

Skeletal System

Grade 5

Skeletal System



w.r.t. humans

Human Skeleton

Adult humans → 206 bones

Skeleton ⇒ framework of all the bones joined in a definite way.

Major function of Skeleton :

⇒ It gives shape, strength, rigidity to our body.

⇒ It helps in the movement and locomotion.

⇒ Protection of important organs like : brain, heart, lungs.

* shape of an organism is ^{often} decided by skeleton.

Bones → Various shape → round, spherical, straight, flat bones.
→ Various size. → long, short, very ~~short~~ small bone. (Smallest bone is present in internal ear)
→ Various thickness → Thick, thin

⇒ Bones have hard outer layer, and hollow inside.
↓
makes → strong and light weight.

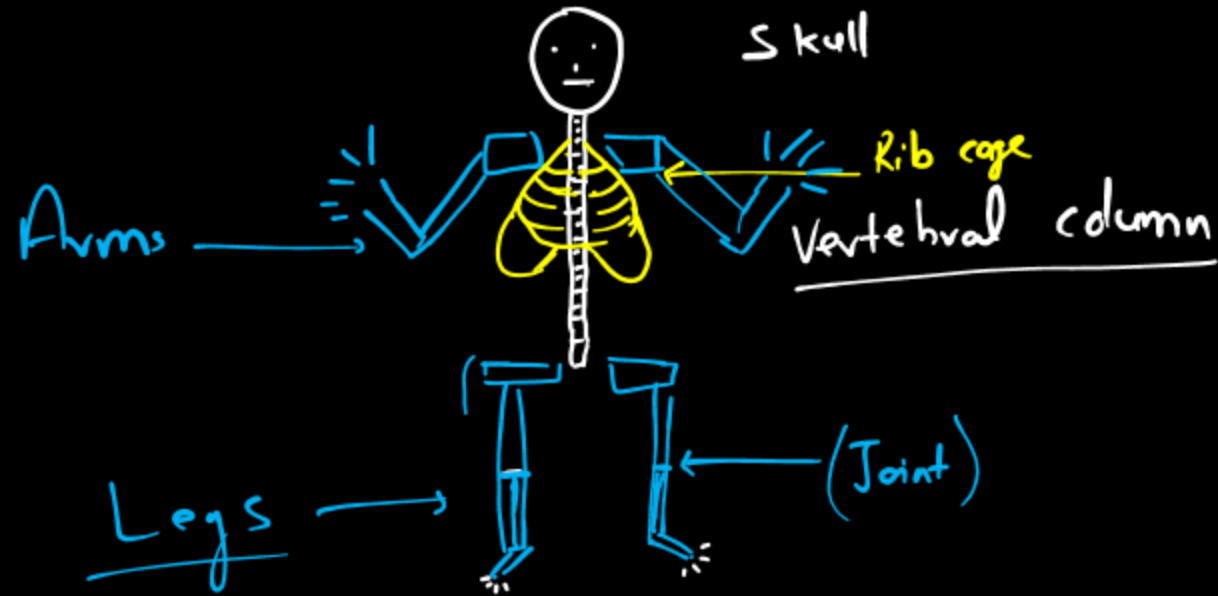
⇒ Hollow portion of the bone is filled with soft/spongy tissue
↓
bone marrow

Bone marrow: It is the site of production of red blood cells and white blood cells

⇒ Bone may grow upto the age of 25.

Parts of human skeleton

- Skull
- Vertebral column
- Ribcage.
- Limbs (Arms and Legs)
- Joints



The Skull

→ 22 bones

→ 14 facial bones } →

→ 8 cranial bones

↓
protects "brain" from
the top.

→ Protect soft organs:

→ Brain

→ Internal ear

→ eyes

→ nose

→ tongue

• Skull bones are flat bones
• They are very hard and strong.

The vertebral column : (Back bone | Spine)

→ 33 ring shaped bones (vertebrae)

→ stacked one-above-other

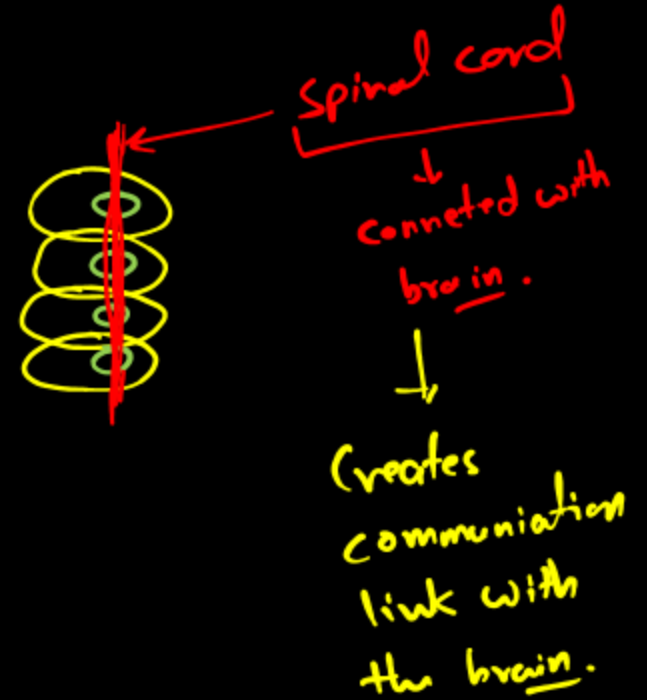
↓
column like structure

→ single bone is called vertebra

→ vertebrae has hole in it

↓
[Spine is hollow]

→ Spinal cord runs through this space.



- Animals having vertebral column / spine / back bone $\Rightarrow$ Vertebrates
- Animals without vertebral column $\Rightarrow$ Invertebrate

Fracture :

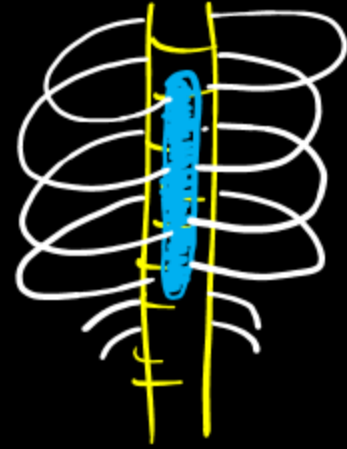
↳ Crack in the bone.

"Plaster casts" ⇒ (Plaster of Paris) ⇒ POP

- 4-12 weeks

Rib cage

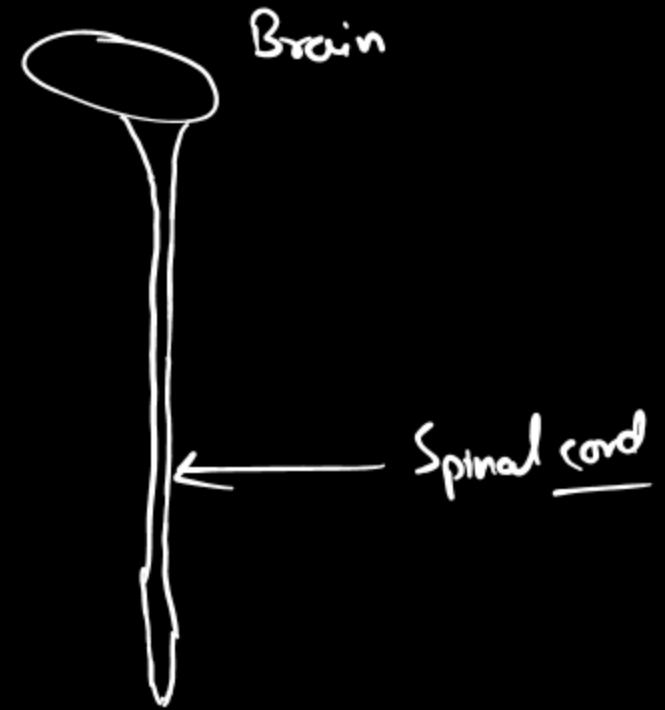
→ Ribs → 12 pairs of ribs
⇒ [24 ribs]



→ 10 pairs are connected
with the backbone as well
as breastbone.

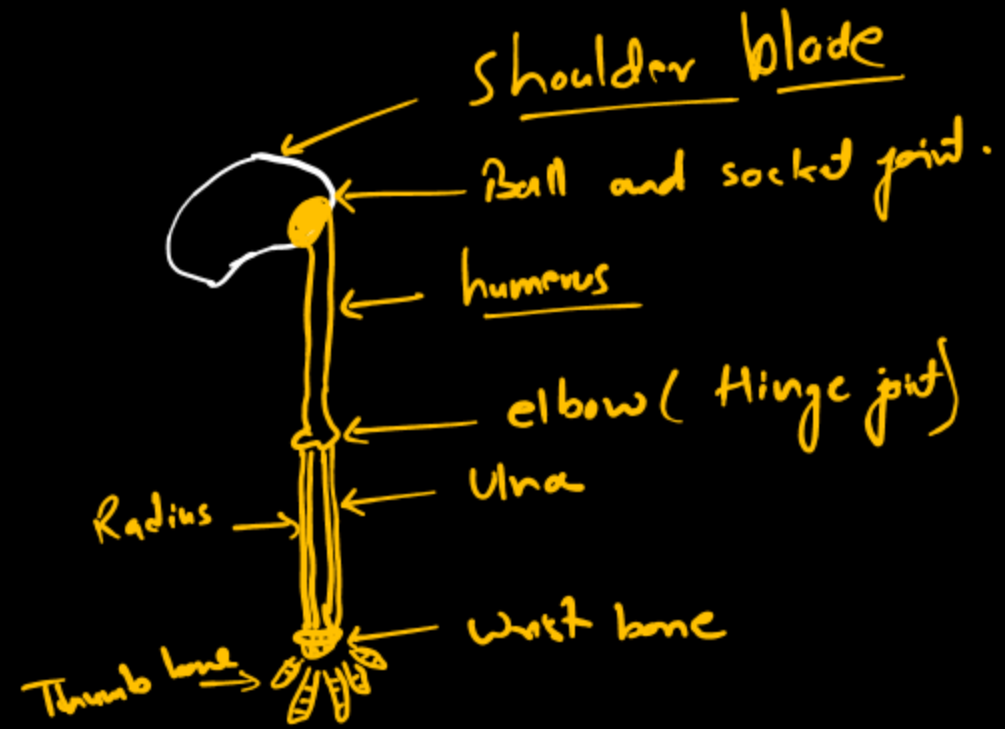
↳ creates a cage like structure.

↓
• Protects → Heart
→ Lungs



Arms and Legs

Arms :→



Shin bone

Pivot

Gliding joint : Wrists and ankles

Muscles →

⇒ Muscles makes bones to move along the joints.

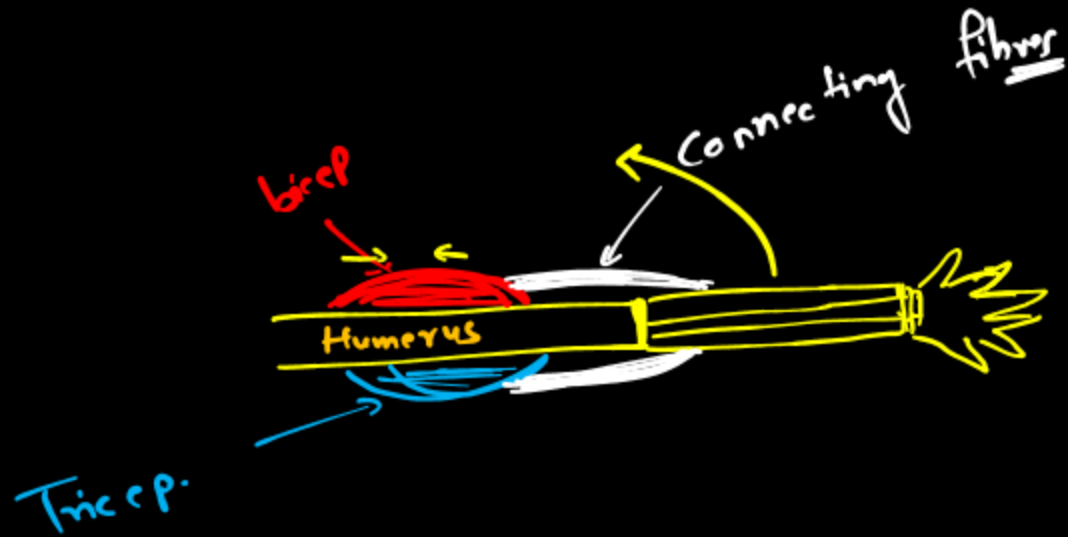
⇒ Muscles can only pull or pulling force

They cannot push.

⇒ To move bone in a direction we need at least a pair of muscle.

⇒ Muscles always work in pairs

eg. "Biceps & Triceps"
work in pair.



(i) when biceps contracts $\Rightarrow$ Hand moves up.

(ii) when triceps contracts (Relaxes) $\Rightarrow$ Hand goes down and become straight.

Human body has about 640 muscles

Types of Muscles

Voluntary muscle

"We can control the movement of the muscle."

eg.: Biceps, Triceps,
Leg muscle,
Jaw muscle.

Involuntary muscle

"We cannot control the movement of muscles".

- eg. • muscle in stomach
- Heart muscle / cardiac muscle.
- Diaphragm

How to take care of bones, muscles, & joints

- Healthy food and proper exercise.
- Play outdoor games.
- For protection: Helmet, knee cap, elbow guard etc.

End of the chapter