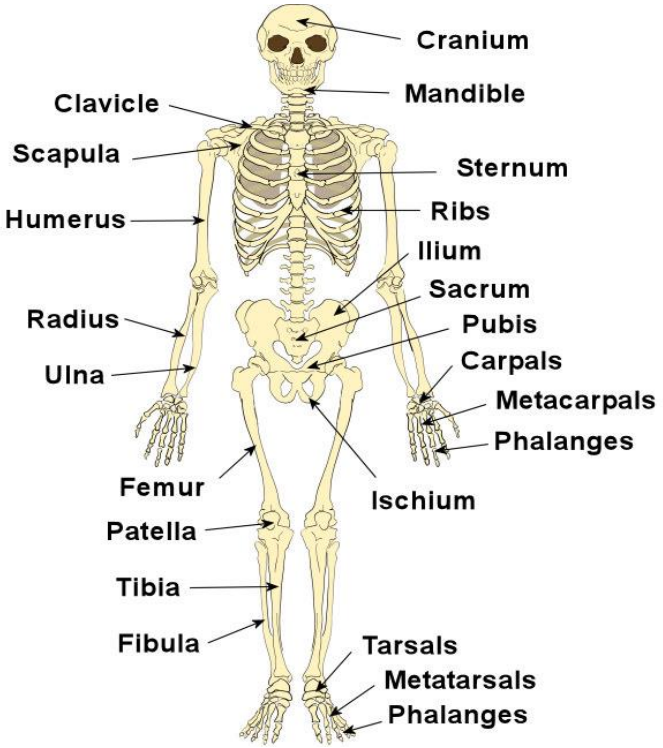
ACADEMIC SUPPORT CENTER
SUCCESS STARTS HERE.

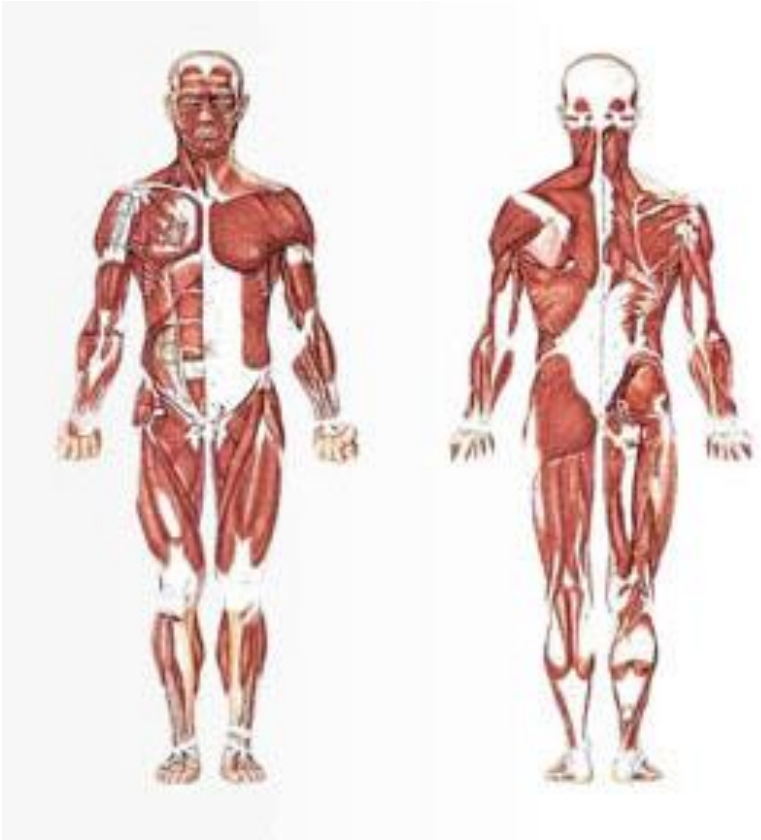
DAYTONA STATE COLLEGE

SKELETAL SYSTEM

SUPPORT AND MOVEMENT

Human Biology
Support and Movement



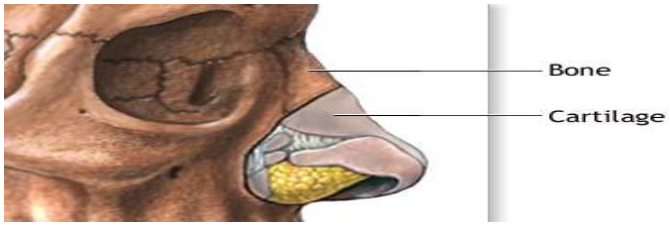


Introduction:

- Have you ever seen a house or a skyscraper being built?
- What is the function of the metal or wooden frame of the building?
  - It supports the walls and roof of the building
- As humans we have a frame, which is our Skeletal system.
  - Just like a frame inside a building, our skeleton is inside our body which is called an endoskeleton (internal skeleton)

The Skeletal System

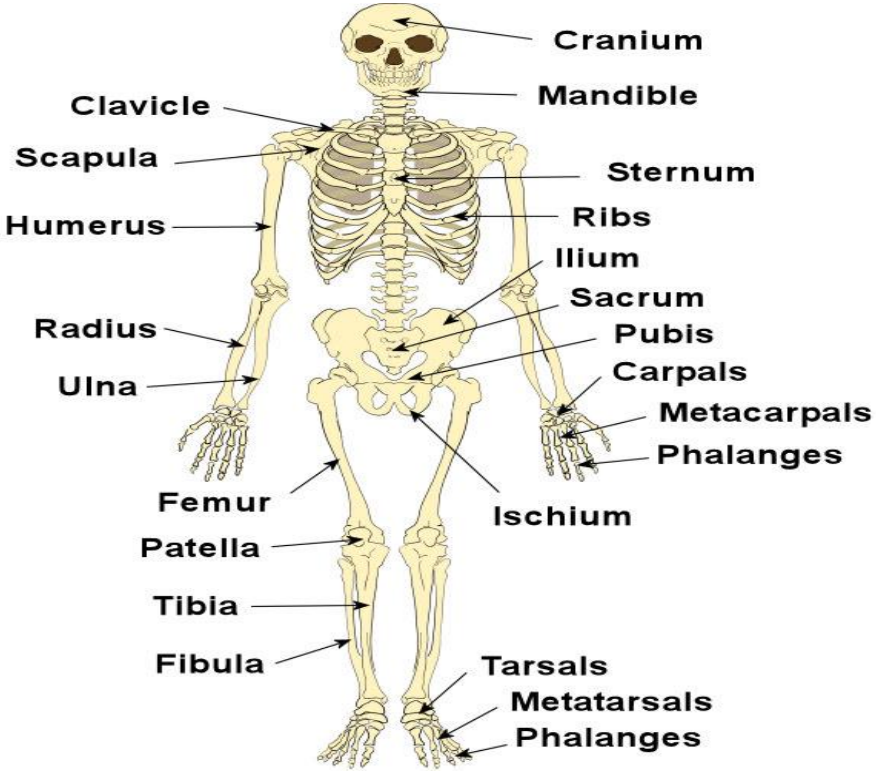
- Your skeletal system is made mostly of bone.
- Bone is a very hard tissue, which is also a little flexible.
- Your skeleton also contains cartilage, which is tough, flexible tissue.
  - Examples: ears & end of your nose



- The ends of some bone contain cartilage, which protects the ends of bone from rubbing against each other.

The Skeletal System cont.

- Human skeleton is divided into 2 main parts:
  - Axial skeleton: skull, rib cage, backbone
  - Appendicular skeleton: shoulder, hip, pelvis, arms, legs

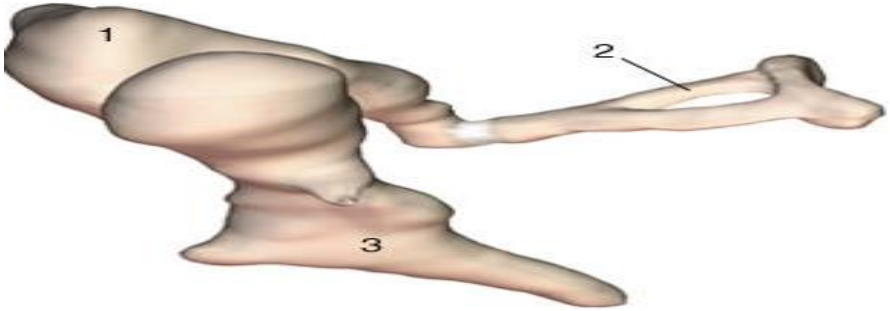


What are the functions of your skeletal system?

- Supports your body and gives it shape
- Covers and protects certain body organs
- Many bones of the skeleton work with muscles to make movement possible
- Some bones make blood cells
- Bones store minerals such as calcium and phosphorus that the body needs

Bones

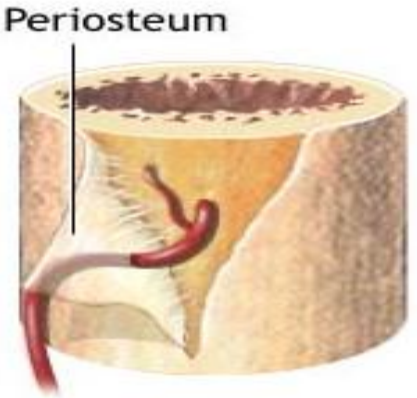
- Your body has 206 bones.
- Bones range in various sizes.
  - Example: some are long, short, and flat
- The three bones in your ear (incus, stapes, malleus) are the smallest bones in the body.



- The largest bone is the femur (thigh bone).

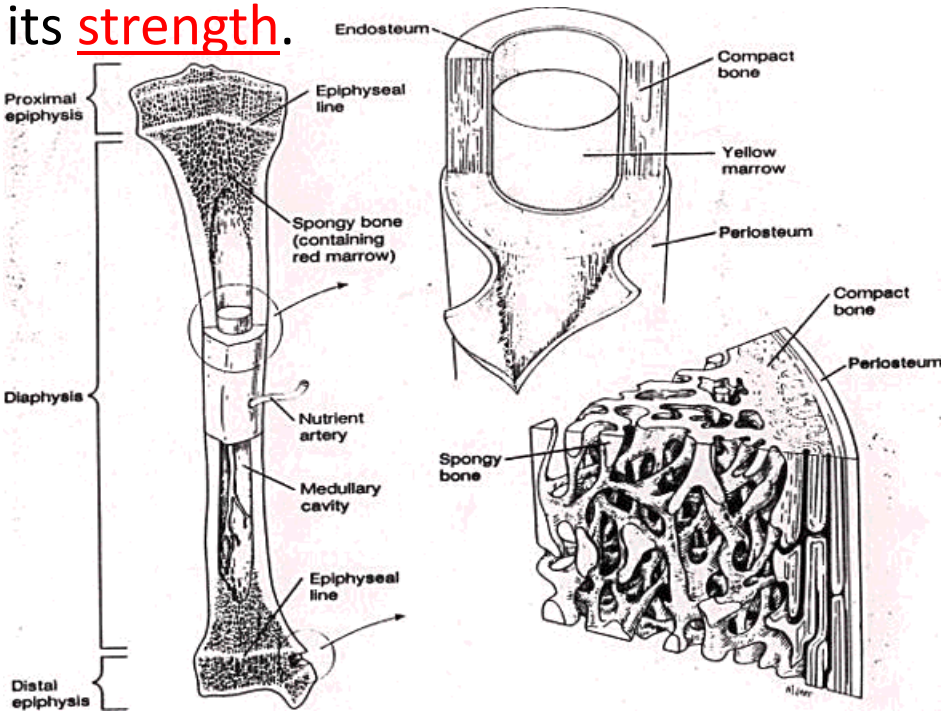
Structure of Bones

- Bones are unusual because they are made up of living and non-living material.
- A bone is covered with a thin, tough membrane called the periosteum.
  - The periosteum has many blood vessels that supply bone cells with blood.



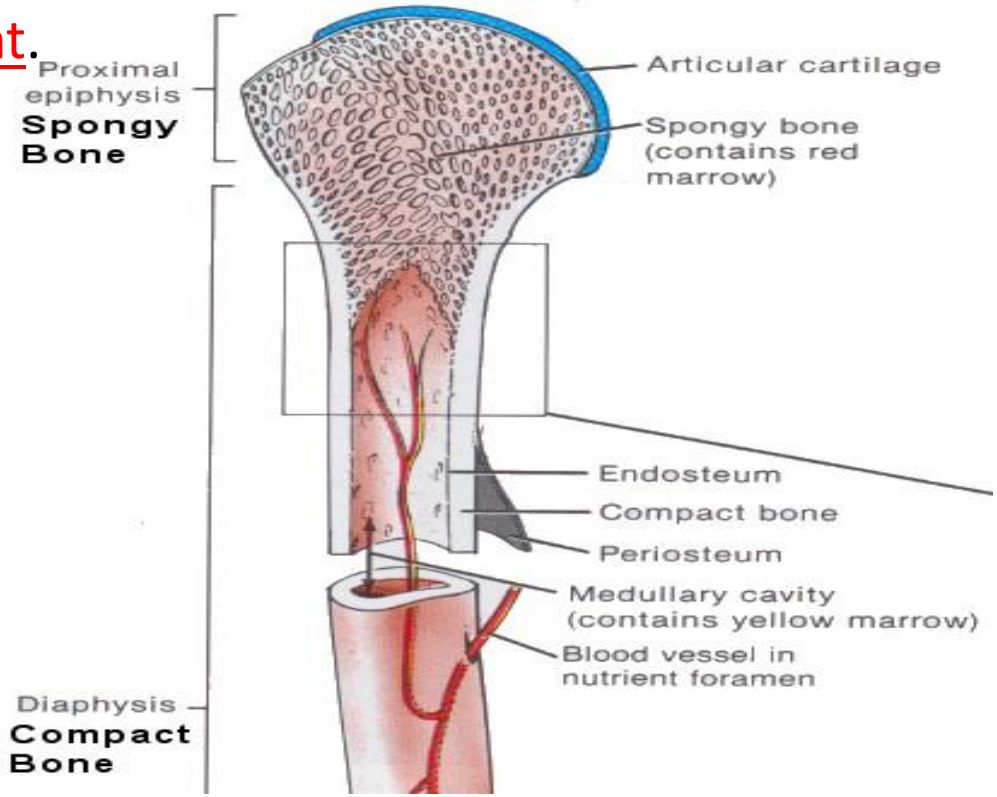
Structure of Bones cont.

- The hardest part of the bone is called the compact bone, which is made up of living bone cells, tough protein fibers, and mineral deposits.
  - Calcium is the mineral that makes bone hard and gives bone its strength.



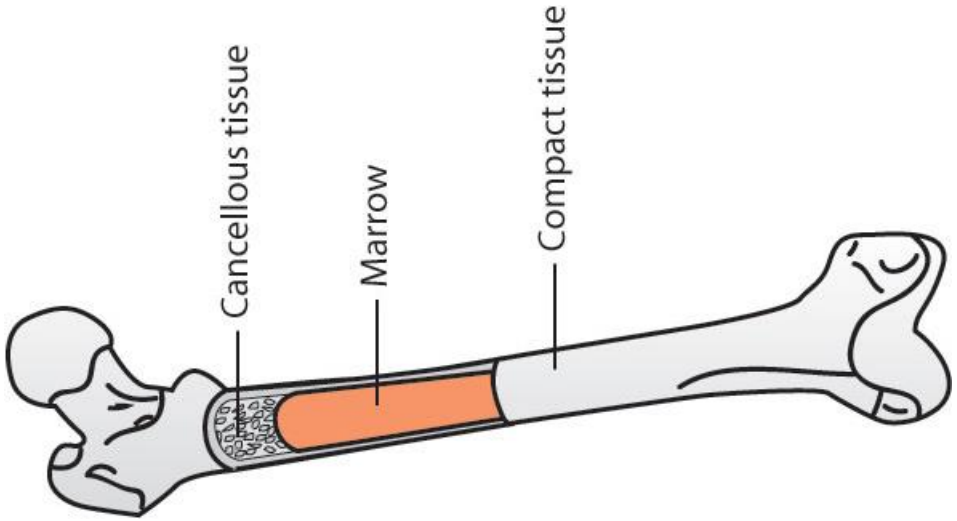
Structure of Bones cont.

- The ends of bones are made up of spongy bone, which have many spaces like a sponge.
  - Its structure adds strength to bone without adding much weight.



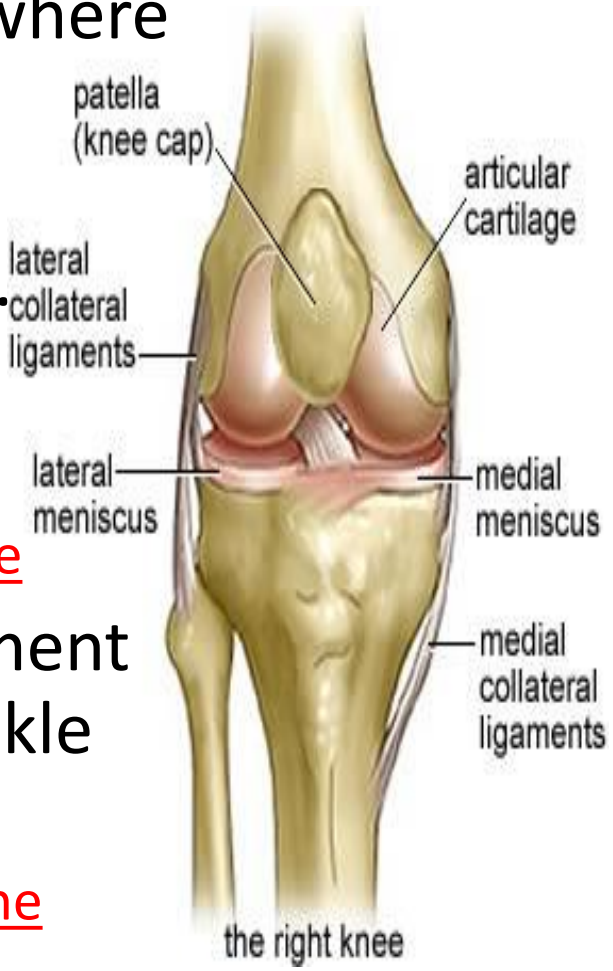
Structure of Bones cont.

- The space in the spongy bone are filled with bone marrow, which is a soft tissue.
  - New blood cells are made in red marrow which can be found in spongy bone.
  - The center, or shaft, of long bones contain yellow marrow, which is made mostly of fat cells.



Joints

- Movement can only occur where bones meet.
- The place where 2 or more bones meet is called a joint.
- What holds your bones together?
  - Ligaments: bands of tough tissue
- What happens to your ligament when you get a sprained ankle or finger?
  - Ligaments connected to that bone stretch too far

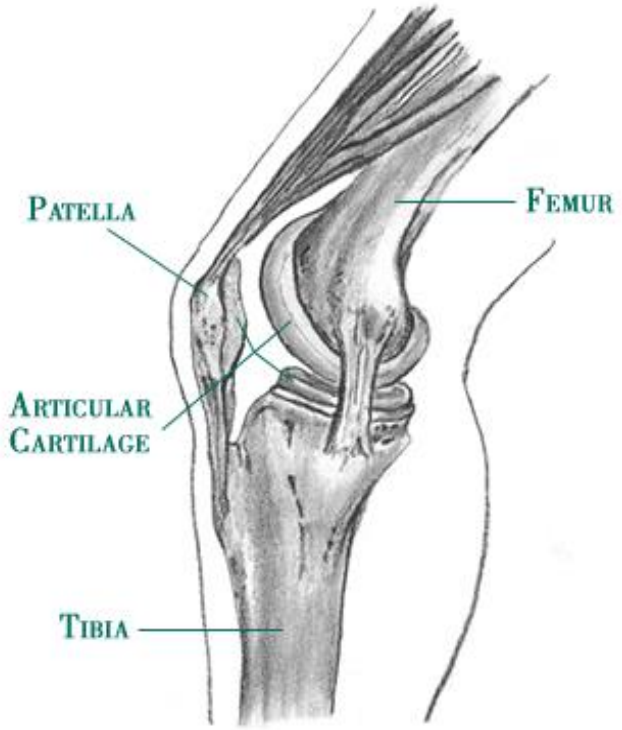


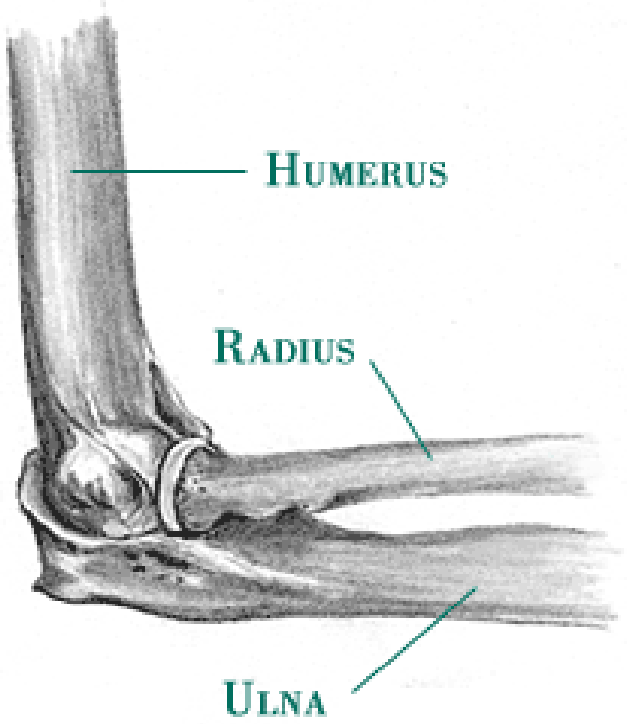
Types of Joints

- Hinge Joint
- Ball-and-Socket Joint
- Pivotal Joint
- Gliding Joint

Hinge Joints

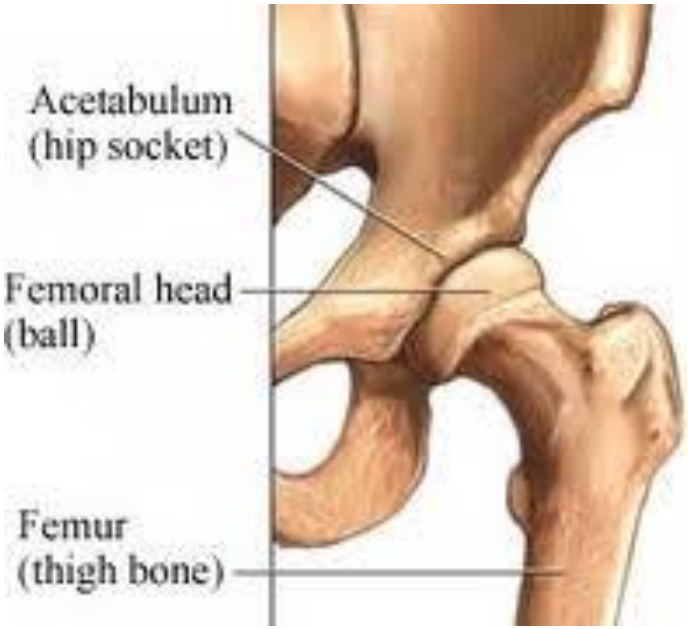
- A hinge joint allows bones to move backward and forward in only one direction.
  - Example: knee and elbow





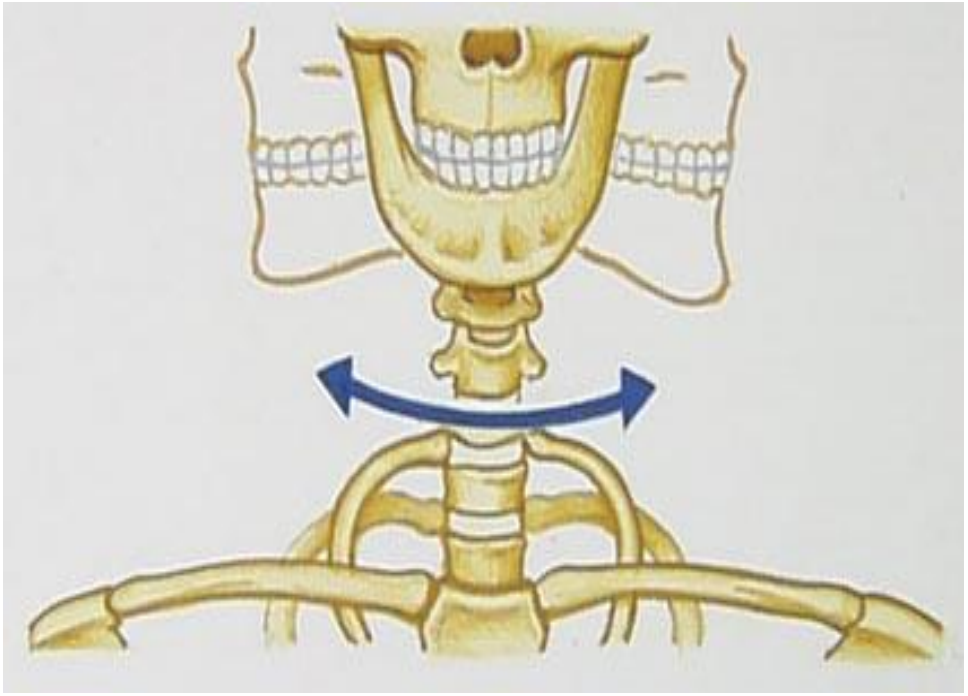
Ball-and-Socket Joints

- Ball-and-socket joints permits movement in all directions, which allows the widest range of movement of any kind of joint.
  - Example: hip and shoulder



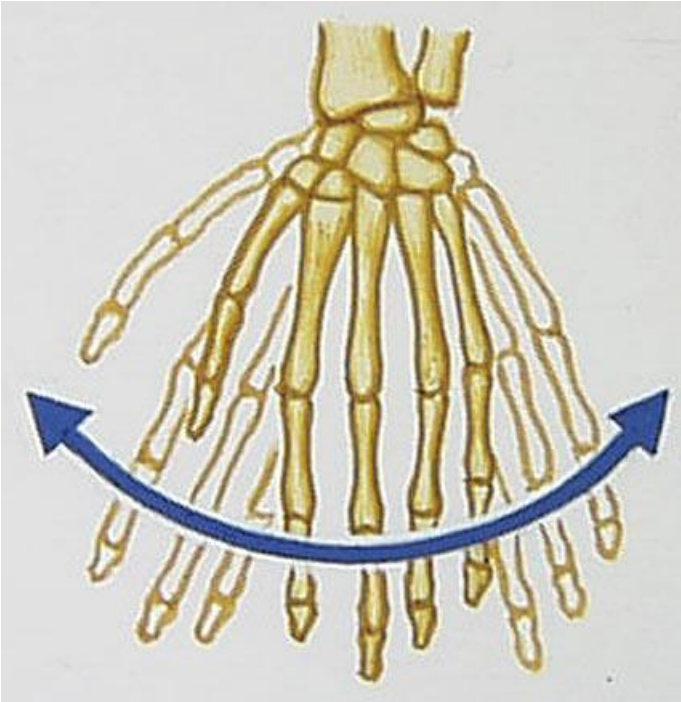
Pivotal Joints

- Pivotal joint allows both side-to-side and up-and-down movements.
  - Example: place where the skull joins the 1st vertebra



Gliding Joints

- Gliding Joint allows some movement in all directions, where by the bones slide along each other.
  - Examples: wrist, ankle, vertebrae



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Questions

Compiled by: M. Swanton – Learning Specialist

Edited by: D. Leonard – Learning Specialist

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