

## Skeletal system

### ❖ Parts of the skeletal system

1. Bones (skeleton)
2. Joints
3. Cartilages
4. Ligaments(bone to bone ) and Tendon(bone to muscle)

### Bones (skeleton)

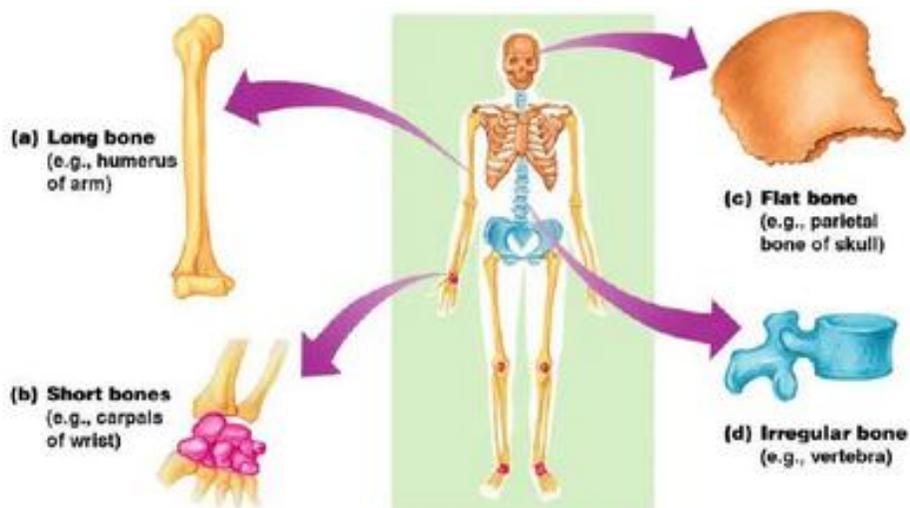
- Classification of Bones :

1.long

2.short

3.flat

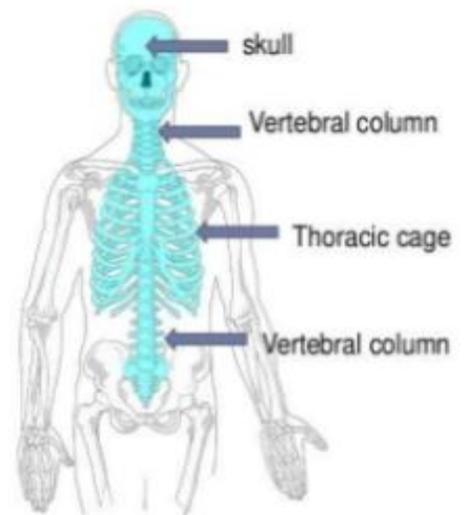
4.irregular



### ❖ skeletal system Divided into two divisions

1. Axial skeleton

- ✓ Skull
- ✓ Vertebral column
- ✓ Thorax

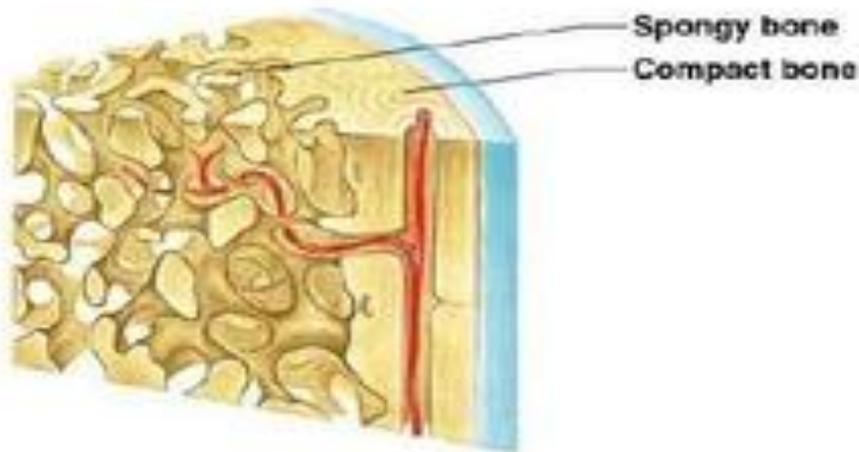


2. Appendicular skeleton

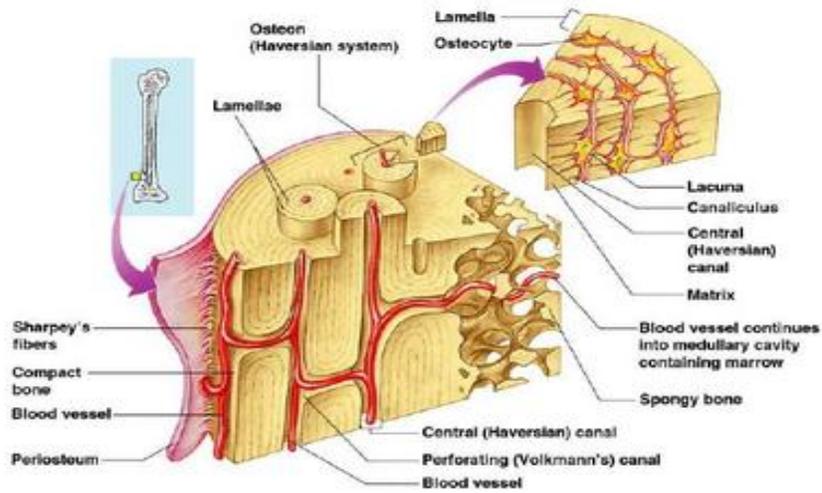
- ✓ Limb
- ✓ girdle

Two basic types of bone tissue

- 1) Compact bone (Homogeneous)
- 2) Spongy bone



**Microscopic Anatomy of Bone**



## Structure of a Long Bone

### 1) Diaphysis

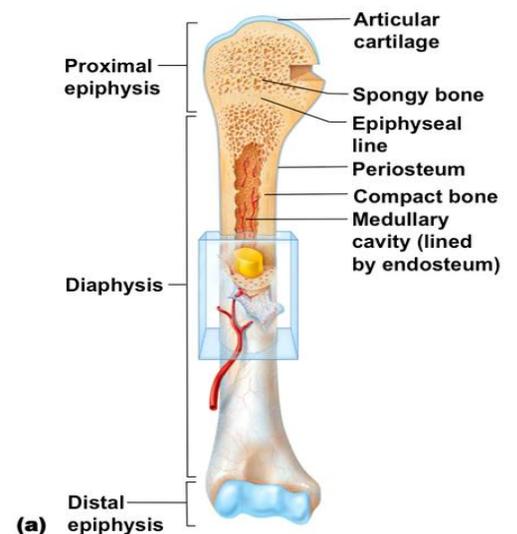
- ✓ Shaft
- ✓ Composed of compact bone

### 2) Epiphysis

- ✓ Ends of the bone
- ✓ Composed mostly of spongy bone

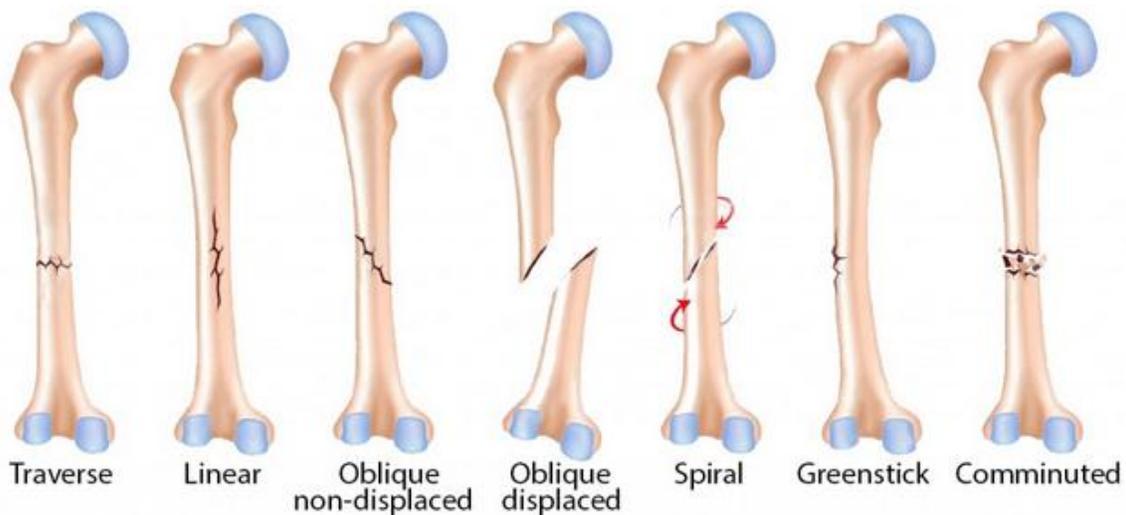
### 3) Periosteum

- ✓ Outside covering of the diaphysis
- ✓ Fibrous connective tissue membrane
- ✓ Sharpey's fibers Secure periosteum to underlying bone



## Types of bone fractures

- 1) Closed (simple) fracture – break that does not penetrate the skin
- 2) Open (compound) fracture – broken bone penetrates through the skin



- ❖ Several types of fracture patterns:
  - **Avulsion Fracture:** when a fragment of bone is separated from the main mass.
  - **Comminuted Fracture:** the bone breaks into several pieces.
  - **Compression or Wedge Fracture:** usually involves the bones in the back (vertebrae).
  - **Greenstick Fracture:** an incomplete fracture in which the bone is bent; occurs most often in children.
  - **Linear Fracture:** the break is parallel to the bone's long axis.
  - **Oblique Fracture:** the break has a curved or sloped pattern.
  - **Spiral Fracture:** one part of the bone has been twisted at the break point.
  - **Transverse Fracture:** the broken piece of bone is at a right angle to the bone's axis.

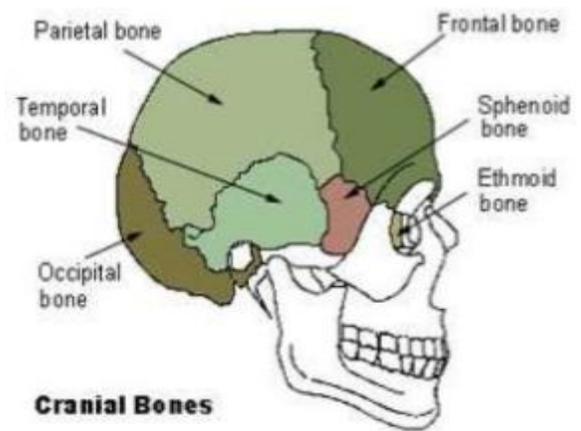
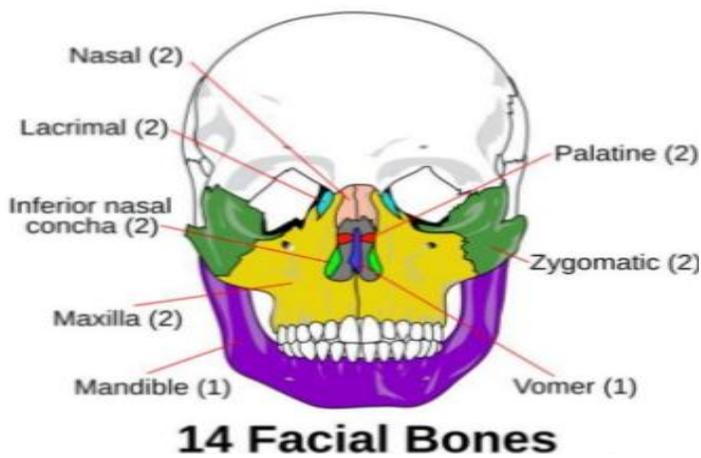
❖ *The skull*

Component of skull

**1) The cranium parts : 8 sutured bones**

- Parietal (2)
- Temporal (2)
- Frontal (1)
- Occipital (1)
- Ethmoid (1)
- Sphenoid (1)

**2) Facial parts : 13 sutured bones**



### ❖ *The Vertebral Column*

- Vertebral Column divided in to :

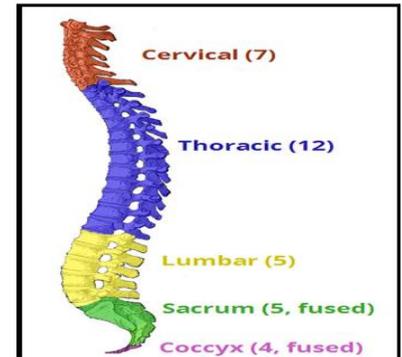
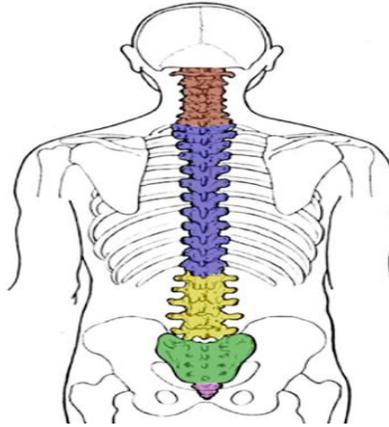
7 cervical

12 thoracic

5 lumbar

1 sacrum (5 fused )

1 coccyx (4 fused)



### ❖ *Thorax (chest)*

#### ❖ **Location of Thorax**

located between the neck and abdomen.

#### ❖ **Components of Thorax:**

1) Thoracic cavities

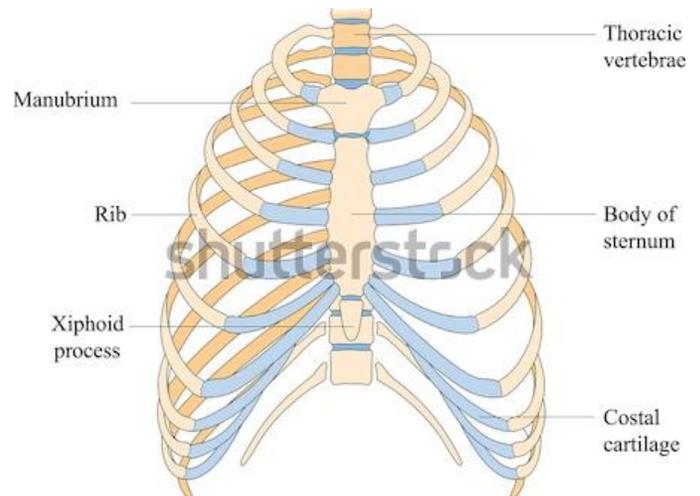
2) Neurovasculature

3) Internal organs

- Heart
- Trachea
- esophagus
- lungs

### Thoracic cavity

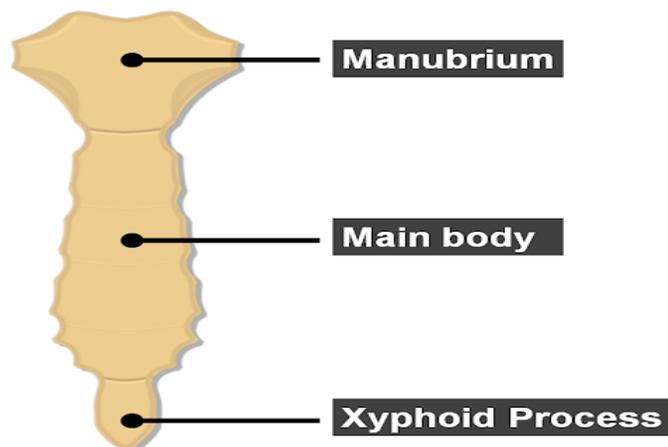
- The thoracic cavity consist of :
  1. sternum
  2. twelve pairs of ribs
  3. twelve thoracic vertebrae



### Sternum

It consists of parts:

- **The manubrium sterni:** upper part of the sternum
- **The body of the sternum:** is the middle large part composed of 4 pieces that fuse in one bone .
- **The xiphoid process:** the lower smallest part of the sternum.



twelve pairs of ribs

- True ribs (first seven pairs)
- false ribs (Three pairs)
- Two pairs of floating ribs

