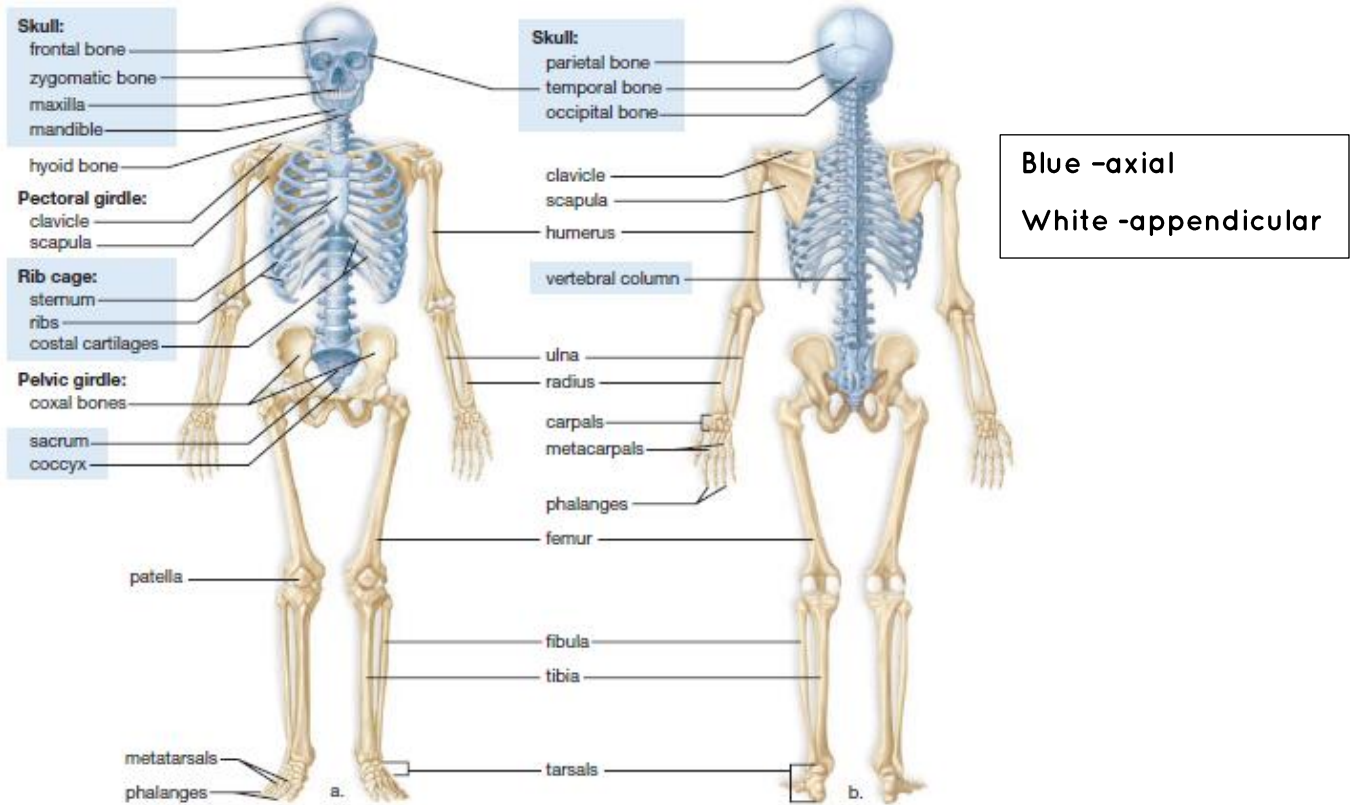
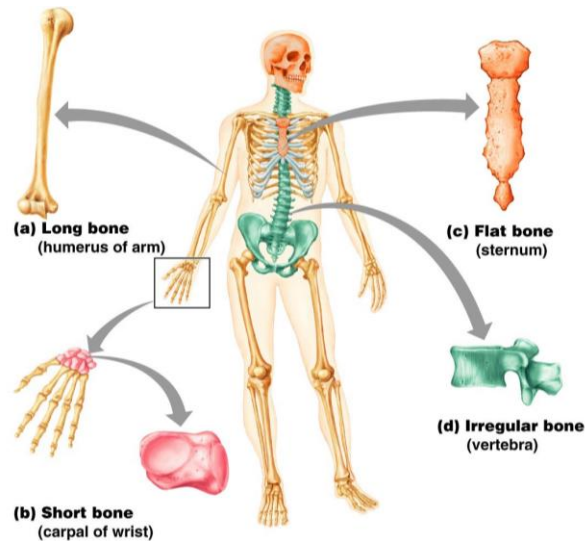


Skeletal System

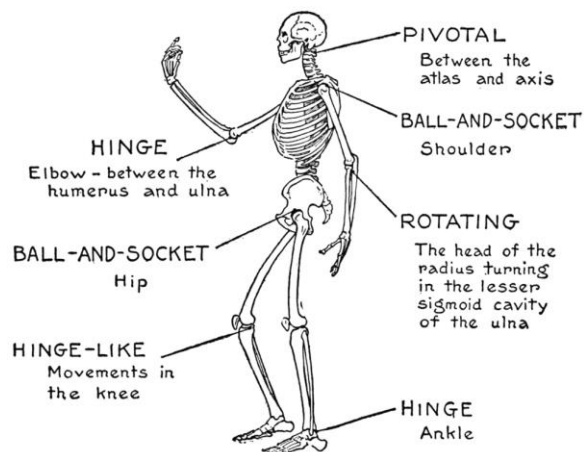
- Basic introduction
 - Consists of bones, cartilages, tendons, and ligaments
 - Divided into 2 parts
 - Axial
 - Appendicular



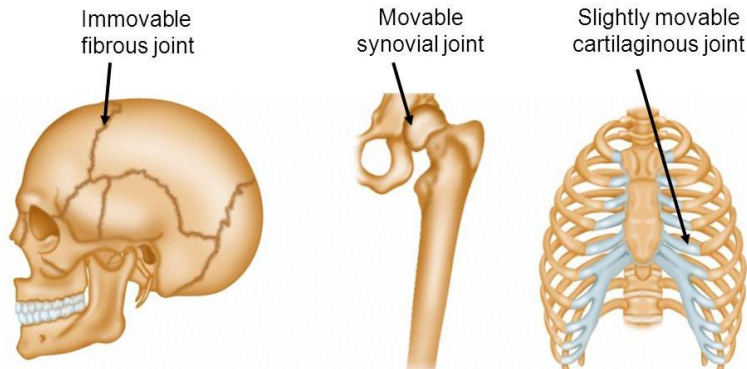
- Classification of bones
 - Long
 - Short
 - Flat
 - Irregular



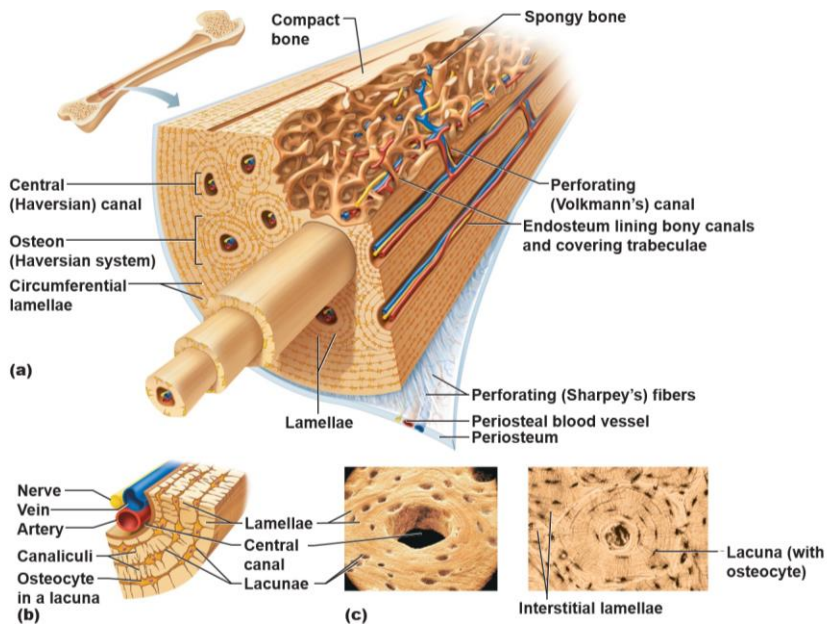
- Contains connective tissue with collagen and living cells
- Regenerates regularly until we reach a certain age
 - If bones don't regenerate properly it can lead to osteoporosis –when bone is weak and brittle due decrease of bone mass
- Axial skeleton
 - 80 bones
 - Consists of skull, hyoid bone, spine, ribs, and sternum
 - Spine
 - 33 vertebrae
 - Classified as either cervical, thoracic, lumbar, or sacral
 - Ribs
 - 12 bones: 10 are “true ribs” and 2 are “false ribs”
 - Sternum
 - Manubrium, corpus sterni, and xiphoid
 - Skull
 - Cranium and facial bones
 - Hyoid bone
 - Point of attachment for tongue muscles
- Axial skeleton
 - 126 bones
 - Consists of pectoral bone, pelvic girdle, and appendages
 - Pectoral bone
 - Scapulae (shoulder) and clavicle (collarbone)
 - Pelvic girdle
 - Pelvic bone (hip)
 - Attaches to sacrum
 - Lower and upper appendages
 - Upper arm bones –humerus, ulna, radius, carpals, metacarpals, and phalanges
 - Lower leg bones –femur, patella, fibula, tibia, tarsal, metatarsal, and phalanges
- Functions of skeletal system
 - Structural support
 - Muscles and organ support
 - Axial skeleton shift weight from upper body to lower appendages
 - Movement –joint movement
 - Hinge joints, ball-and-socket joint, pivot joint, ellipsoid joint, gliding joint, and saddle joint



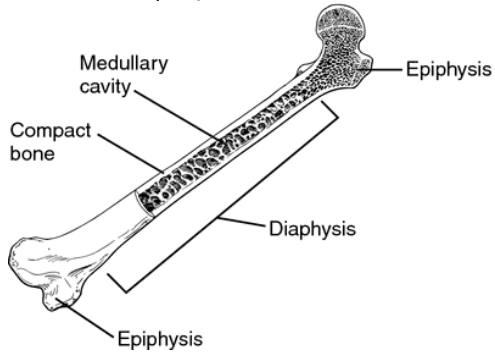
- Joints: area of contact of adjacent bones
- Synovial, cartilaginous, and fibrous joints
 - Synovial -freely moveable
 - Cartilaginous -some movement
 - Fibrous -no movement



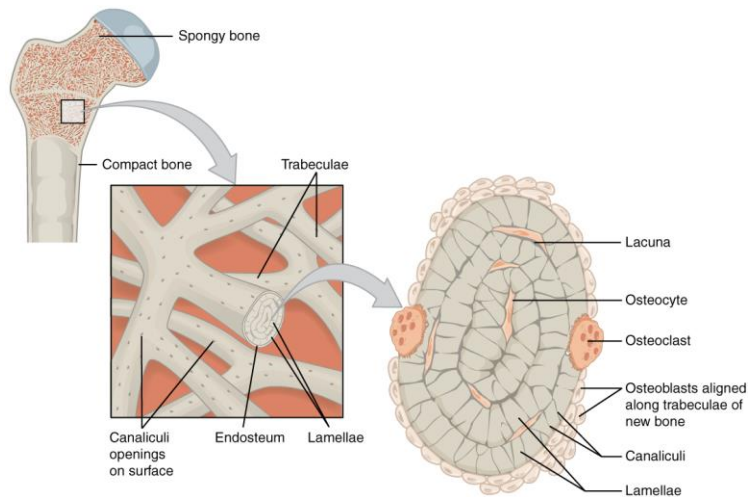
- Origin and insertion
 - Origin keeps bone attached and is not moveable while insertion allows bone to move along with muscles
- Protection
 - Cranium protects brain
 - Vertebrae protects spinal cord
 - Intervertebral disc cushions backbone to avoid herniation in case of shock/trauma
 - Rib cages protect heart and lungs
 - Pelvis protects reproductive organs
- Blood cell production
 - Red marrow make red and white blood cells
- Storage of fat and minerals
 - Yellow bone marrow stores fat
 - Reservoir for minerals like calcium and phosphorous
- Connective bones: Compact and spongy bone
 - Compact/cortical bone



- Made from tightly packed cells
- Characteristics: strong, dense, rigid
- Haversian system: Haversian canal, lamellae, lacunae
 - Haversian canal are surrounded by lamellae, and spaces between lamellae are lacunae
 - Provides a reservoir for calcium and phosphorous for blood
- Makes diaphysis



○ Spongy/cancellous bone



- Made of trabeculae -network of girders filled with red bone marrow
 - Red marrow makes red and white blood cells
- Characteristics: light-weighted and porous
- Make epiphysis