

Skeletal System

Section 36-1

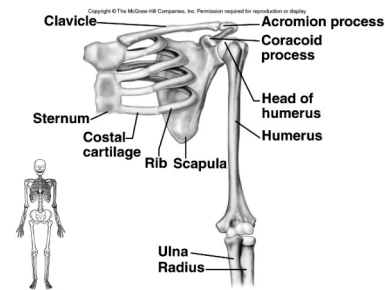
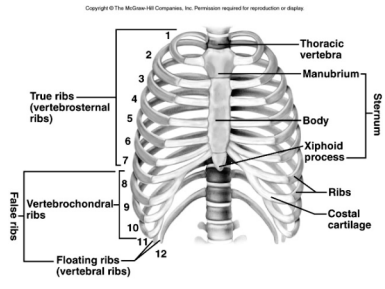
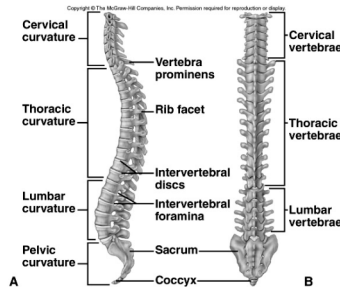
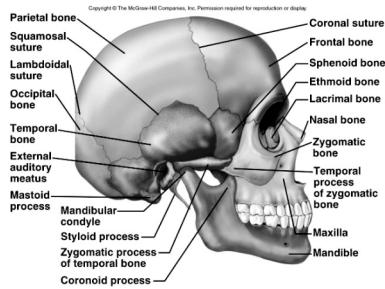
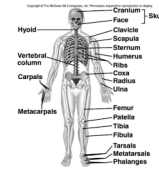
Functions

- Endoskeleton vs. exoskeleton
- Structural support
- Protects internal organs
- Provides for movement
- Blood cell formation



The Skeleton

- Axial Skeleton
 - Ribs (12 pair)
 - Sternum
 - Vertebral column (semi-movable with cartilage disks)
 - Skull
- Appendicular Skeleton
 - Pectoral Girdle
 - Pelvic Girdle
 - Upper Appendages
 - Lower Appendages



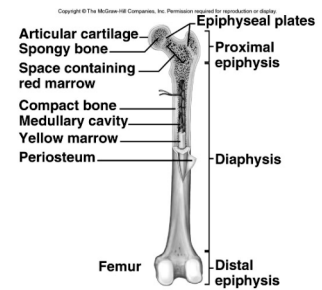
Structure of Bones

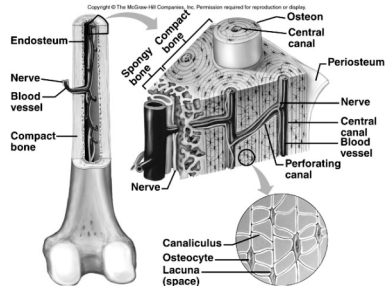
Bones classified by shape:
long, short, flat, irregular

Bone enclosed in **periosteum**, which is continuous with tendons and ligaments

Epiphysis- ends
spongy bone contains red marrow,
compact bone, articular cartilage

Diaphysis- middle
compact bone
medullary cavity- contains yellow marrow (fat)
lined with endosteum (squamous epithelium)

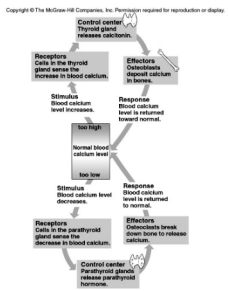
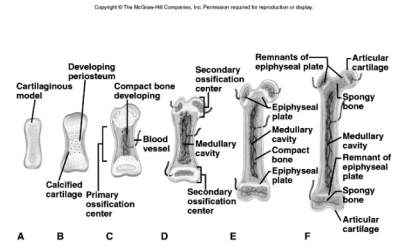




Development of Bones

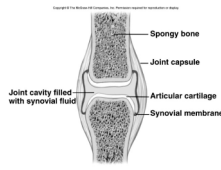


- Fetal skeleton is cartilage
- Ossification: cartilage is replaced by bone
- Osteoblasts: mineral secreting cells that replace cartilage cells
- Osteoclasts: release Ca^{+2} into blood
- Osteocytes: mature bone cells

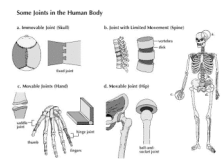


Articulations

- Types of Joints: a place where one bone attaches to another
- Immovable: skull
- Slightly movable: vertebrae, rib/sternum, pubis symphysis
- Freely movable: ligaments hold bones together, lined with synovial fluid



Examples of Joints



- **Saddle:** carpal and metacarpal bones of the thumb
- **Ball and socket:** shoulder and hip
- **Pivot:** rotation only, radius and ulna
- **Hinge:** back and forth in one plane; knee and elbow

Schoolhouse
Rock!