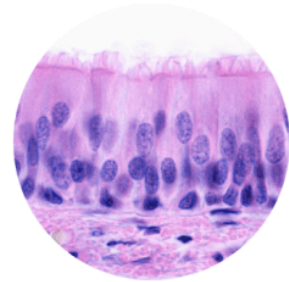
Conducting electrical impulses, communication, regulating body functions

- Neurons
- Glial cells

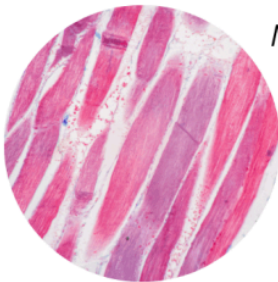
Epithelial Tissue

Protection, absorption, secretion, filtration, sensation

- Simple squamous
- Simple cuboidal



Muscle Tissue



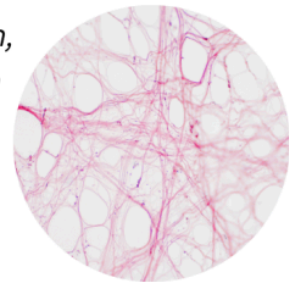
Movement, posture, heat production

- Cardiac
- Smooth
- Skeletal

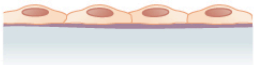

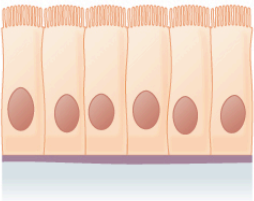
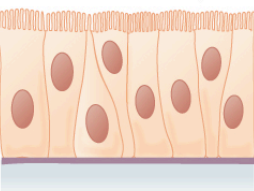
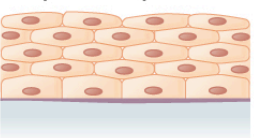
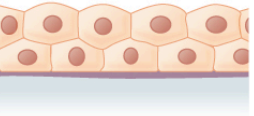
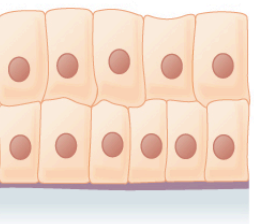
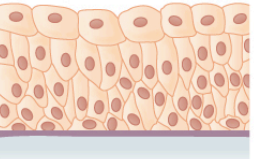
Connective Tissue

Support, protection, transport, storage, insulation

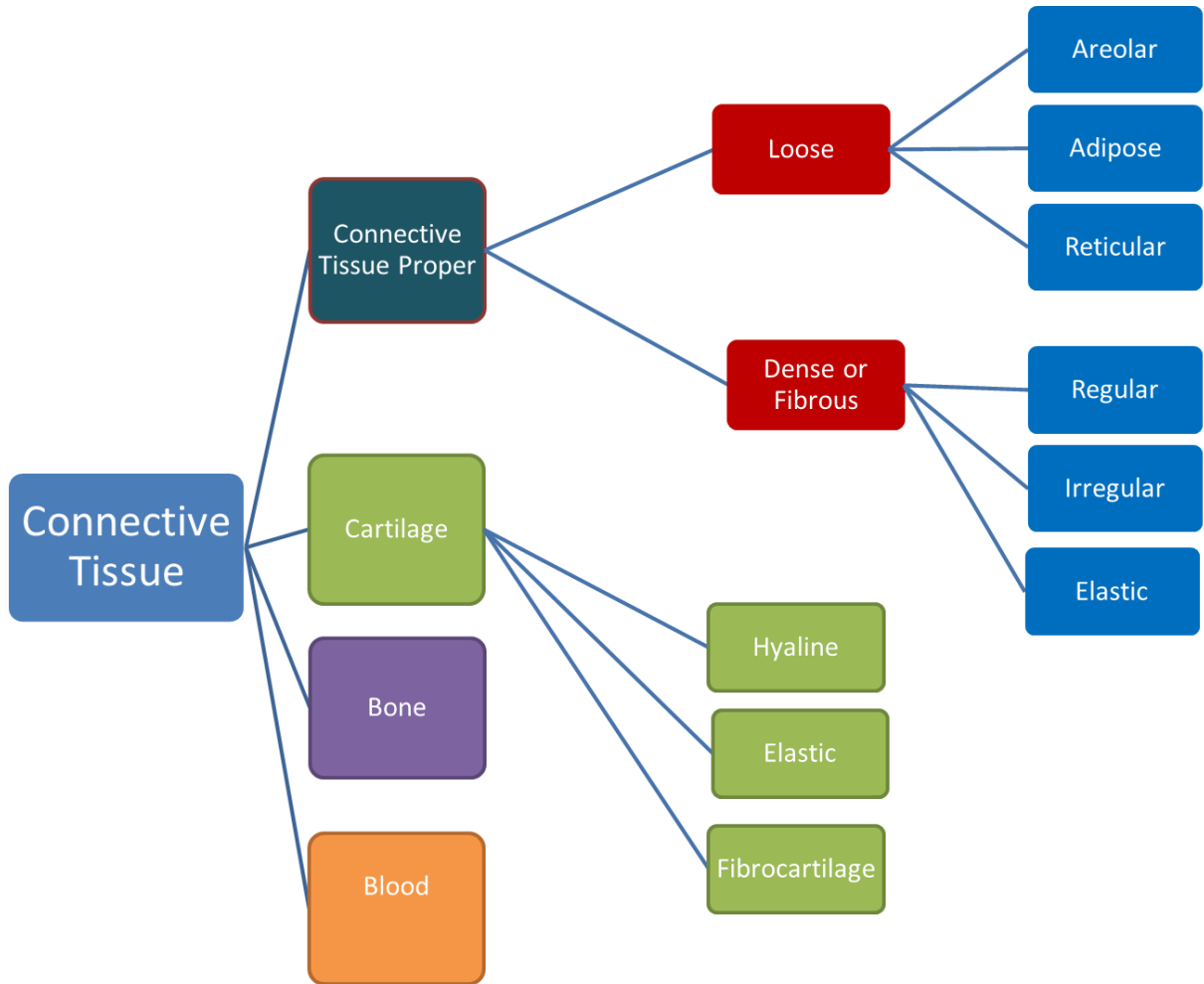
- Fat
- Bone
- Blood
- Cartilage



Tissue Type #1: Epithelial Tissue

| Cells | Location | Function |
|---|--|--|
| Simple squamous epithelium  | Air sacs of lungs and the lining of the heart, blood vessels, and lymphatic vessels | Allows materials to pass through by diffusion and filtration, and secretes lubricating substance |
| Simple cuboidal epithelium  | In ducts and secretory portions of small glands and in kidney tubules | Secretes and absorbs |
| Simple columnar epithelium  | Ciliated tissues are in bronchi, uterine tubes, and uterus; smooth (nonciliated tissues) are in the digestive tract, bladder | Absorbs; it also secretes mucous and enzymes |
| Pseudostratified columnar epithelium  | Ciliated tissue lines the trachea and much of the upper respiratory tract | Secretes mucus; ciliated tissue moves mucus |
| Stratified squamous epithelium  | Lines the esophagus, mouth, and vagina | Protects against abrasion |
| Stratified cuboidal epithelium  | Sweat glands, salivary glands, and the mammary glands | Protective tissue |
| Stratified columnar epithelium  | The male urethra and the ducts of some glands | Secretes and protects |
| Transitional epithelium  | Lines the bladder, urethra, and the ureters | Allows the urinary organs to expand and stretch |

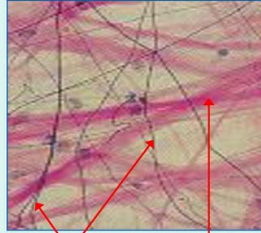
Tissue Type #2: Connective Tissue



Connective Tissue Continued...

Loose Connective Tissue

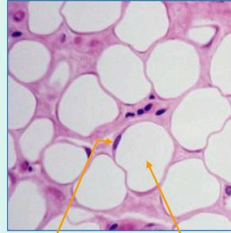
Areolar



elastic
fibers

collagen
fibers

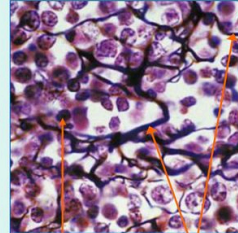
Adipose



adipocyte
nucleus

adipocytes
(vacuoles)

Reticular



reticular
cell

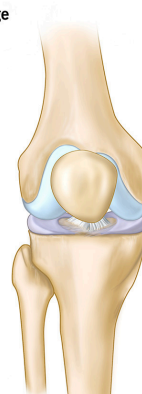
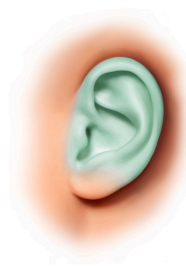
reticular
fibers

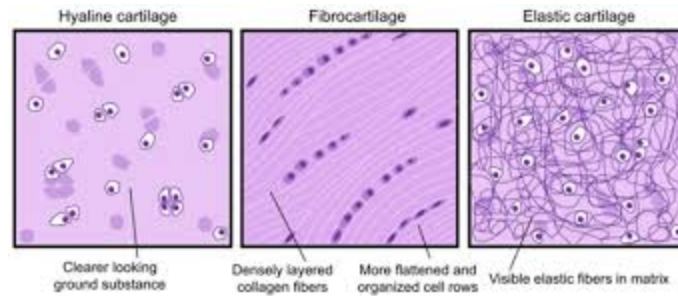
Dense regular connective tissue



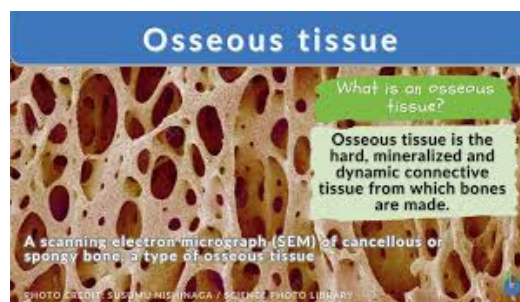
Cartilage

- Types of cartilage
- ☐ Hyaline cartilage
 - ☐ Elastic cartilage
 - ☐ Fibrocartilage

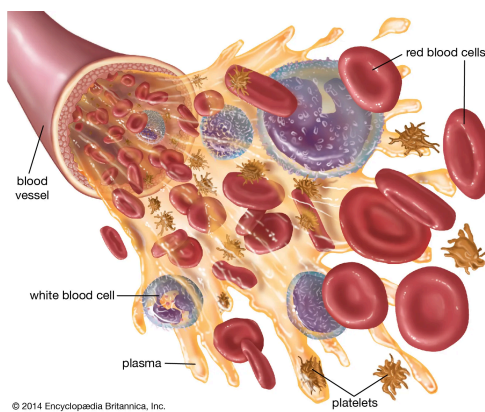




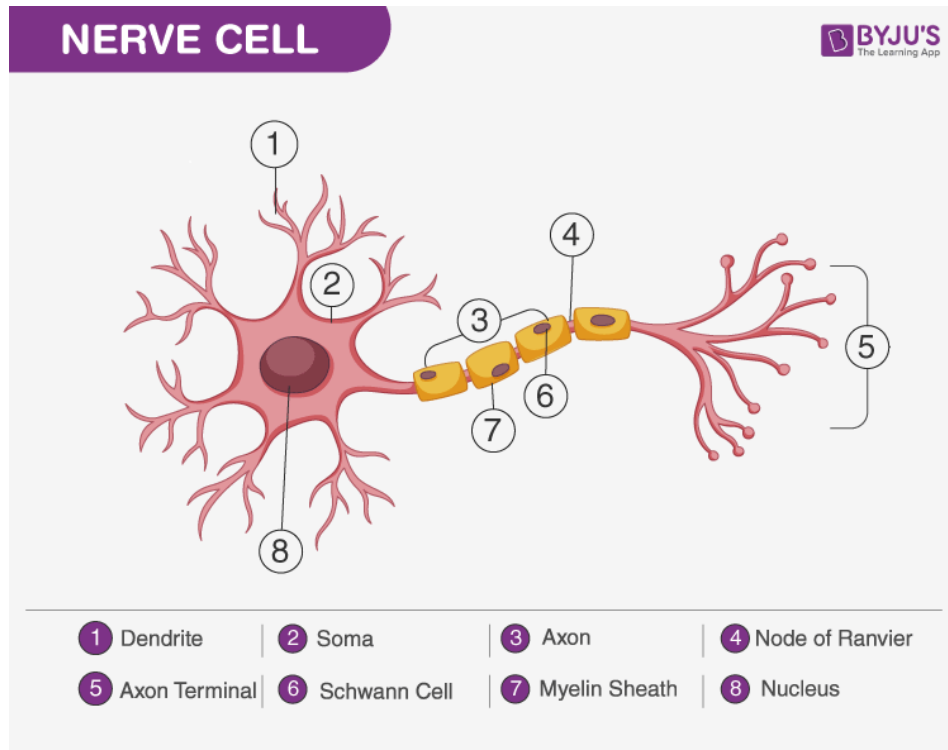
Bone



Blood

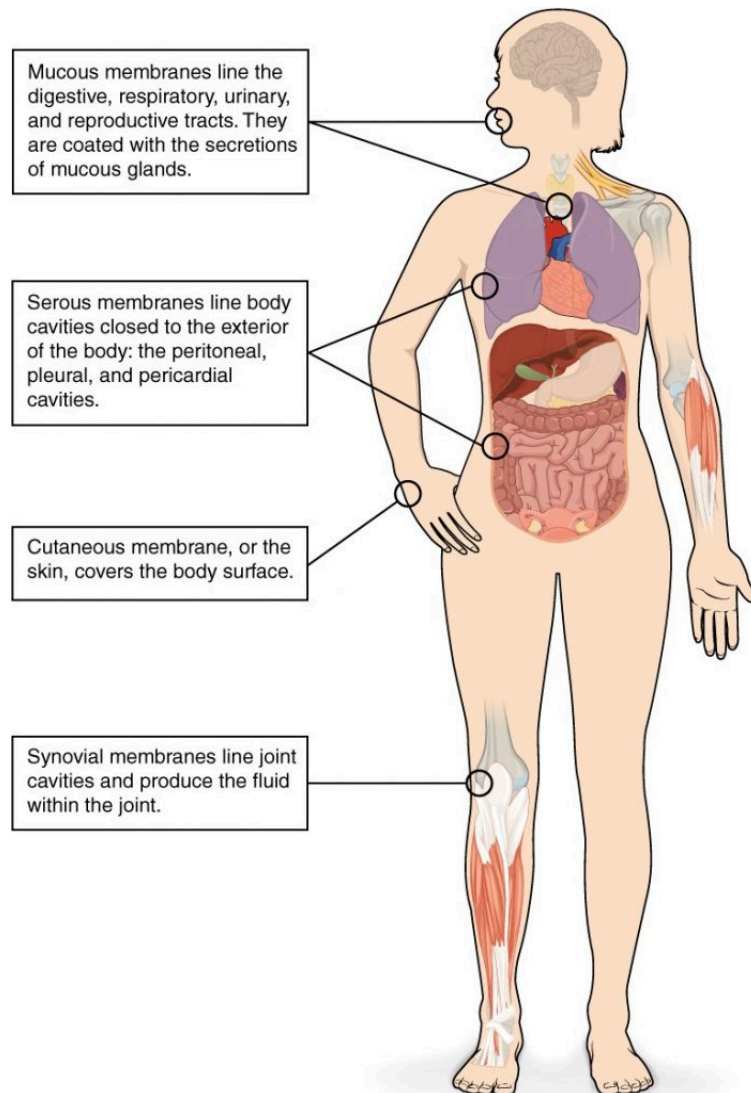
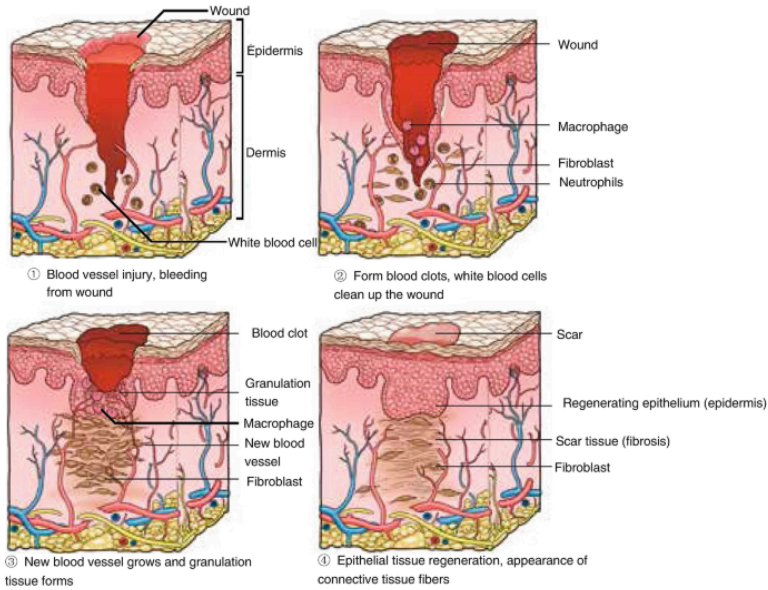


Tissue Type #3: Nervous Tissue

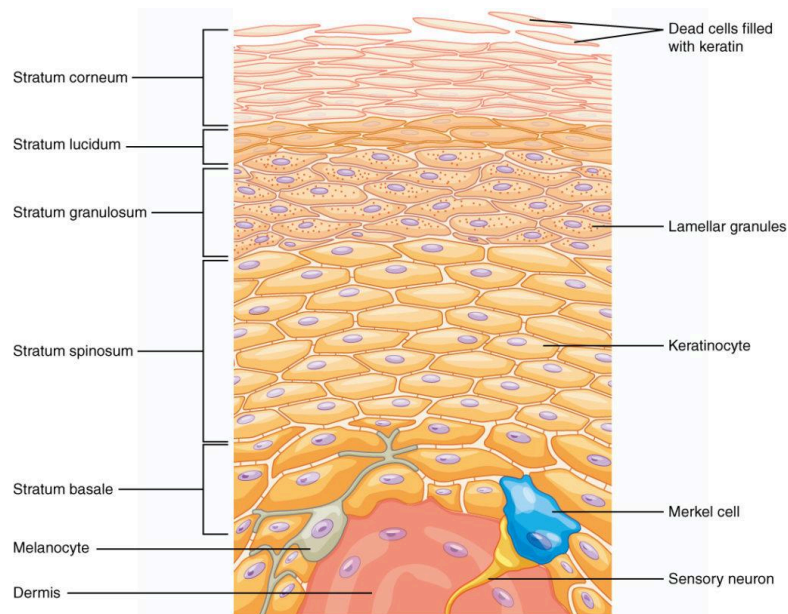
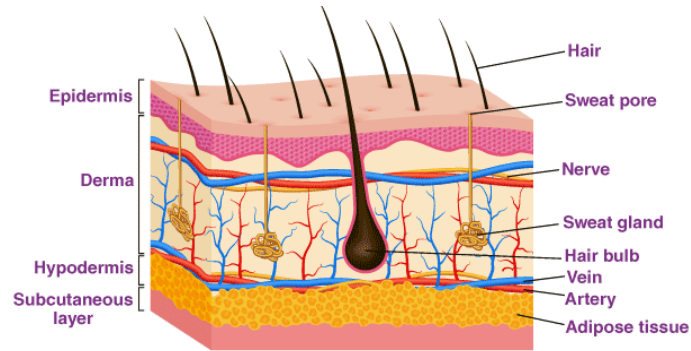


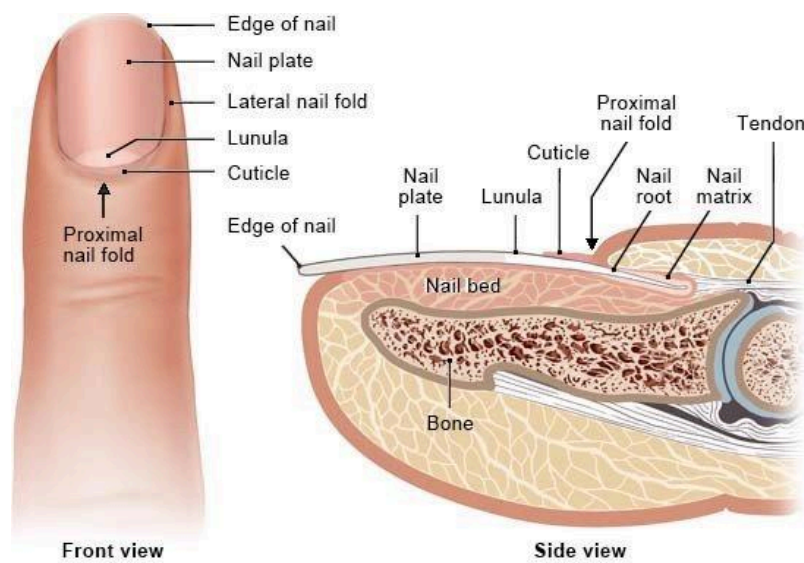
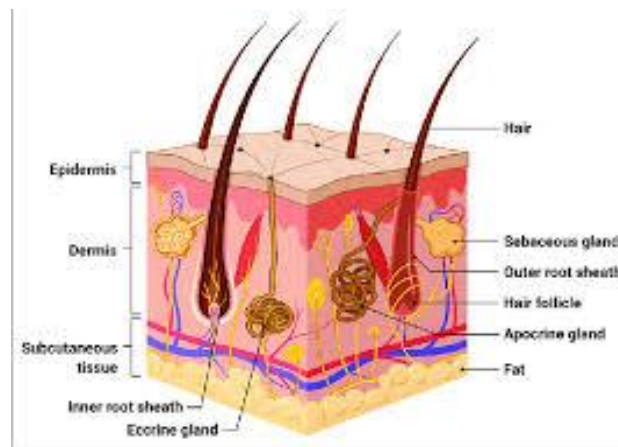
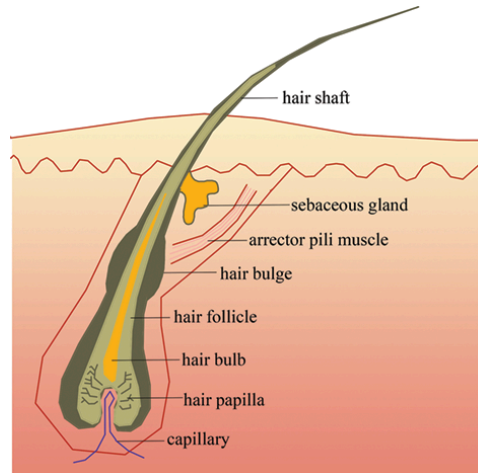
Tissue Type #4: Muscle Tissue

| | Main features | Location | Type of cells | Histology |
|-----------------|--|----------|---------------|-----------|
| Skeletal muscle | <ul style="list-style-type: none"> - Fibers : striated, tubular and multi nucleated - Voluntary - Usually attached to skeleton | | | |
| Smooth muscle | <ul style="list-style-type: none"> - Fibers : non-striated, spindle-shaped, and uninucleated. - Involuntary - Usually covering wall of internal organs. | | | |
| Cardiac muscle | <ul style="list-style-type: none"> - Fibers : striated, branched and uninucleated. - Involuntary - Only covering walls of the heart. | | | |



Anatomy Chapter 6 Notes





Skeletal System Guided Notes (Chapters 7 and 8)

I. Bone Functions

- A. _____: gives body structure
- B. _____: hold body upright
- C. Protection: bones protect delicate _____
- D. Movement: movement of arms and legs and ability to breathe result from _____ and _____ working together
- E. _____ balance: store and release minerals for reactions
- F. _____ production: bone marrow produces blood cells
- G. Acid-Base balance: bone absorbs and releases alkaline salts to maintain a stable _____

II. Bone Classification

- A. _____ Bones: long axis, work like levers to move limbs
- B. _____ Bones: shaped like cubes, in wrist and ankle
- C. _____ Bones: thin, flat, curved which protect organs
- D. _____ Bones: various sizes and shapes, like vertebra

III. Parts of a Bone

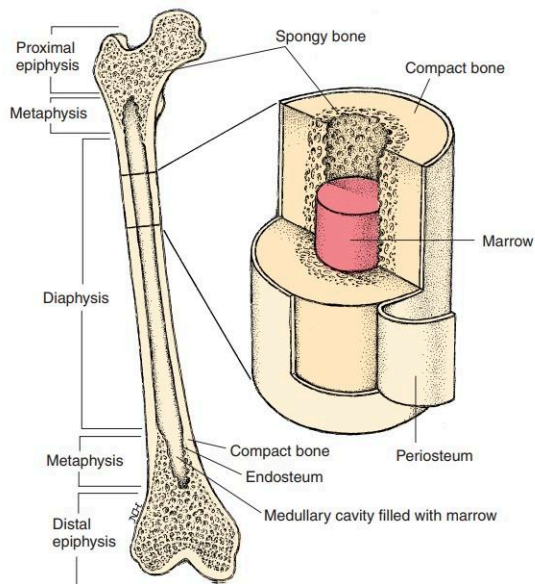
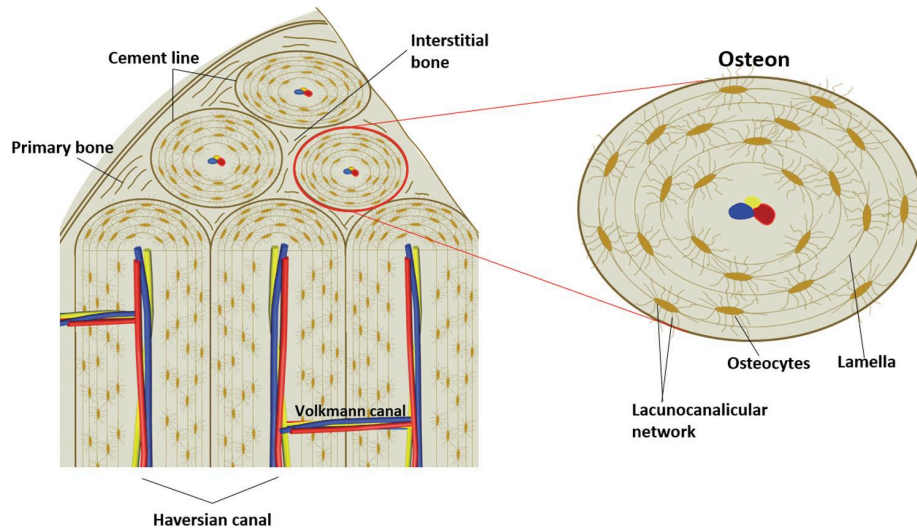


FIGURE . Parts of a Long Bone

- A. _____: the head of each end of a long bone, strengthens the joint
- B. _____: central portion made of thick, compact bone
- C. _____: hollow portion filled with marrow
- D. _____: a dense, fibrous membrane that covers the diaphysis

- E. _____: light and porous tissue at the ends of long bones and in the middle of other bones, surrounded by compact bone
- F. _____: dense and solid tissue, forms shafts of long bones and outer surface of other bones
- G. _____: red produces blood cells and yellow is rich in fat



IV. Three types of bone cells

- A. Osteoblasts: _____
- B. Osteoclasts: _____
- C. Osteocytes: _____

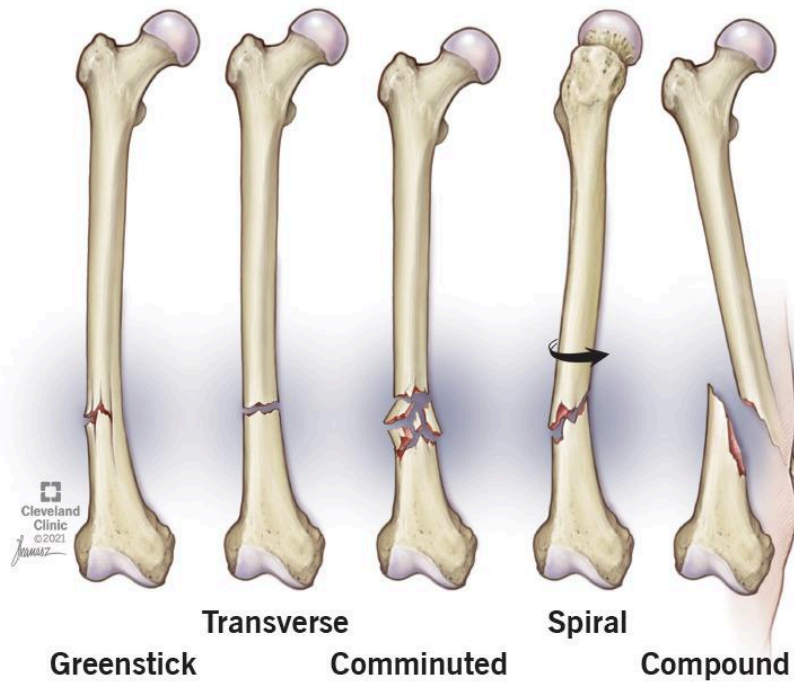
V. Bone Growth

- A. _____: layer of hyaline cartilage at each end of bone where chondrocytes continue to multiply
- B. _____: what's left when epiphyseal plate is replaced with spongy bone and growth has stopped

VI. Bone Remodeling

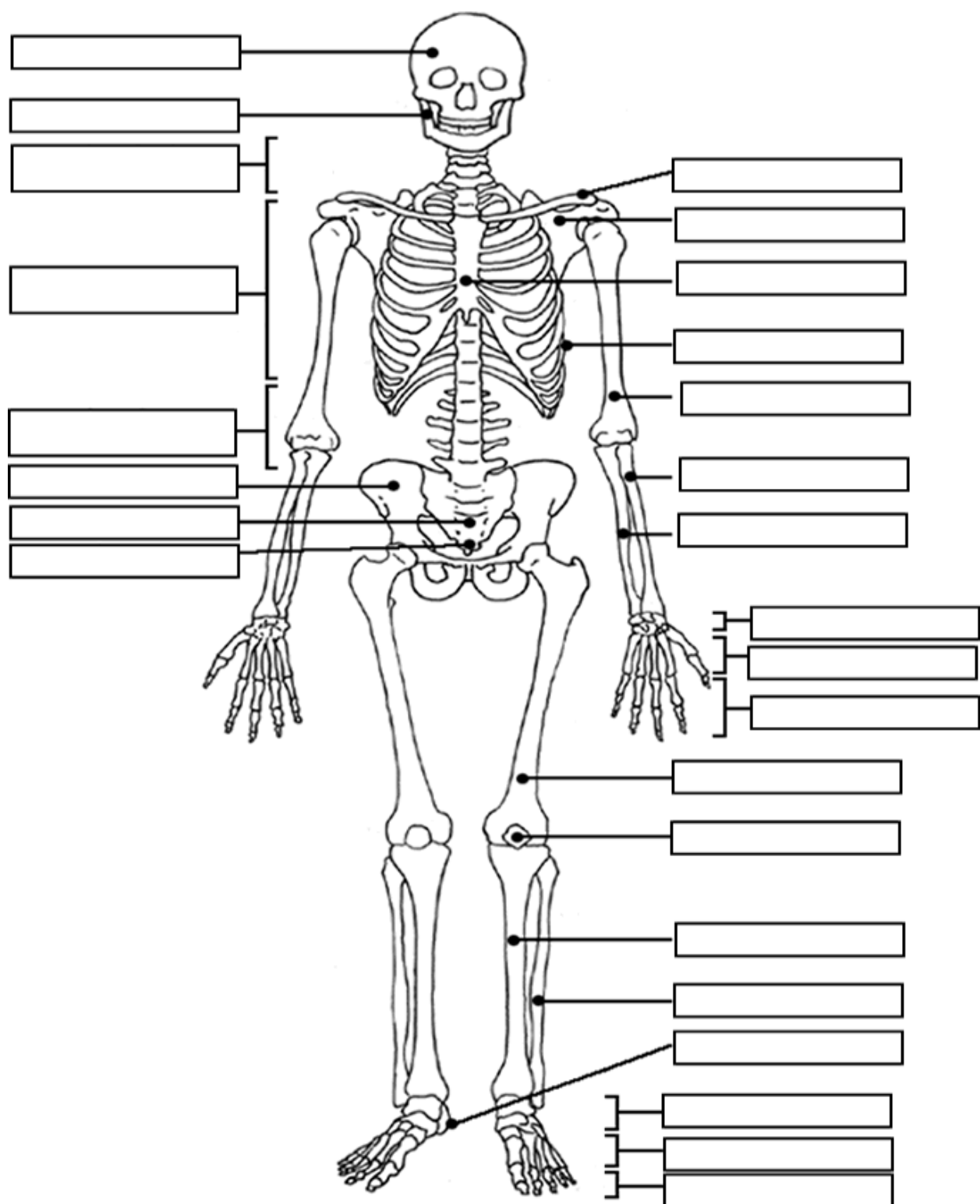
- A. Osteoclasts: cause _____ or destroying of old bone
- B. Osteoblasts: cause _____ or depositing of new bone

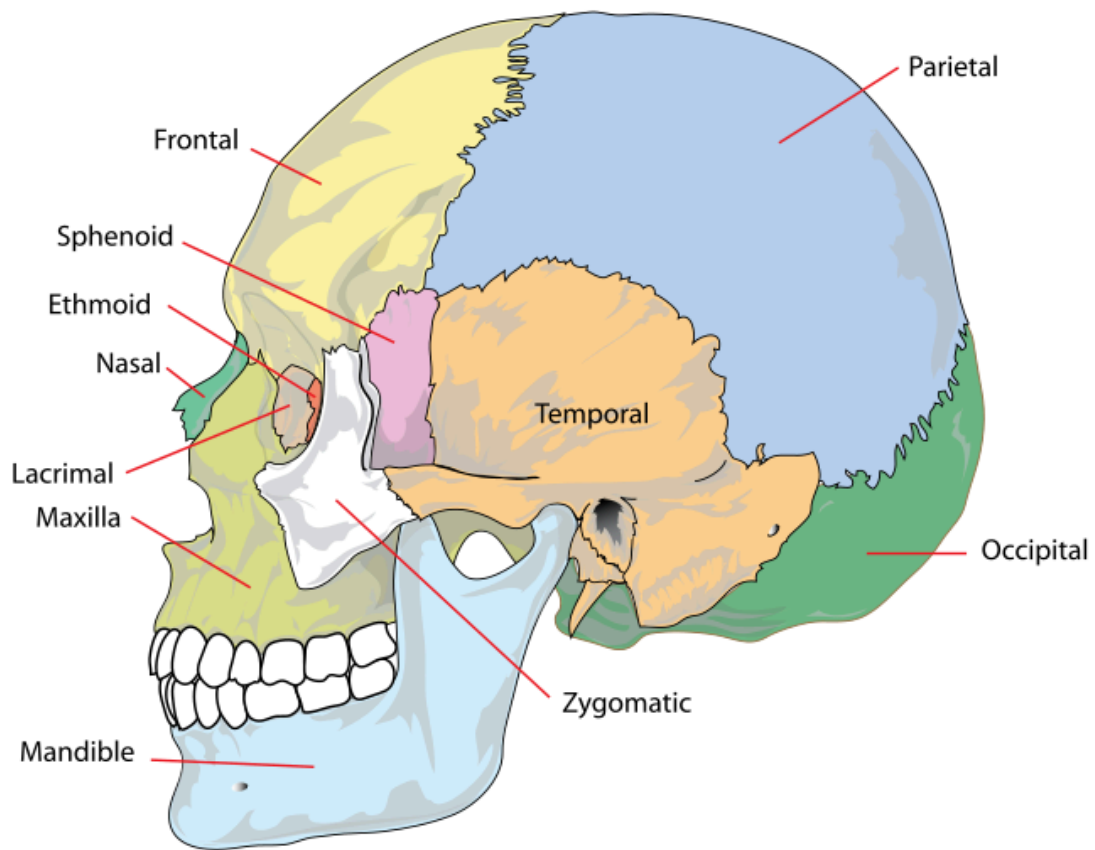
Types of Bone Fractures



VII. Bone Surface Markings

- A. Articulations
- B. _____
- C. Depressions
- D. _____

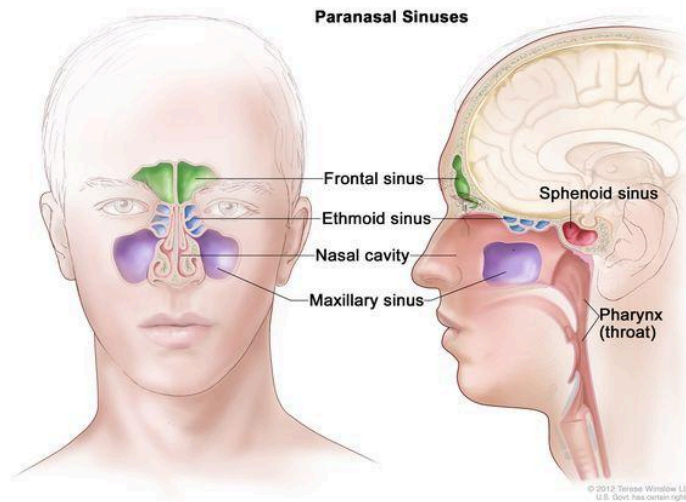




The skull has holes called _____ through which there is passage for blood and nerves.

The bones of the skull join together at immovable joints called _____.

What is unique about the hyoid bone?



Paranasal sinuses are _____ within the skull.

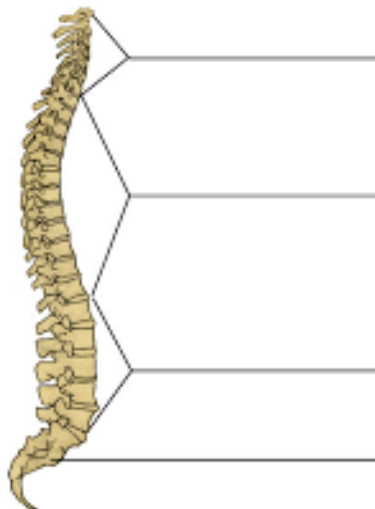
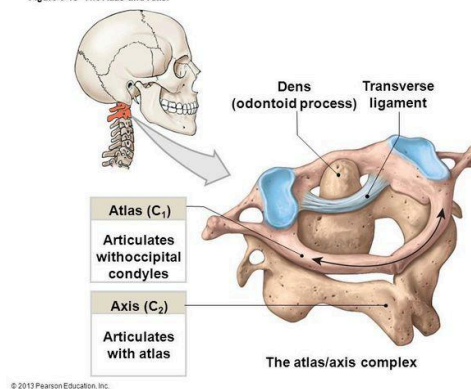
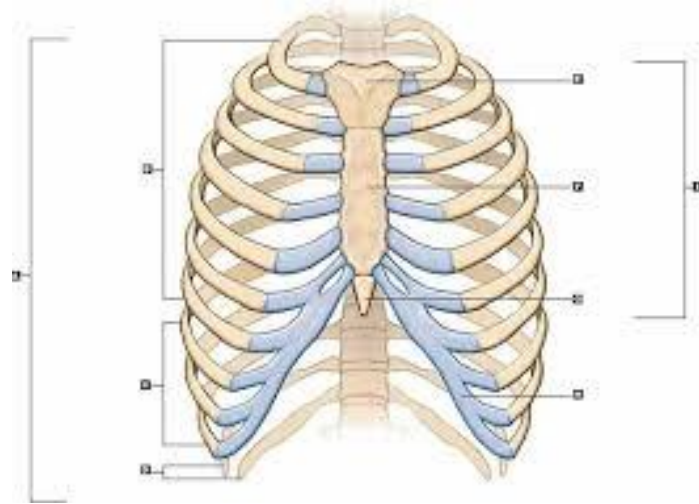


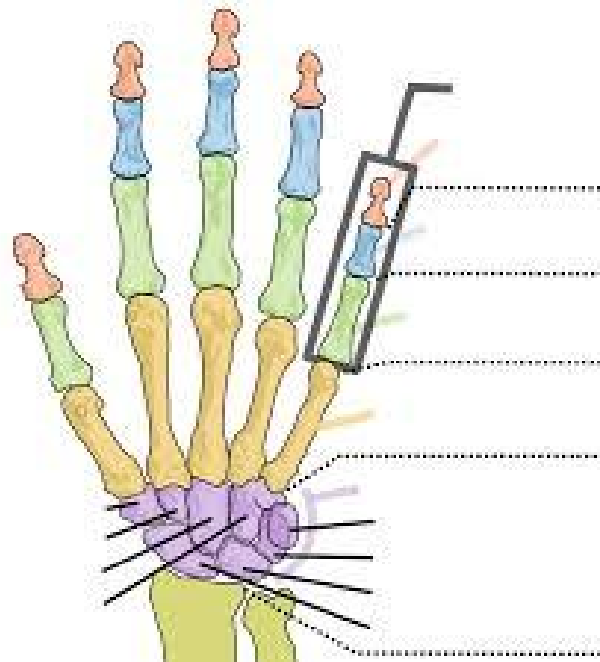
Figure 6-18 The Atlas and Axis.



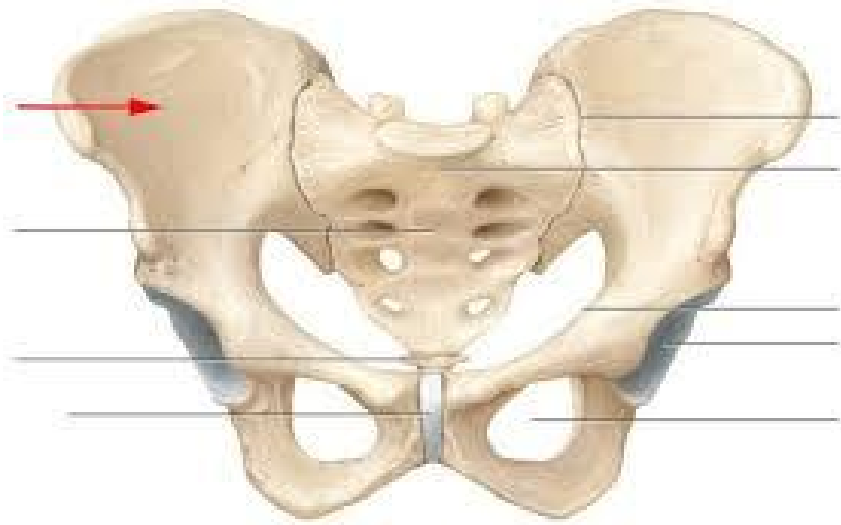
We will label this diagram together in class.



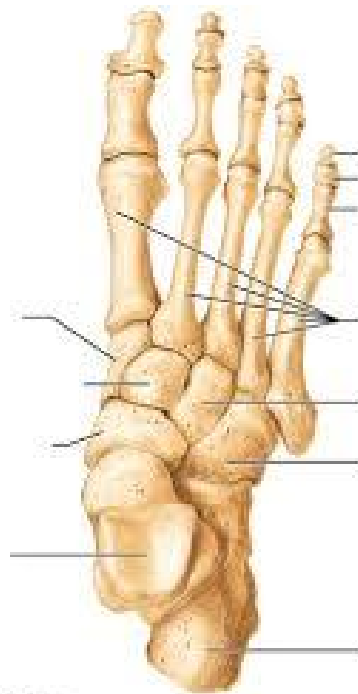
Label the hand diagram.



We will label this diagram together in class.



Label the foot diagram.

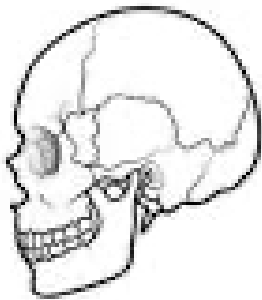


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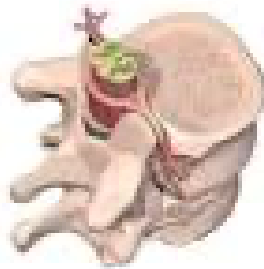
Anatomy Chapters 9 and 10 Notes

Define Joints:

How are joints classified?



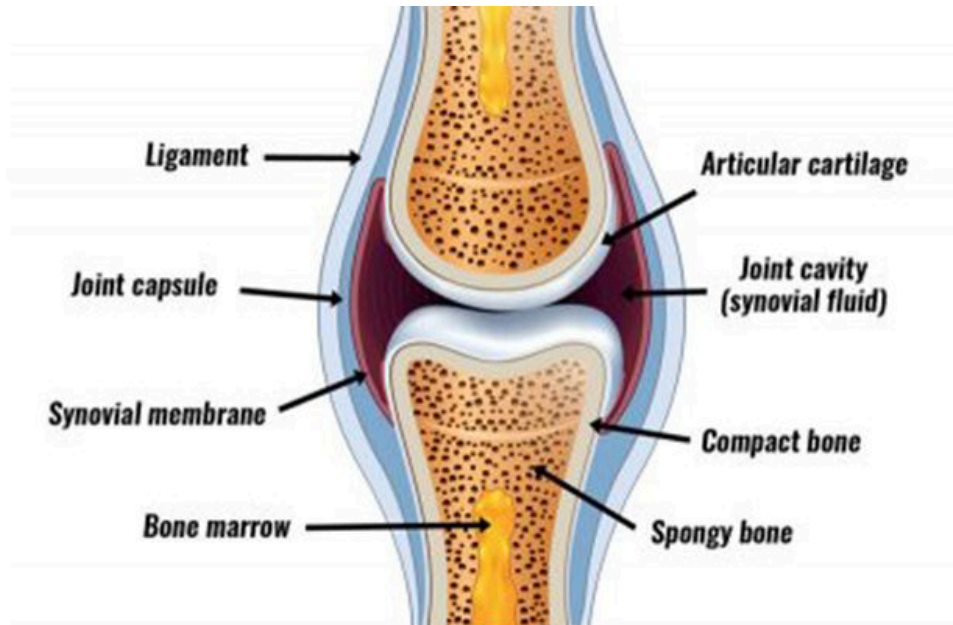
when collagen fibers from one bone penetrate the adjacent bone, anchoring them in place



two bones joined by cartilage



freely movable



Write the role of each of these parts of a synovial joint.

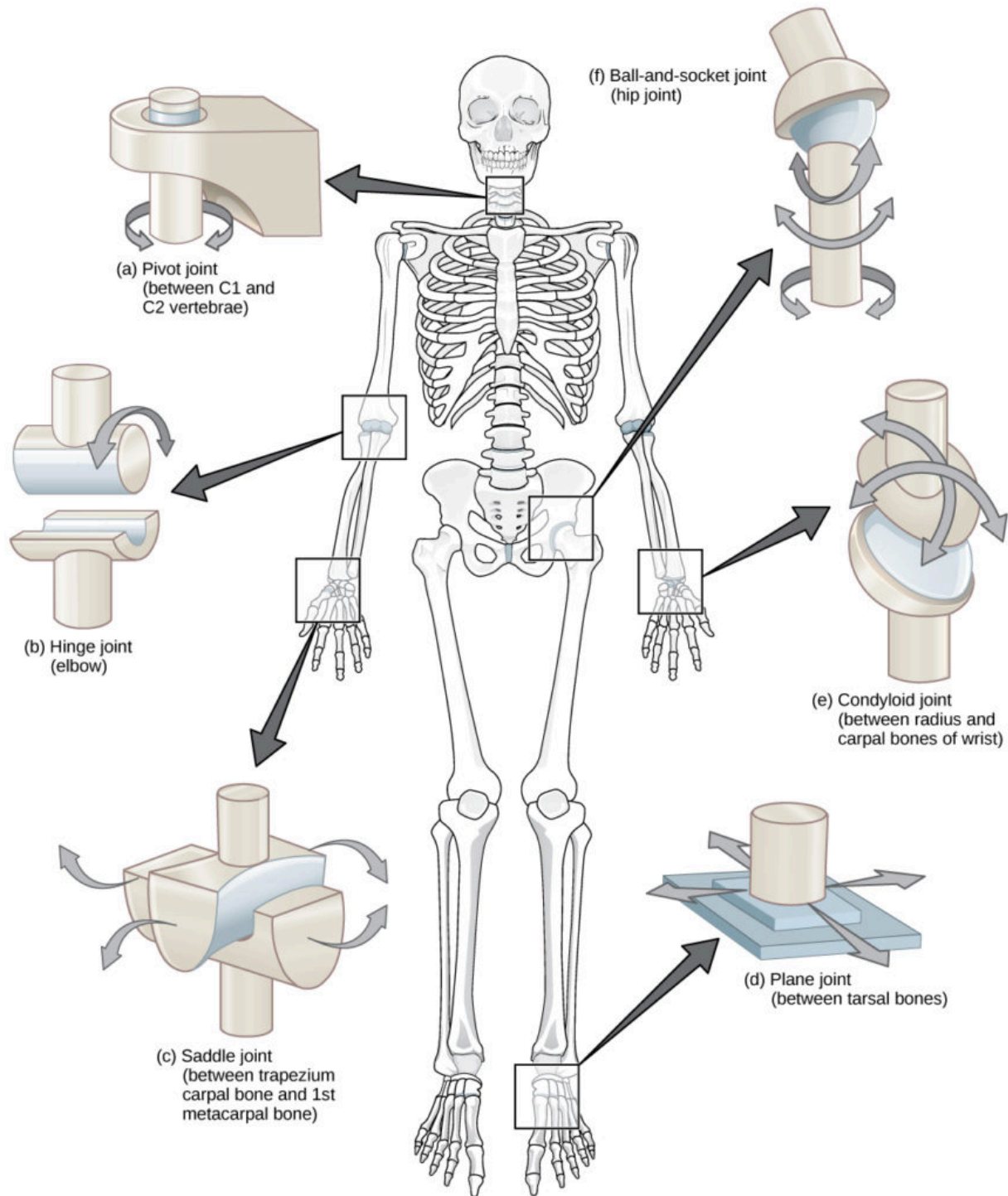
Joint capsule:

Synovial membrane:

Joint cavity:

Articular cartilage:

Ligaments:



What is another name for the plane joint? _____

What makes these joints different from one another?

Illustrate the following types of movements:

MANY JOINTS

Illustrations

1. Flexion (think “flexing”)
2. Extension (think “extending”)
3. Hyperextension
 (“hyper” means “above normal”)
4. Abduction
 (“ab” means “away” like “absent”)
5. Adduction
 (“ad” means “toward” like “adjacent”)
6. Circumduction (think “circle”)
7. Rotation (think “rotate”)
8. Protraction (think “pro” meaning forward)
9. Retraction (think “re” meaning backward)

FOOT

10. Dorsiflexion

("dorsal" means back, think flexing the back of the foot)

11. Plantar flexion

(your foot is "planted" on the ground, so you point your foot towards the ground)

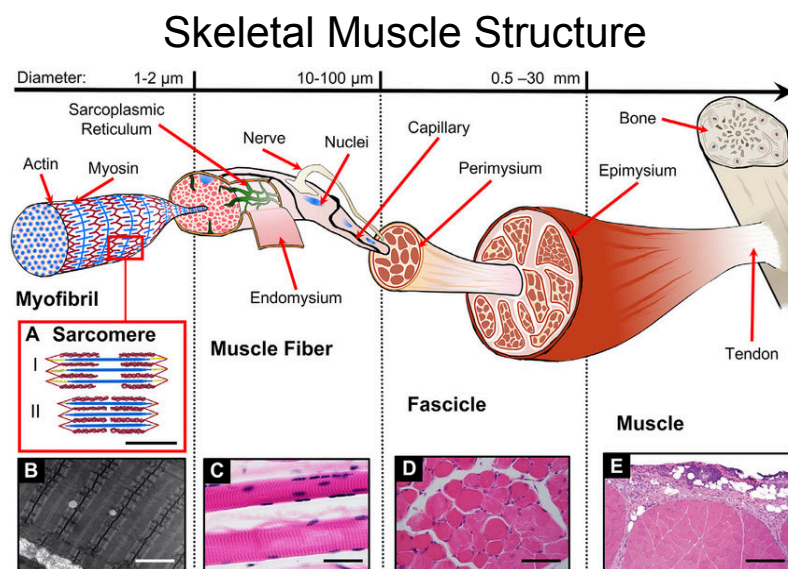
12. Inversion (think "in" so turning in)

13. Eversion ("e" means "out" so turning out)

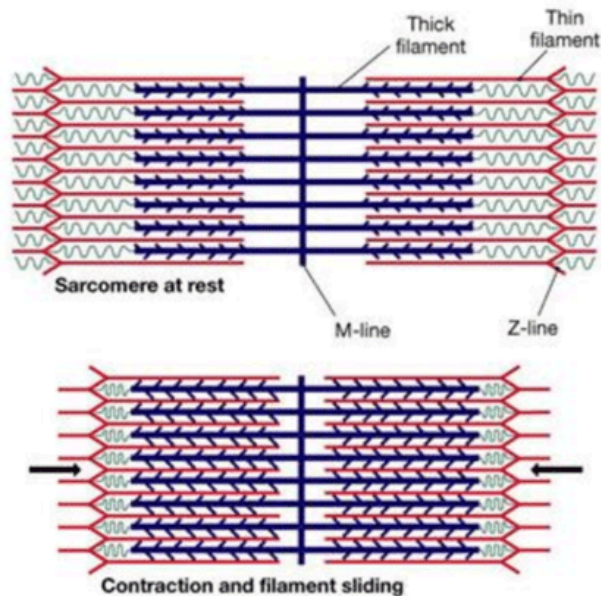
HAND

14. Supination ("sup" means under, like "sub" so turning what is under (palm) over)

15. Pronation ("pro" means "front" so turning what is in front to being down)



Add the following labels to the skeletal muscle image above: fascia, sarcolemma



What is the role of each of these components of the sliding-filament model?

Z-line: _____

Sarcomere: _____

Cross bridge: _____

To contract, a skeletal muscle is stimulated by a _____ neuron. The motor neuron releases a neurotransmitter or _____ called acetylcholine or _____ for short. It diffuses across the synaptic _____ (a narrow space between the nerve and muscle fiber) and the sarcoplasmic reticulum releases _____. The calcium binds with the _____ on the actin filament to expose attachment points. The _____ heads grab on and muscle contraction happens! To relax, the enzyme _____ breaks down any remaining ACh and calcium ions are pumped back to the _____, allowing the muscle fiber to relax.

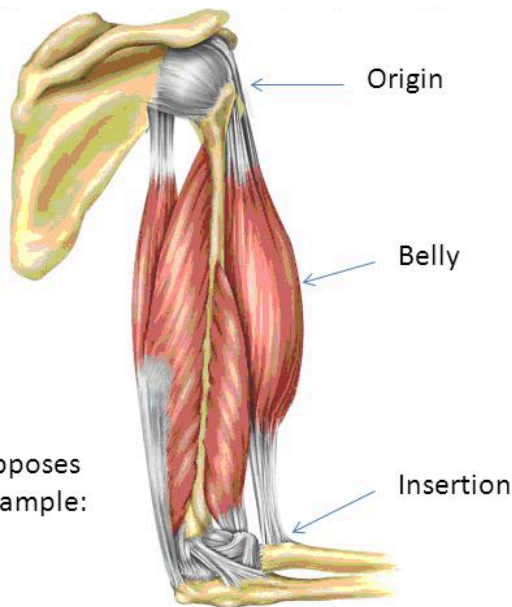
Muscle _____ is the continuous state of partial contraction to give you a strong contraction when you need it. To contract a muscle as a whole, the _____ unit responds to a stimulus. The minimum voltage needed to contract is called the _____. The single brief contraction that results is a _____. Some muscles fibers are slow twitch and some are _____.

A strong stimulus elicits a _____ contraction. A weak stimulus elicits a _____ contraction. Muscles first use _____, which uses oxygen to release energy. They sometimes have to switch to _____ for quick energy, but it produces lactic acid which can lead to fatigue. After a while the heart and lungs increase the supply of oxygen so muscles can go back to aerobic respiration.

Prime mover = muscle that provides the primary movement at a joint. In this Example: **Biceps brachii**

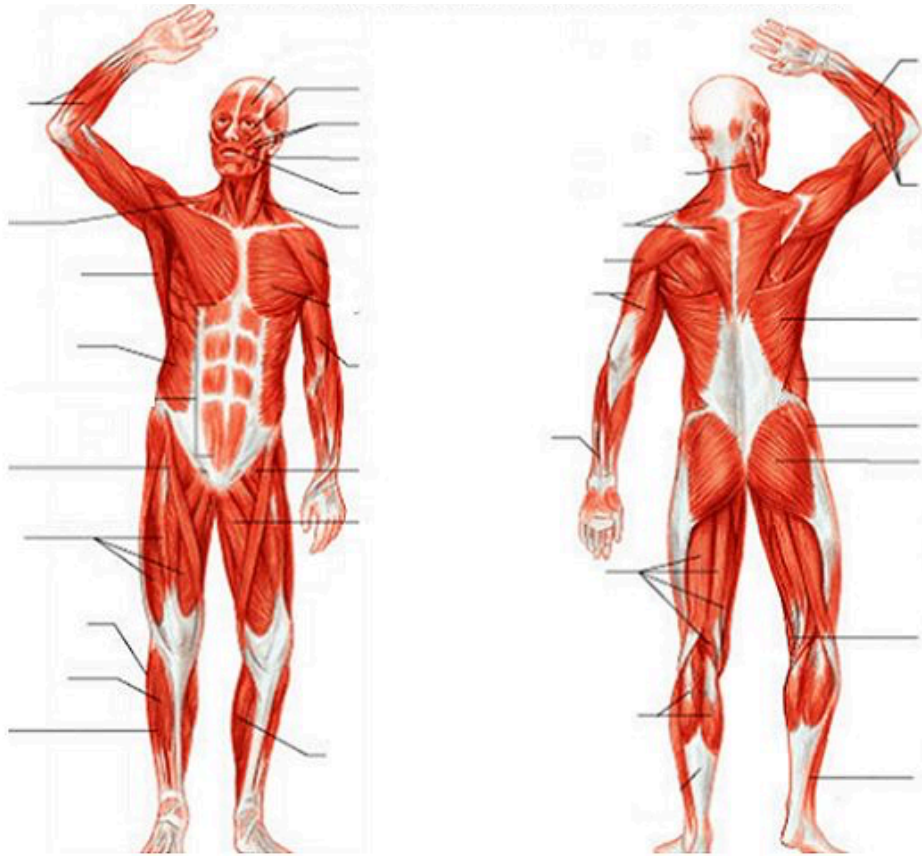
Synergist = muscle that Assists the prime mover. In this case the **brachialis**

Antagonist = muscle that opposes The prime mover. In this example: **Triceps brachii**.



What refers to the end of the muscle that attaches to the more stationary bone? _____
What refers to the end of the muscle that attaches to the more movable bone? _____
Label the biceps brachii and the triceps brachii in the image above.

We will label important muscles in class.



What are 6 characteristics used to name muscles?

What do the muscles of the face allow us to do?

What are three muscles involved in breathing?

What gives the abdominal wall its strength?