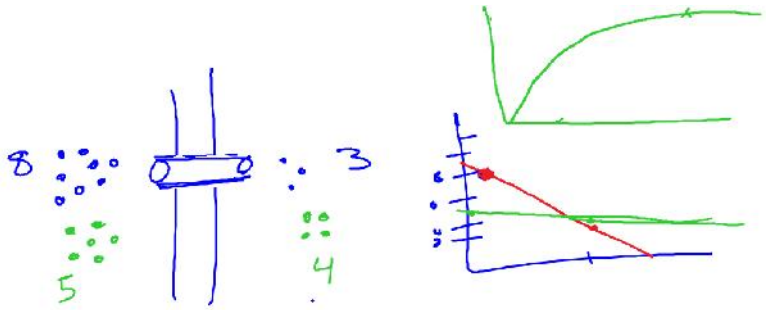
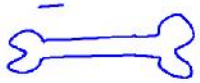


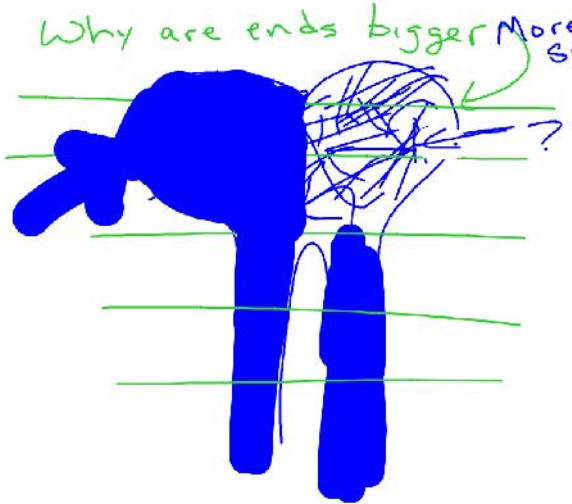

As a table, discuss this:

Look at the bones on your table.

1. What part of the bone do you think is weakest



Why are ends bigger More stable



# V. Skeletal System

shape of you

*A. Functions*

1. Form and Support
2. Place for muscle attach — muscles pull on bones
3. Protection — Skull / Ribs
4. Production of blood cells — Bone marrow — RBC have no DNA
5. Storage of Ca and P — Minerals

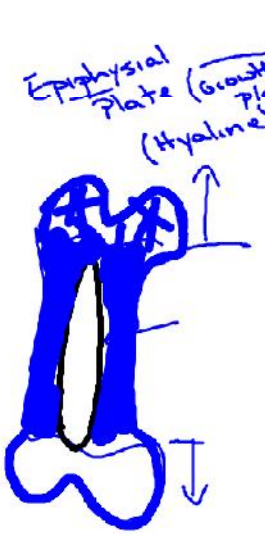
*B. Types of bone* Per A 9/24

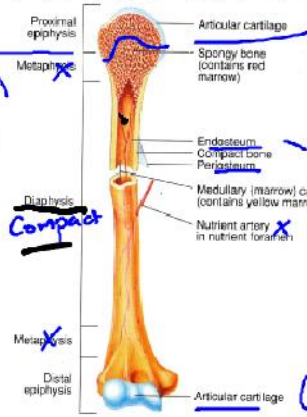
1. Shape
   - *a. Long Bone - All extremities except Ankle and Wrist*
   - *b. Short Bones - Ankle and Wrist*
   - *c. Flat Bones - Scapula, Sternum, Ribs, Cranial*
   - *d. Irregular - Facial, Pelvic, vertebrae, clavicle*
   - *e. Sesamoid - Float in muscle*
     Patella, Hyoid


2. Structure
   - *a. Spongy Bone - Loosely arranged plates of bone. In Epiphyses*
   - *b. Compact Bone - Dense, arranged in haversian system*

*C. Bone Structure*

1. macrostructure
(diaphysis, epiphysis, epiphysial plate, medullary canal,)



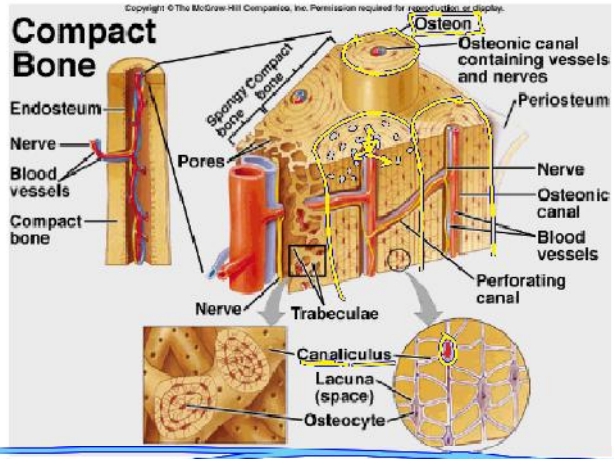

Why are the ends filled with so many hollow air pockets.

Membrane wrapping

(Hyaline like nose)

2. Microstructure
   - *1. Spongy Bone - bone cells (osteocytes) secrete bone plates. Many spaces.*
   - *2. Compact Bone - Cylendrical Haversian systems*

Wed




D. Bone development

A). osteogenesis: Bone tissue formation

B). ossification: the act of producing bone.
Osteoclasts dissolve a tunnel through the spongy bone
Bone Cells come in through blood vessels and move to the edge of the cylinder. There they secrete a layer of bone. Another forms inside that... and another and another until the space is filled. Then the bone is reorganized into Haversian Systems -

1. cell types
   i. osteoblasts: build calcium matrix
   ii. osteoclasts: reabsorb calcium matrix

*C) Methods of Bone Formation*

1. Endochondral Ossification
   a. long bones ossify along hyaline cartilage models
   b. long bones ossify on the outside with compact bone and move inward to spongy bone.
2. Intermembranous Ossification
   a. flat bones follow membrane like layers of unspecified connective tissue.
   b. flat bones ossify inside with spongy bone and work outward to compact bone

D) Bone Fracture and Repair

1. Types

Fractures

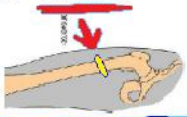
How bad?

- Incomplete - cracked
- Complete - broken in two
  - Simple - not through skin (Closed)
  - Compound - through skin (Open)



1. How much bone is damaged?
2. Soft tissue damage.
3. Risk of infection

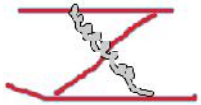
- transverse




- oblique

Most common


- spiral

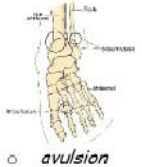



- comminuted

Crushed


- greenstick


- stress



- avulsion

| | B | ST | I |
|---|---|---|---|
| | Low | Low | Very Low |
| | High | High | High |
| | Very High | Very High | High |

b. Repair Mechanism

1. Hematoma - Blood clots form to stop the bleeding - swelling results - clot is called a callous.

2. Spongy Bone Formation – 1 – 2 weeks
3.
4. Compact Bone Formation 4- 8 weeks
5. Bone Remodeling
   Weekly recycle 5% to 7% of bone mass. With a replacement of spongy bone every 4 years and a replacement of compact bone every 10 years.