* Skeletal System

→ bones + cartilages are special connective tissues.

- very hard matrix (due to Ca^{+2} salts)
- slightly pliable matrix (due to chondrition salts)

→ axial → V.C.
- [80]
  - Sternum
  - Ribs
- Skull → Cranial [8]
  - [22] → Facial [14]
    - hyoid (base of buccal cavity)

→ ear → malleus, incus, stapes → ear ossicles

Facial	Cranial
(2) nasal	(1) frontal
(2) inner nasal	(2) parietal
(2) maxillae	(2) temporal
(2) lacrimal	(1) sphenoid
(2) palatines	(1) occipital
(1) mandible	(1) ethmoid
(1) vomer	
(2) zygomatics	

→ The skull region articulates with the superior region of the V.C. with help of two occipital condyles (dicondylic skull)

→ V.C → 26 serially arranged vertebrae, dorsally placed. Extends from base of skull and constitute main framework of body/trunk.

→ each vertebrae has a central hollow portion through which spinal cord passes → neural canal

→ 1st vertebrae articulates with occipital condyle - S. → atlas

→ V.C
- cervical (7)
- thoracic (12)
- lumbar (5)
- sacral (1 → fused)
- coccygeal (1 → fused)

Ⓕ - protects spinal cord, supports head + serves as attachment for ribs and musculature of the back.

→ Sternum → flat bone on ventral midline of thorax.

→ 12 pairs of ribs → each rib → ventrally → sternum
→ dorsally → V.C.

→ Has two articulations surfaces on its dorsal end ∴ bicephalic

→ 1st 7 pairs of ribs → true ribs → attached to thoracic vertebrae and ventrally to sternum with hyaline cartilage.

→ 8th, 9th, 10th → false ribs / vertebrochondral

→ 11th, 12th → floating ribs (not connected ventrally)

→ Rib Cage
- Ribs
- Thoracic vertebrae
- Sternum

→ Appendicular → bones of limbs → each limb → 30 bones

- forelimb
  - (1) humerus
  - (1) radius
  - (1) ulna
  - (8) carpels
  - (5) metacarpels
  - (14) phalanges
- hindlimb
  - (1) femur
  - (1) tibia
  - (1) fibula
  - (7) tarsals
  - (5) metatarsals
  - (14) phalanges
  - (1) patella

→ pectoral girdle + pelvic girdle → articulation of upper + lower limbs with axial skeleton.

→ each girdle → 2 halves → 2 halves

→ each 1/2 of pectoral girdle
- clavicle
  - long, slender bone with two curvatures
- scapula
  - large, Δ bone, dorsal part of thorax btwn 2nd and 7th rib.
  - It has a slightly elevated spine → ridge which projects as a flat expanded process acromion → below this is clavicle → below acromion → depression → glenoid cavity → articulates with the head of humerus to form shoulder joint.

→ Pelvic girdle
- Coxal bone
  - ilium
  - ischium
  - pubis
- Coxal bone
  - ilium
  - pubis
  - ischium

→ point of fusion of above bones → acetabulum → thigh bone articulates.

→ two 1/2 of pelvic girdle meet ventrally → pubis symphysis → containing fibrous cartilage

* Joints

→ point of contact btwn bones or bones + the cartilages.

→ fulcrum

Joints

fibrous	Cartilaginous	Synovial
- X movement	- bones involved are joined with help of cartilages.	- characterised by presence of fluid filled synovial cavity btwn articulating surfaces of two bones.
- flat skull bones which fuse end-to-end with help of dense fibrous connective tissue in form of sutures, to form cranium.	- Joint btwn the adjacent vertebrae in V.C. is of this pattern.	- Ball and socket joint, gliding joint, hinge joint, pivot joint, saddle joint.
	- Limited movement	- Considerate movement.

* Disorders

→ arthritis → inflammation of joints

→ gout → inflammation of joints due to accumulation of uric acid crystals.

→ tetany → rapid spasms in muscle due to low Ca^{+2} in body fluid.

→ Muscular dystrophy → progressive degeneration of skeletal muscle mostly due to genetic disorders.

→ Myasthenia gravis → autoimmune disorder affecting neuromuscular junction causing fatigue, weakning and paralysis of skeletal muscle.

→ Osteoporosis → age related → decreased bone mass and increased chances of fracture. ↓↓ Estrogen is common cause → menopause