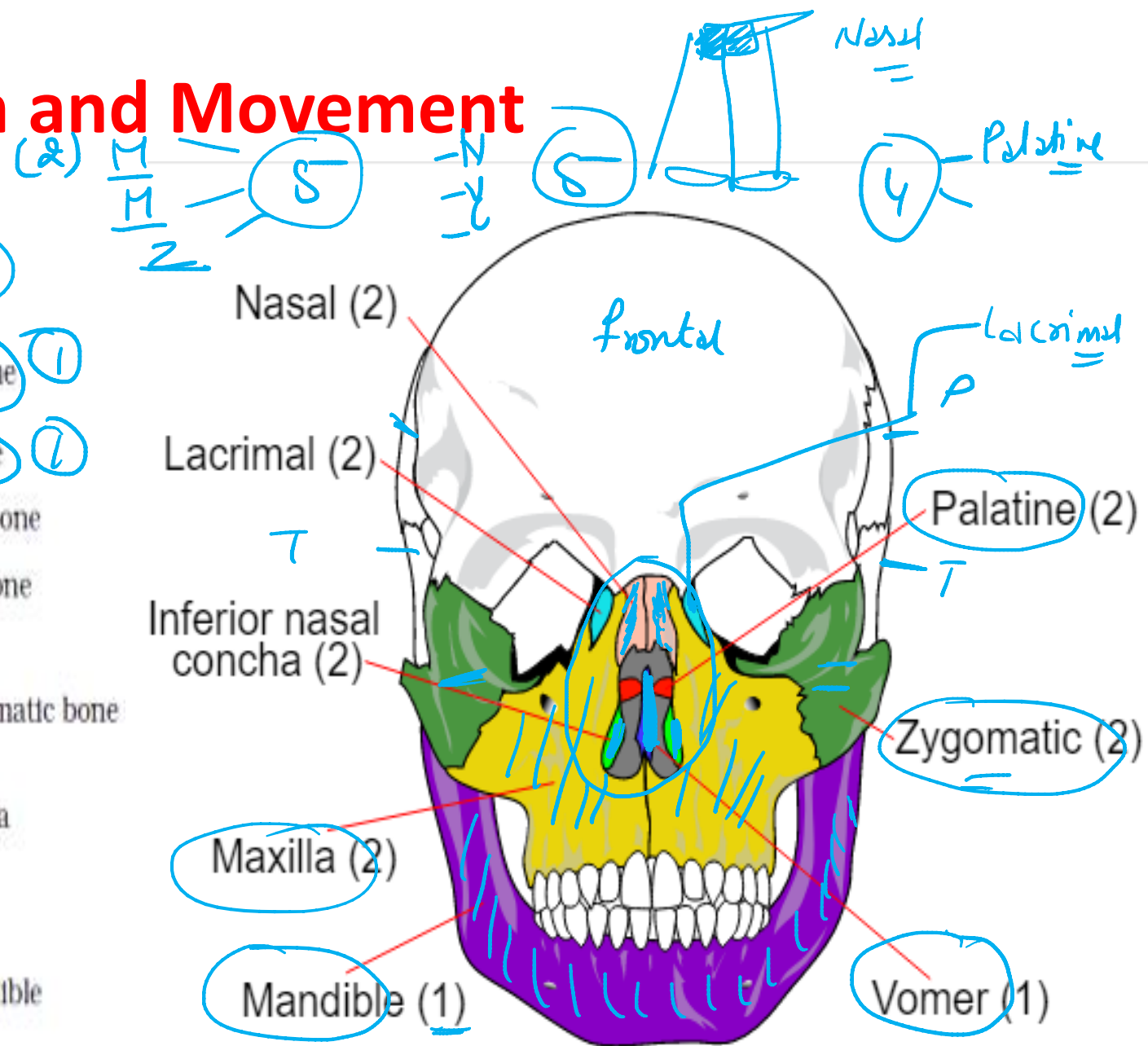
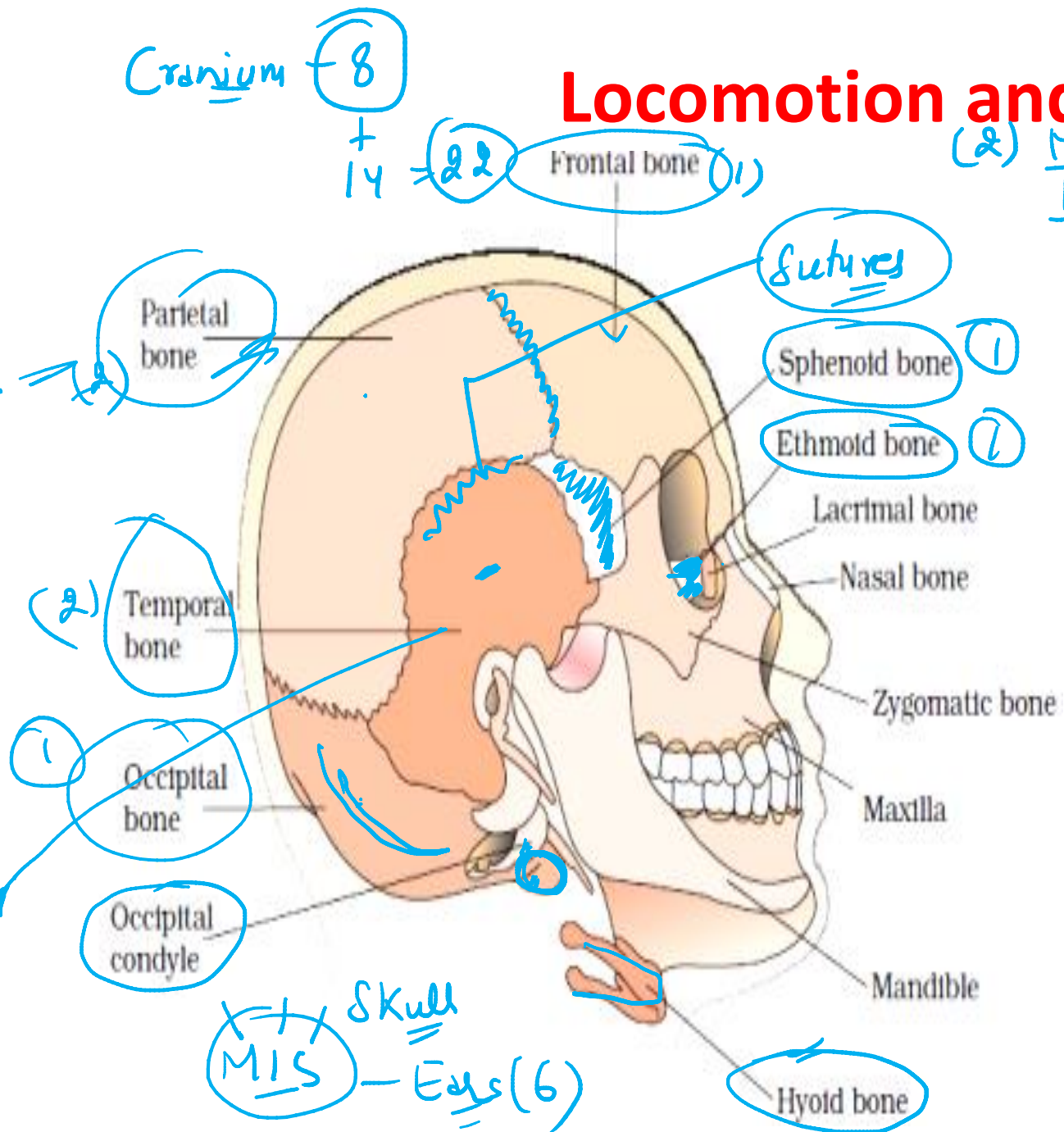


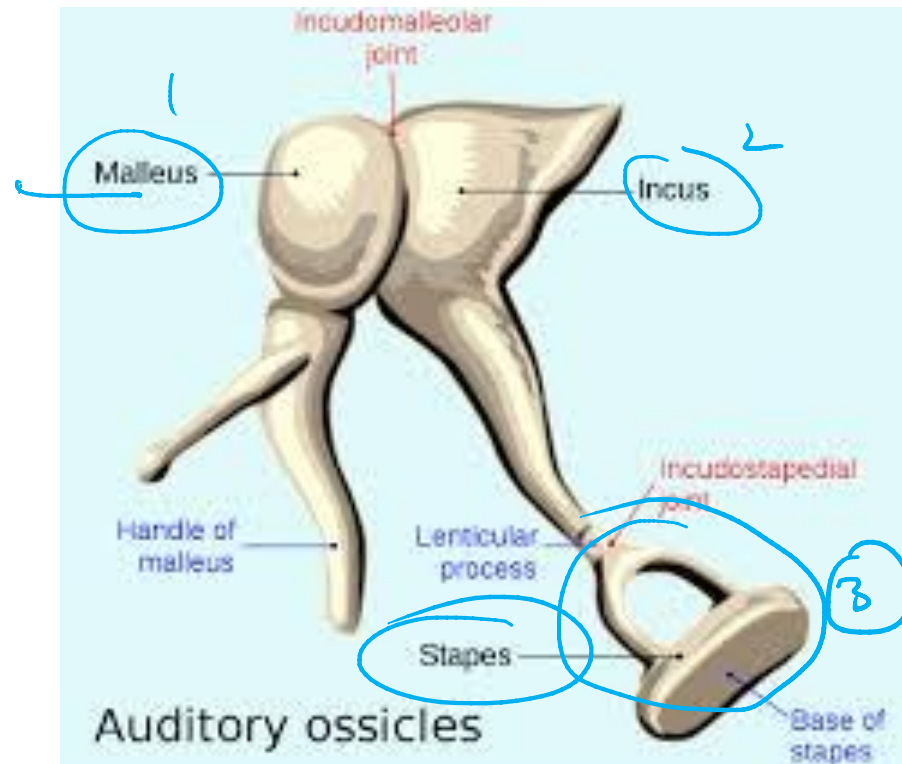
Locomotion and Movement



→ **14 facial bones**

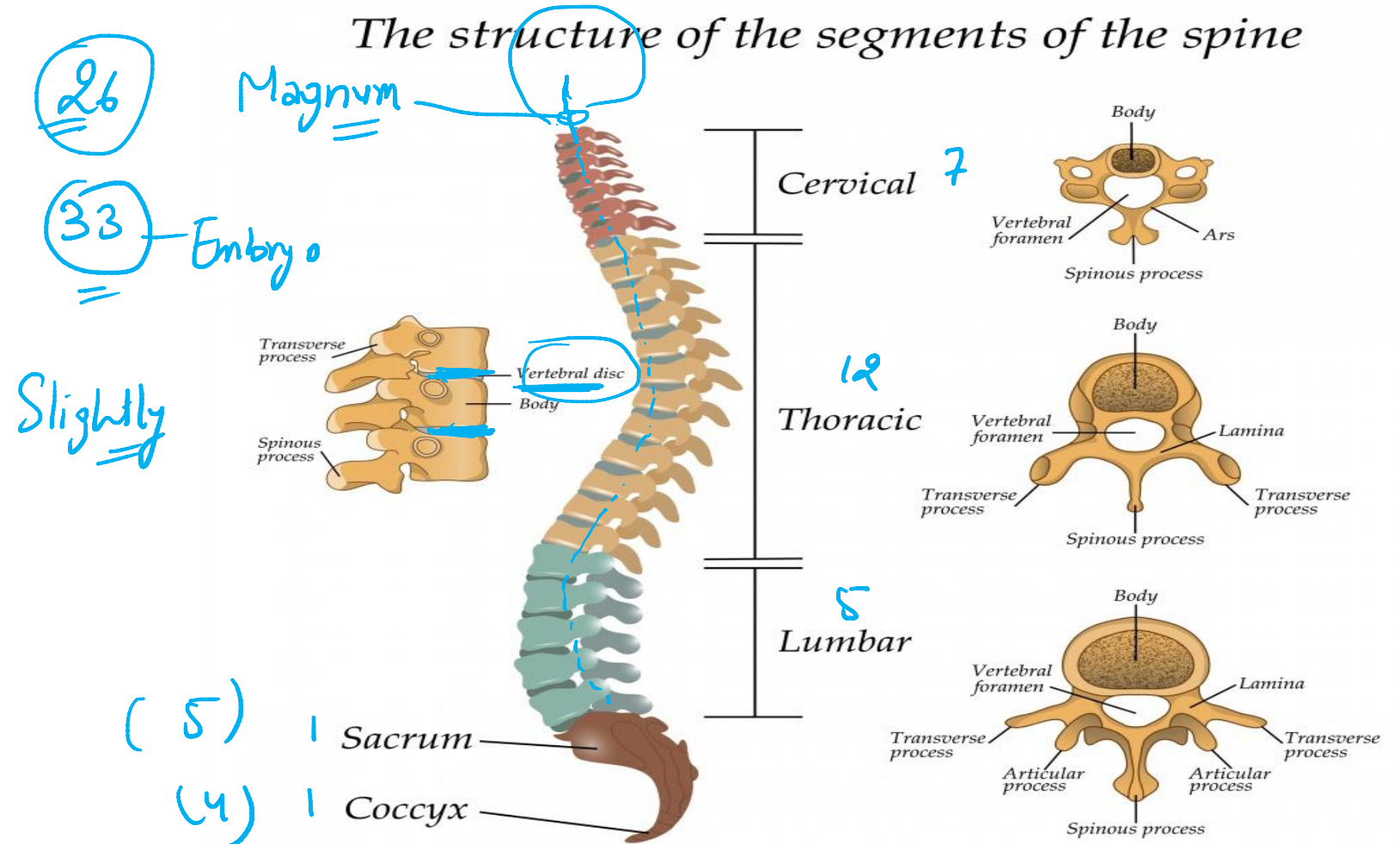
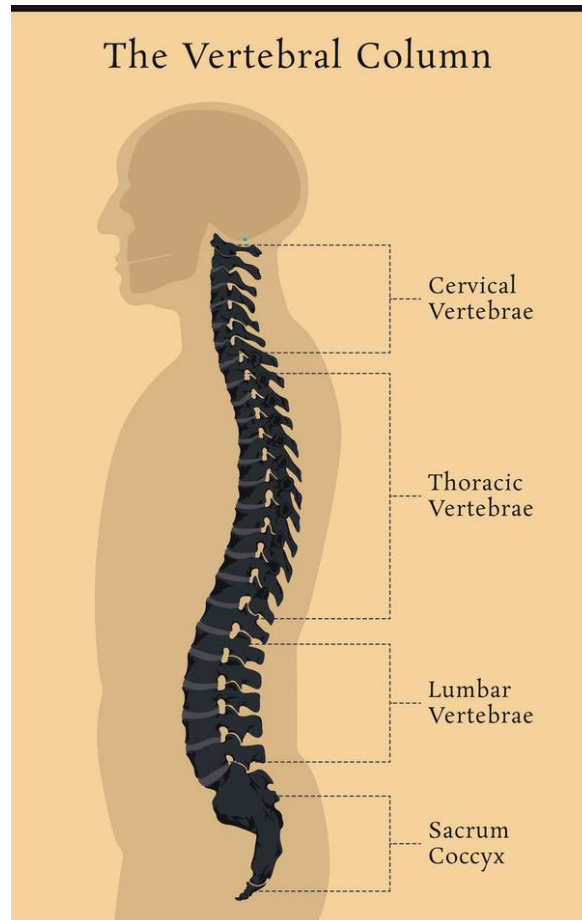
Locomotion and Movement

- The middle ear bone (Malleus, Incus and Stapes) collectively called Ear Ossicles. Skull joins with vertebral column with two occipital condyle.



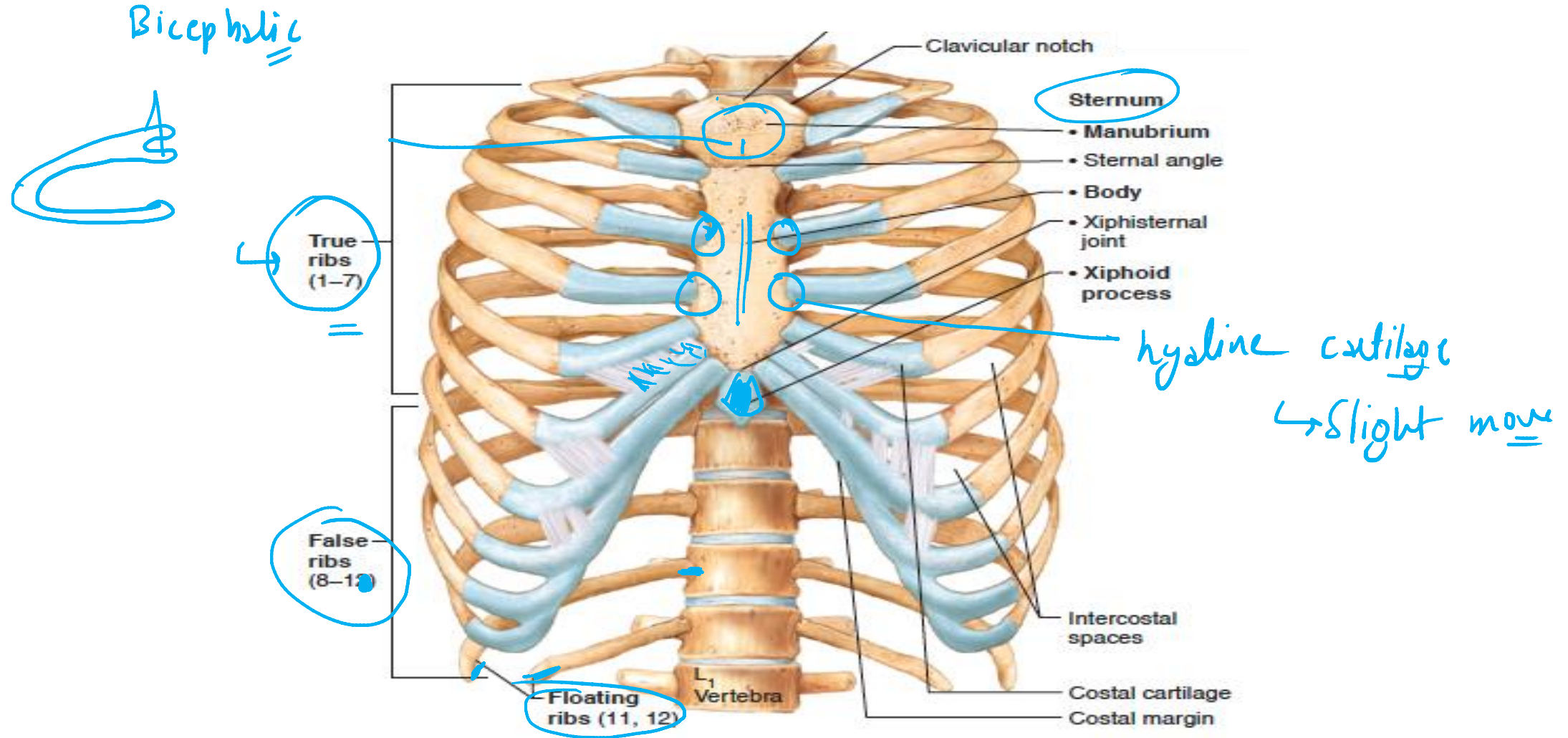
Locomotion and Movement

- Vertebral column consists of 26 serially arranged vertebrae. First vertebra is **atlas** that combines with occipital condyle. Other includes Cervical-7, thoracic -12, lumbar -5, sacral – 1 coccygeal -1.



Locomotion and Movement

- 12 pairs of ribs connected dorsally to vertebral column and ventrally to sternum. 11th and 12th rib bones are not connected with sternum and are called **floating ribs**.

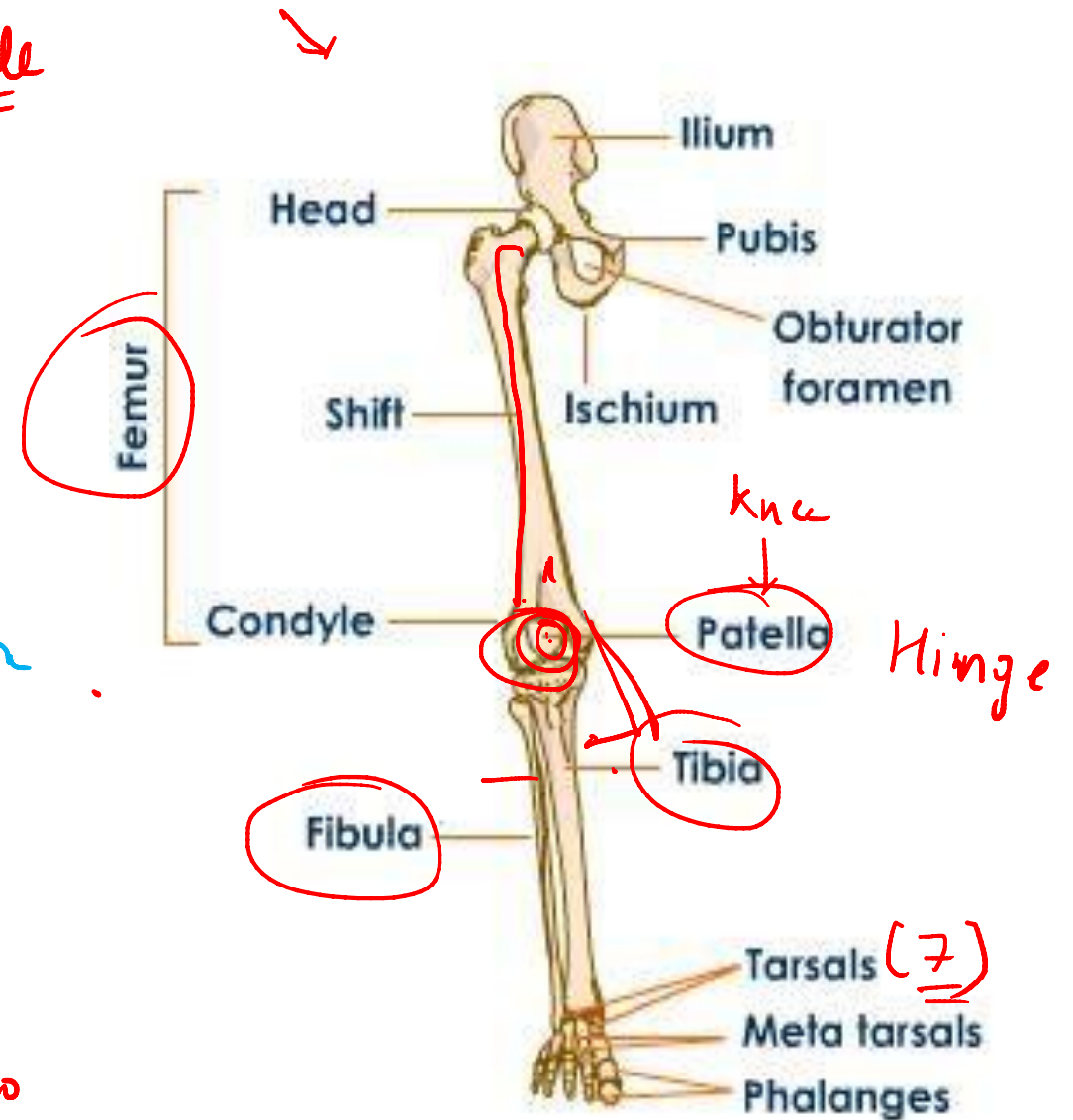
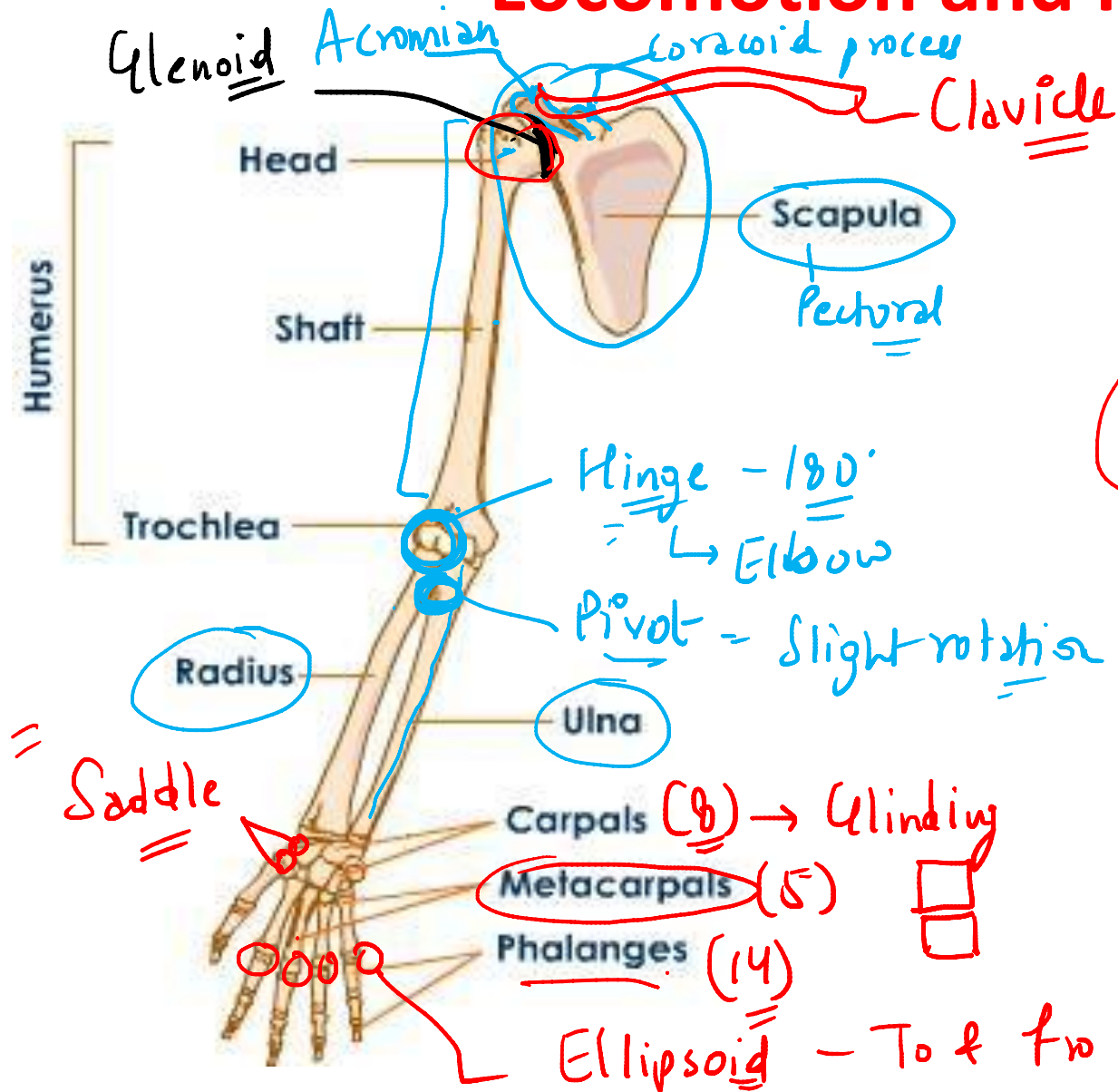


Locomotion and Movement

Appendicular Skeleton - includes bones of limbs and girdles. Each limb contains 30 bones.

Upper Arm	Lower Limb
Humerus, radius and ulna, 8-carpels, 5-metacarpels, 14-phalanges,	Femur, tibia and fibula, 7-tarsals, 5-metatarsals, 14-phalanges, cup shaped patella cover the knee.

Locomotion and Movement



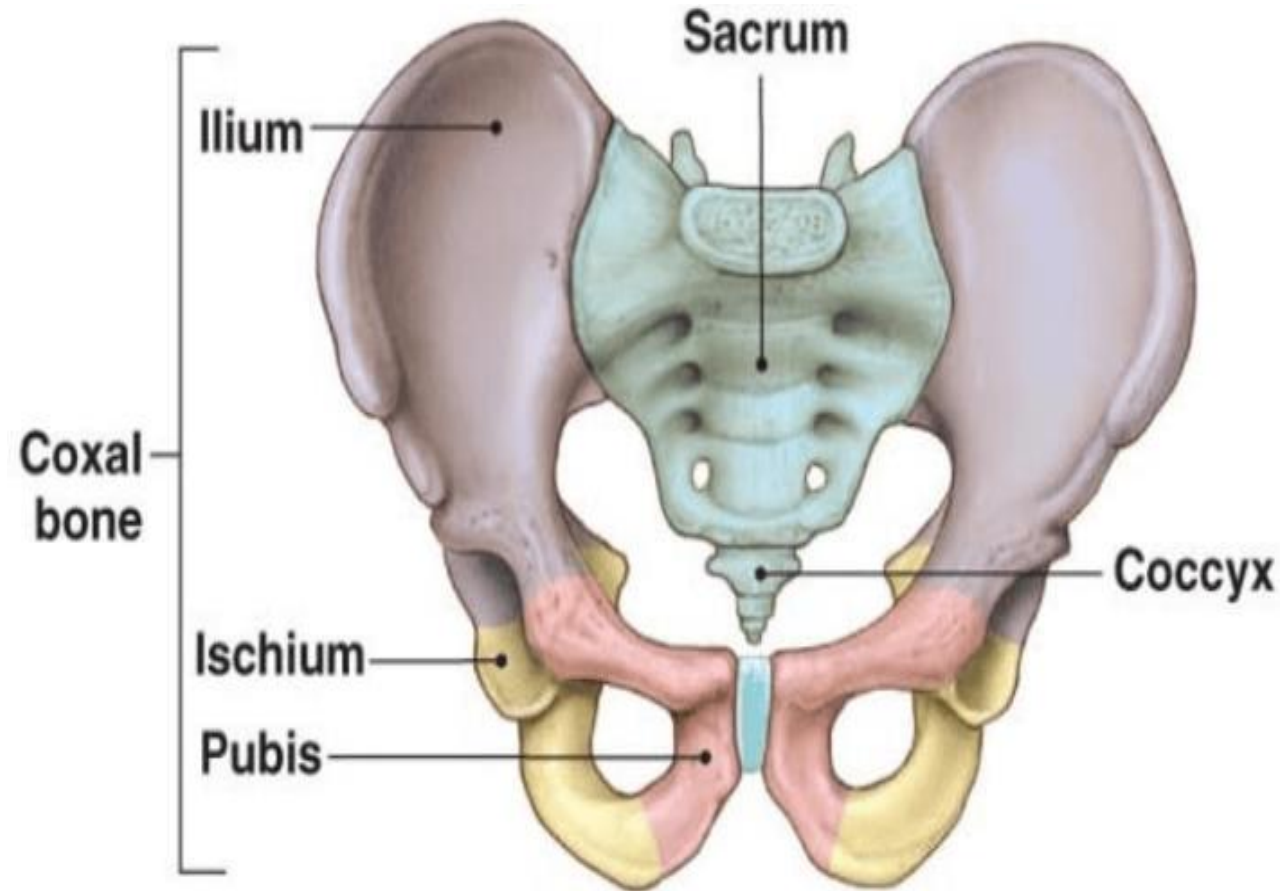
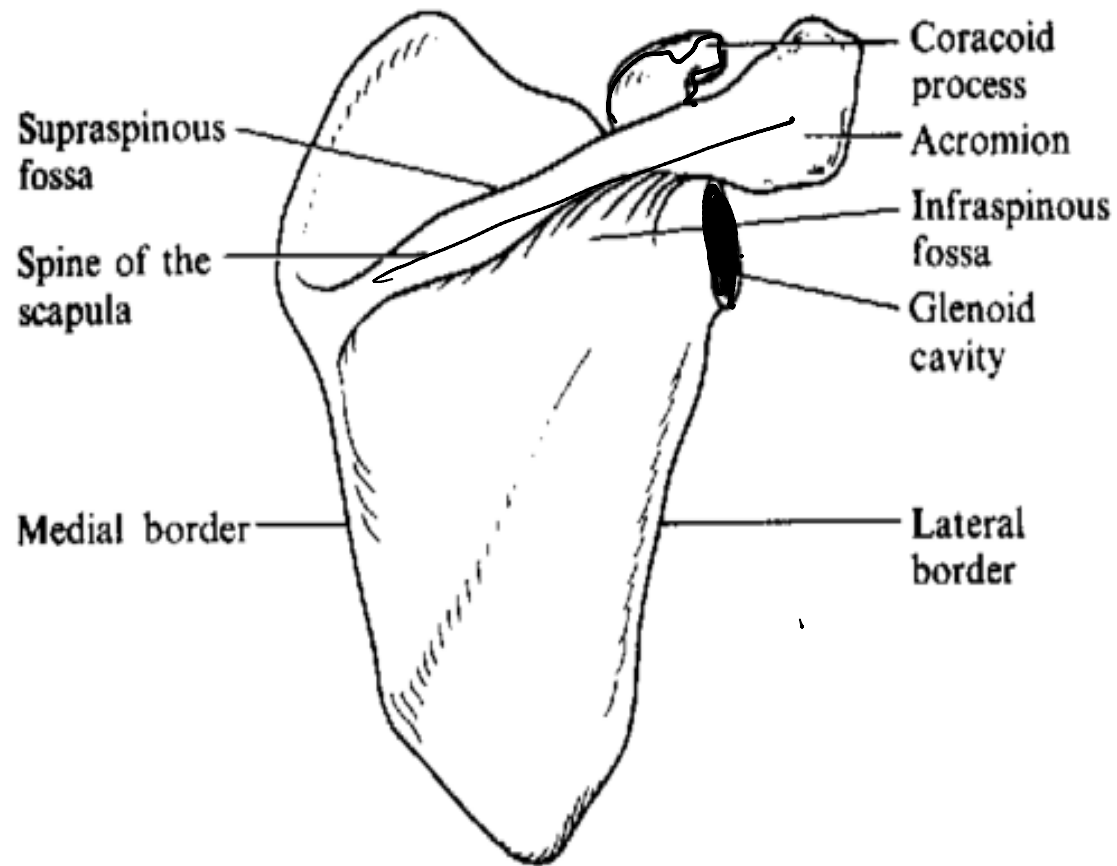
Locomotion and Movement

Pectoral and **Pelvic girdle** bones help in the articulation of the upper and the lower limbs respectively with the axial skeleton.

Pectoral girdle consists of a **clavicle** and a **scapula**.

Pelvic girdle consists of two **coxal bones**. Each coxal bone is formed by the fusion of three bones – ilium, ischium and pubis.

Locomotion and Movement



Locomotion and Movement

Joints – are points of contact between bones, or between bones and cartilage.

1.Fibrous joints– do not allow any movements. Present in flat skull bones to form cranium.

1.Cartilaginous joints– bones are held together with the help of cartilage present in vertebrae. Permits limited movements.

1.Synovial joints– fluid filled synovial cavity, provide considerable movements. Ball and socket joint, hinge joints, pivot joints, gliding joints etc.

Locomotion and Movement



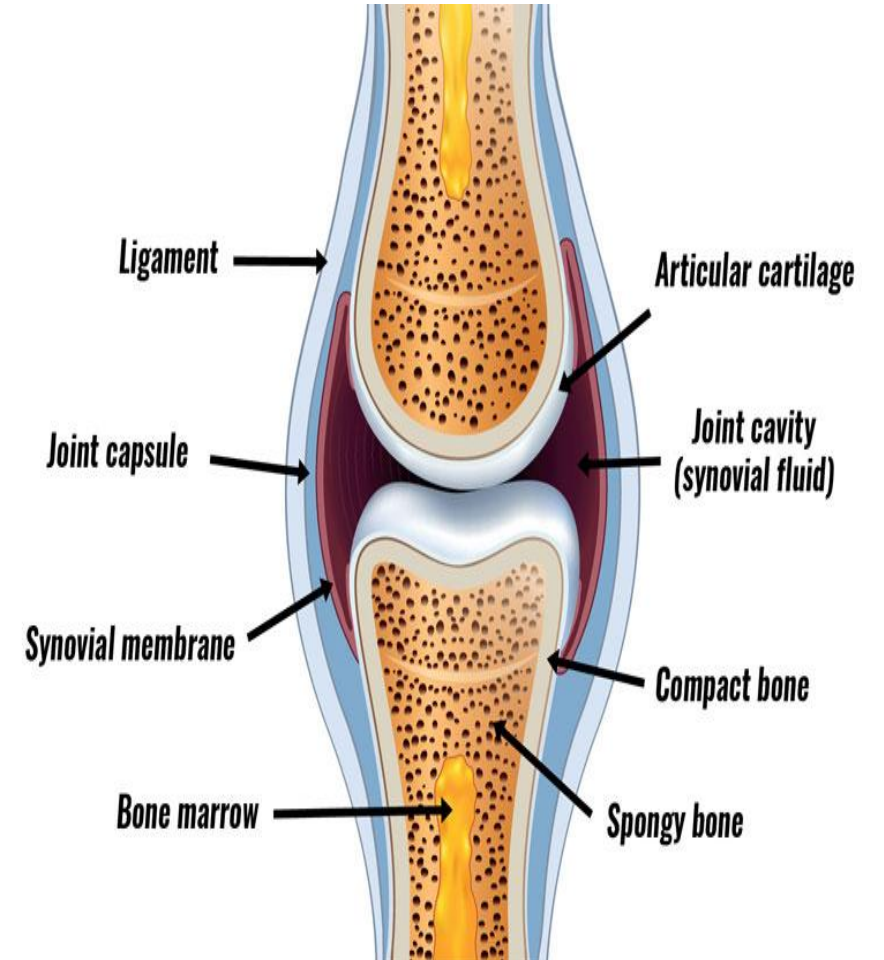
Fibrous
(Immoveable)



Cartilagenous
(Semi moveable)



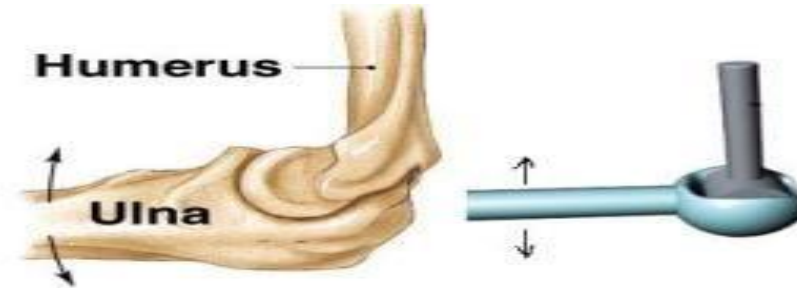
Synovial
(freely moveable)



Locomotion and Movement



(a) Gliding joint



(b) Hinge joint



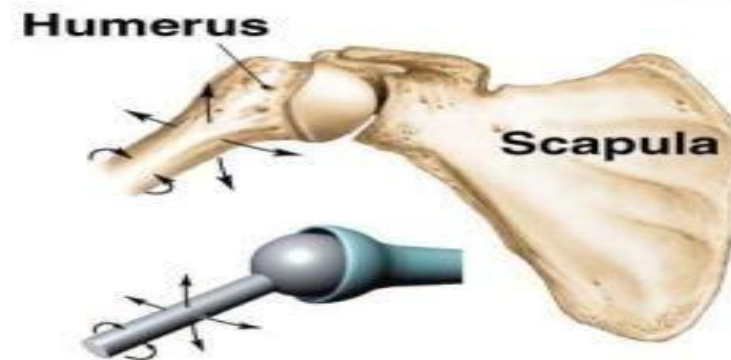
(c) Pivot joint



(d) Ellipsoidal joint



(e) Saddle joint



(f) Ball-and-socket joint

Locomotion and Movement

Disorders of Muscular and Skeletal System

- **Myasthenia gravis**- auto immune disorder affecting neuromuscular junction causing fatigue, weakening and paralysis of skeletal system.
- **Muscular Dystrophy**- degeneration of skeletal muscles due to genetic disorder.
- **Osteoporosis** – decreased bone mass in old age leading to chance of fracture due to decreased estrogen.
- **Arthritis**- inflammation of joints.
- **Gout**- inflammation of joints due to accumulation of uric acid crystals.
- **Tetany**- Rapid spasms in muscle due to low Ca^{++} in body fluid

Thank You