Human skeleton

PREBARED BY: BESIR ZENELI

BY THE END OF THIS LESSON, WE WILL BE ABLE TO :

1. Distinguish between the different bones of the human skeleton, especially skull.

THE SKULL

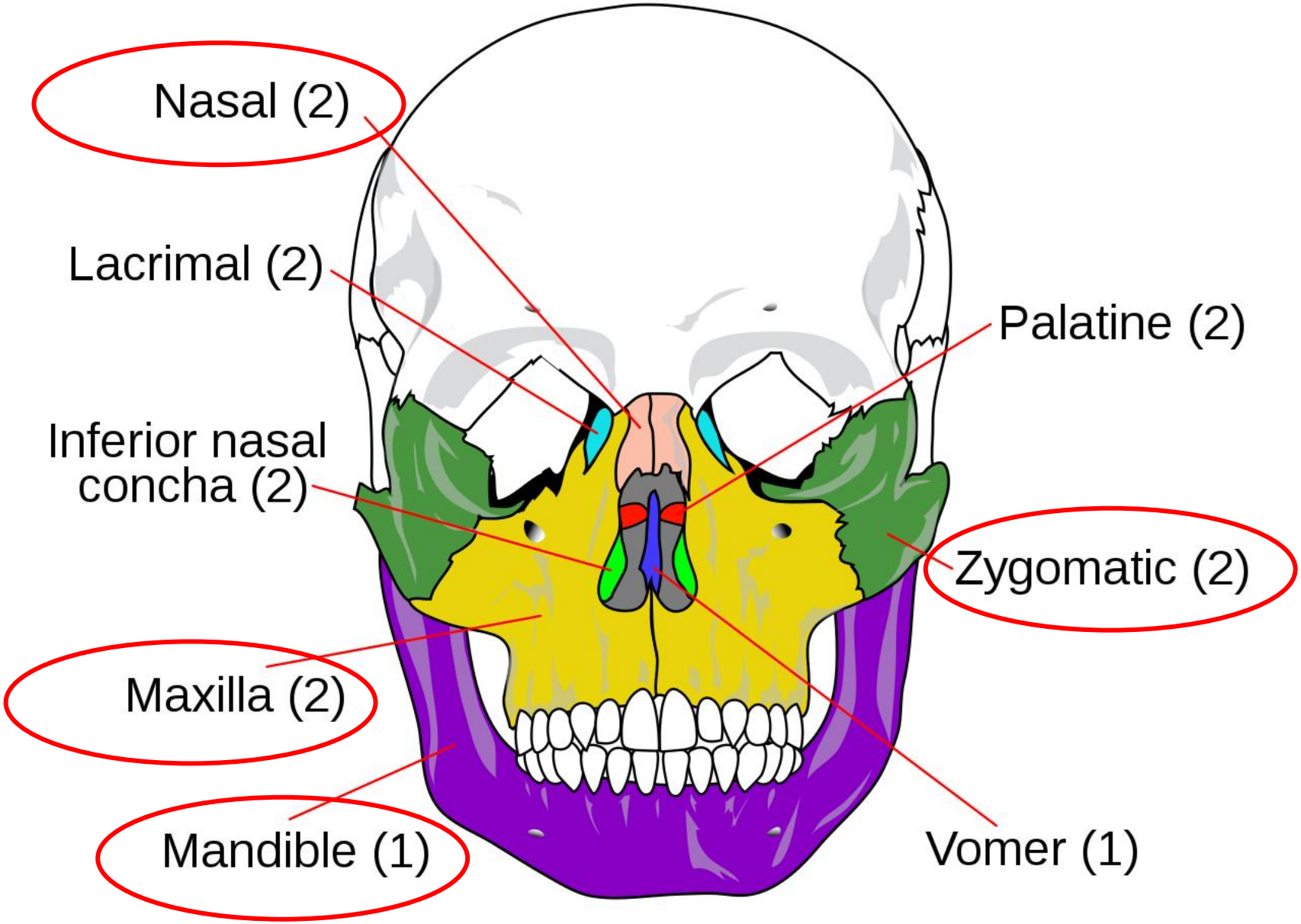
- The **skull** is a bony structure that supports the face and forms a protective cavity for the brain. It is comprised of many bones joined by **sutures** (fibrous joints).
- The bones of the skull can be considered as two groups: those of the **cranium** (which consist of the cranial roof and cranial base) and those of the **face**.

FACE

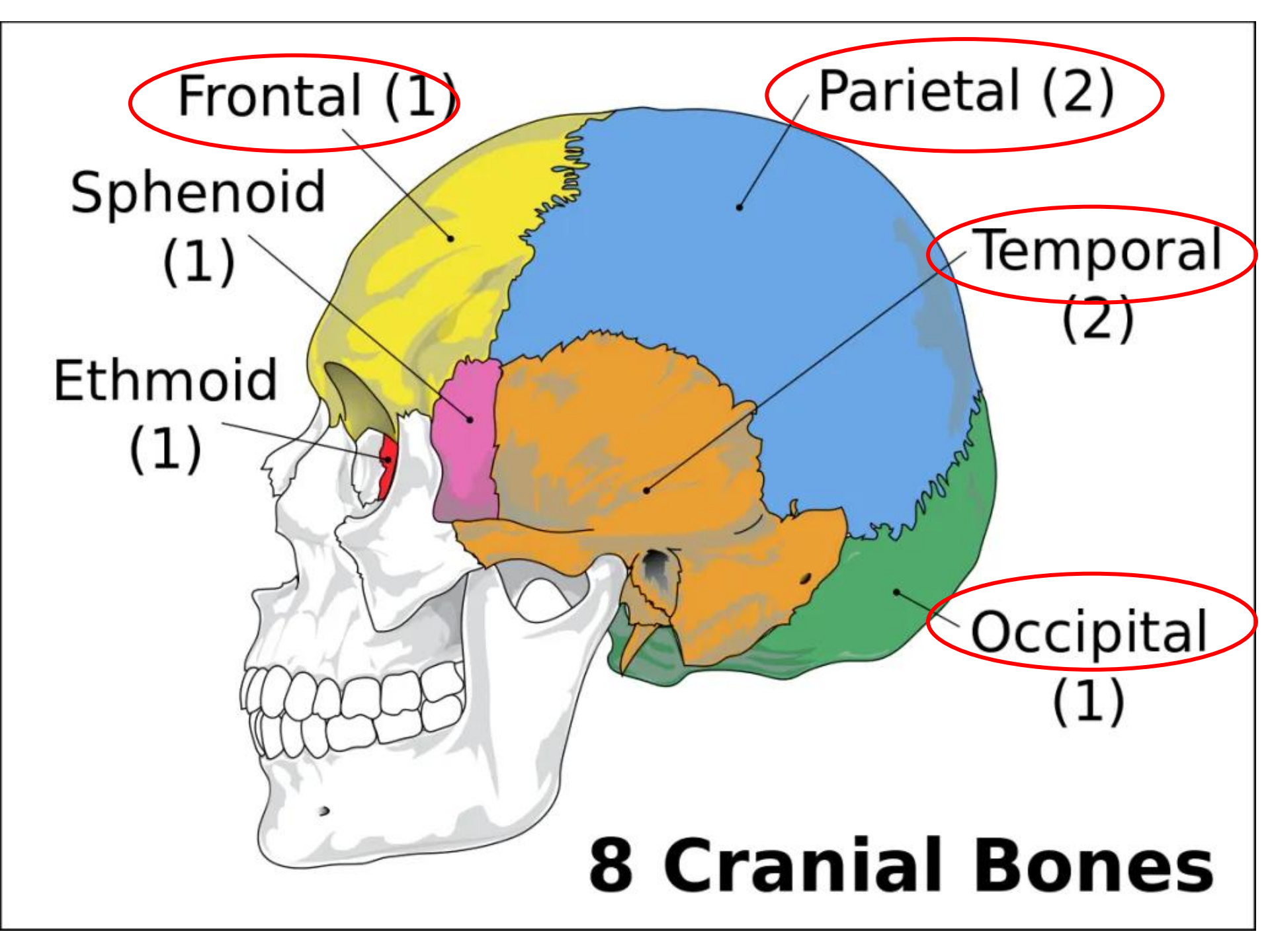
- The facial skeleton (also known as the viscerocranium) supports the soft tissues of the face. In essence, **they determine our facial appearance**. It consists of **14 individual bones**, which fuse to house the **orbits of the eyes, nasal and oral cavities, as well as the sinuses**. The frontal bone, typically a bone of the calvaria, is sometimes included as part of the facial skeleton.

THE FACIAL BONES ARE:

- **Zygomatic (2) – Forms the cheek bones of the face, and articulates with the frontal, sphenoid, temporal and maxilla bones.**
- **Lacrimal (2) – The smallest bones of the face. They form part of the medial wall of the orbit.**
- **Nasal (2) – Two slender bones, located at the bridge of the nose.**
- **Inferior nasal conchae (2) – Located within the nasal cavity, these bones increase the surface area of the nasal cavity, thus increasing the amount of inspired air that can come into contact with the cavity walls.**
- **Palatine (2) – Situated at the rear of oral cavity, and forms part of the hard palate.**
- **Maxilla (2) – Comprises part of the upper jaw and hard palate.**
- **Vomer – Forms the posterior aspect of the nasal septum.**
- **Mandible (jaw bone) – Articulates with the base of the cranium at the temporomandibular joint (TMJ).**



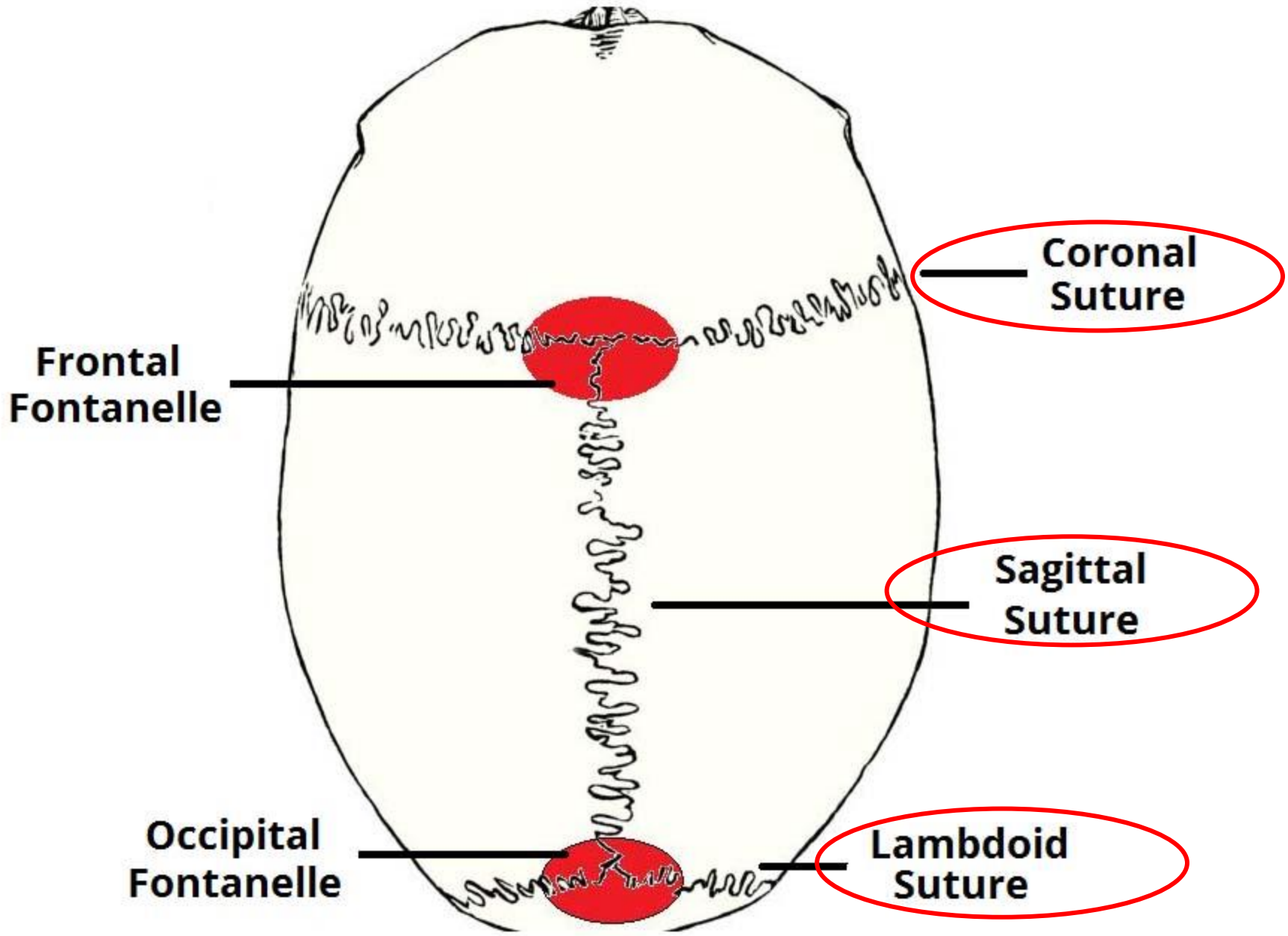
14 facial bones


Frontal (1)
Parietal (2)
Sphenoid (1)
Temporal (2)
Ethmoid (1)
Occipital (1)
8 Cranial Bones

SUTURES OF THE SKULL

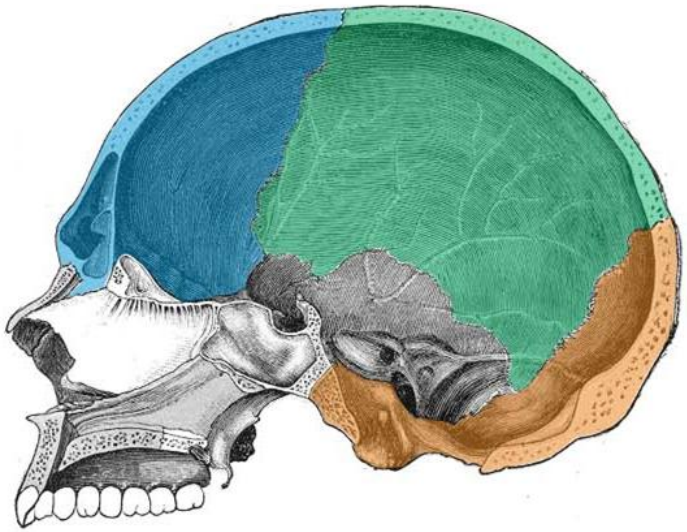
Sutures are a type of **fibrous joint** that are unique to the skull. They are immovable, and fuse completely around the age of 20. Sutures are of clinical importance, as they can be points of potential weakness in both childhood and adulthood. The main sutures in adulthood are:

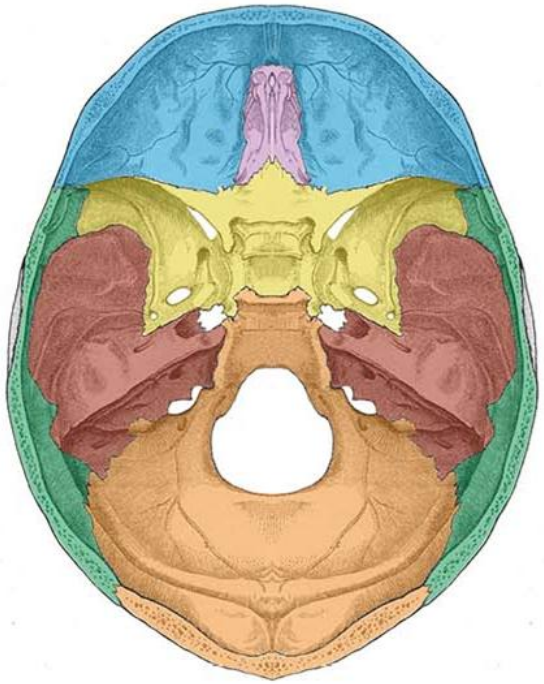
- **Coronal suture** which fuses the frontal bone with the two parietal bones.
- **Sagittal suture** which fuses both parietal bones to each other.
- **Lambdoid suture** which fuses the occipital bone to the two parietal bones.


Coronal Suture
Frontal Fontanelle
Sagittal Suture
Occipital Fontanelle
Lambdoid Suture

CRANIUM

- The **cranium** (also known as the neurocranium), is formed by the superior aspect of the skull.
- Anatomically, the cranium can be subdivided into a **roof** (known as the calvarium), and a **base.**
- **Calvarium:** Comprised of the frontal, occipital and two parietal bones.
- **Cranial base:** Comprised of six bones – the frontal, sphenoid, ethmoid, occipital, parietal and temporal bones. These bones are important as they provide an articulation point for the 1st cervical vertebra (atlas), as well as the facial bones and the mandible (jawbone).

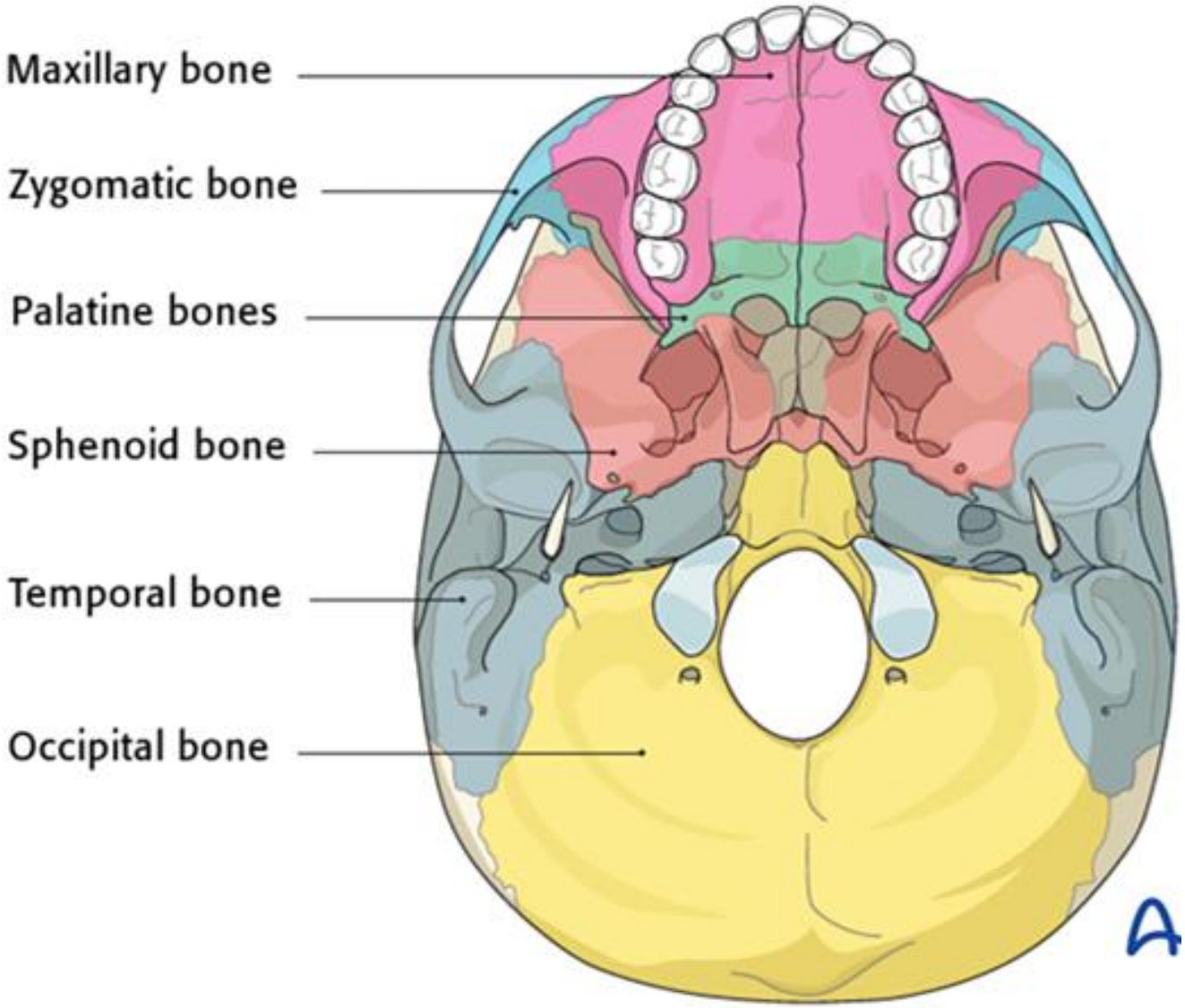




Frontal
Sphenoid
Temporal
Parietal
Occipital
Ethmoid

a) Bones of the calvarium

b) Bones of the cranial base


Maxillary bone
Zygomatic bone
Palatine bones
Sphenoid bone
Temporal bone
Occipital bone
A

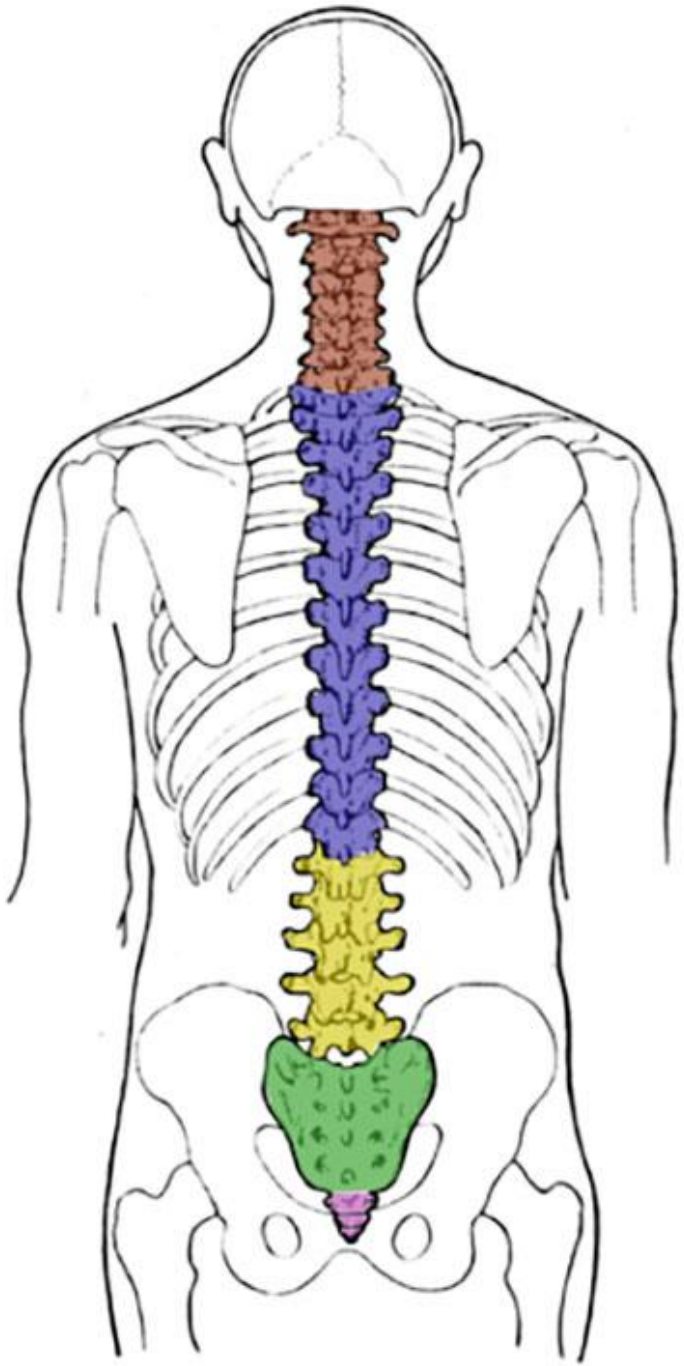
In medicine they use specific words

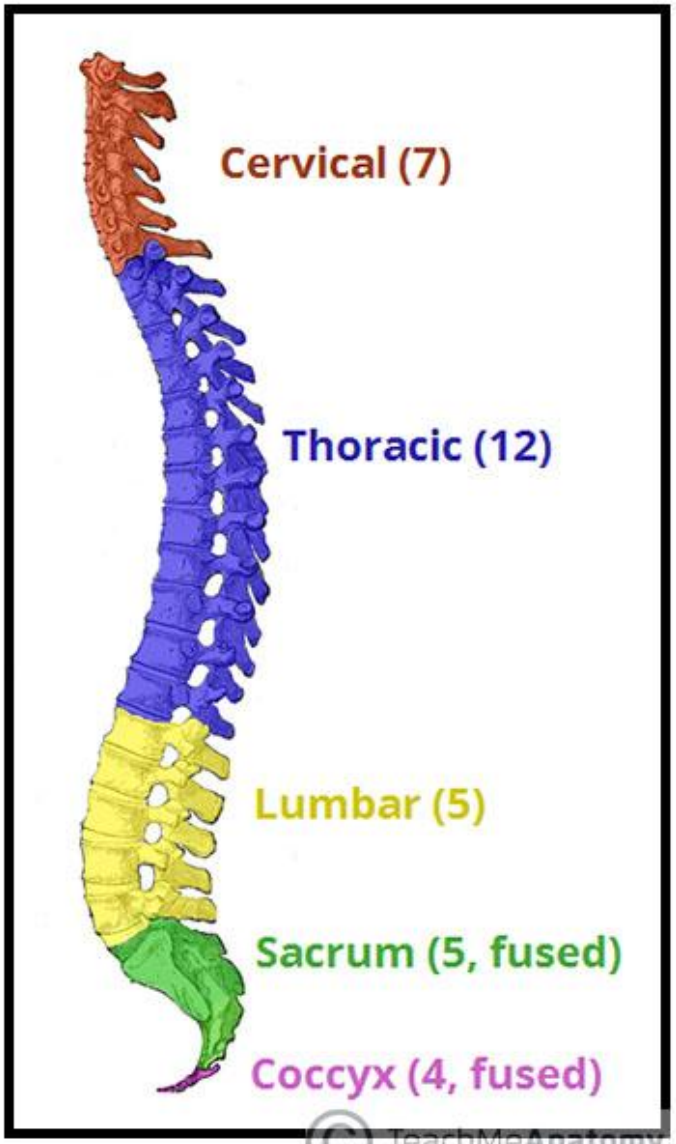
Maxillofacial surgery is an operation to correct a disease, injury or defect of your face, jaw or mouth

Mandibular anesthesia

SPINE (VERTEBRAL COLUMN)

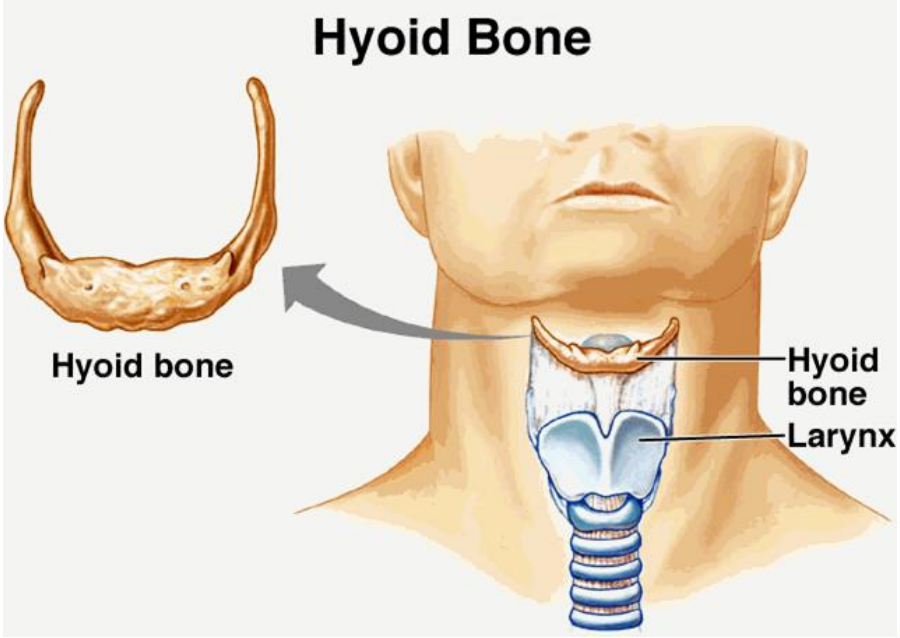
- Cervical vertebrae (7 bones)
- Thoracic vertebrae (12 bones)
- Lumbar vertebrae (5 bones)
- Sacrum (5 bones at birth, fused into one after adolescence)
- Coccygeal vertebrae/Cordal (a set of 4 bones at birth; some or all fuse together)

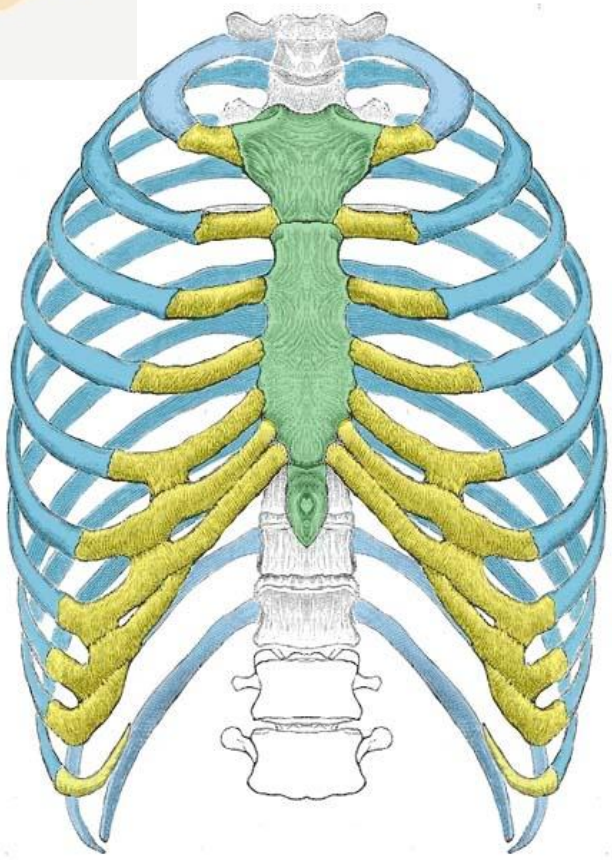




CHEST (THORAX)

- There are usually **26 bones** in the chest but sometimes there can be additional cervical ribs in humans. Cervical ribs occur naturally in other animals such as reptiles.
- Hyoid bone (1) – lingual bone
- Sternum 1
- Ribs (24, in 12 pairs)
- Cervical ribs are extra ribs that occur in some humans.





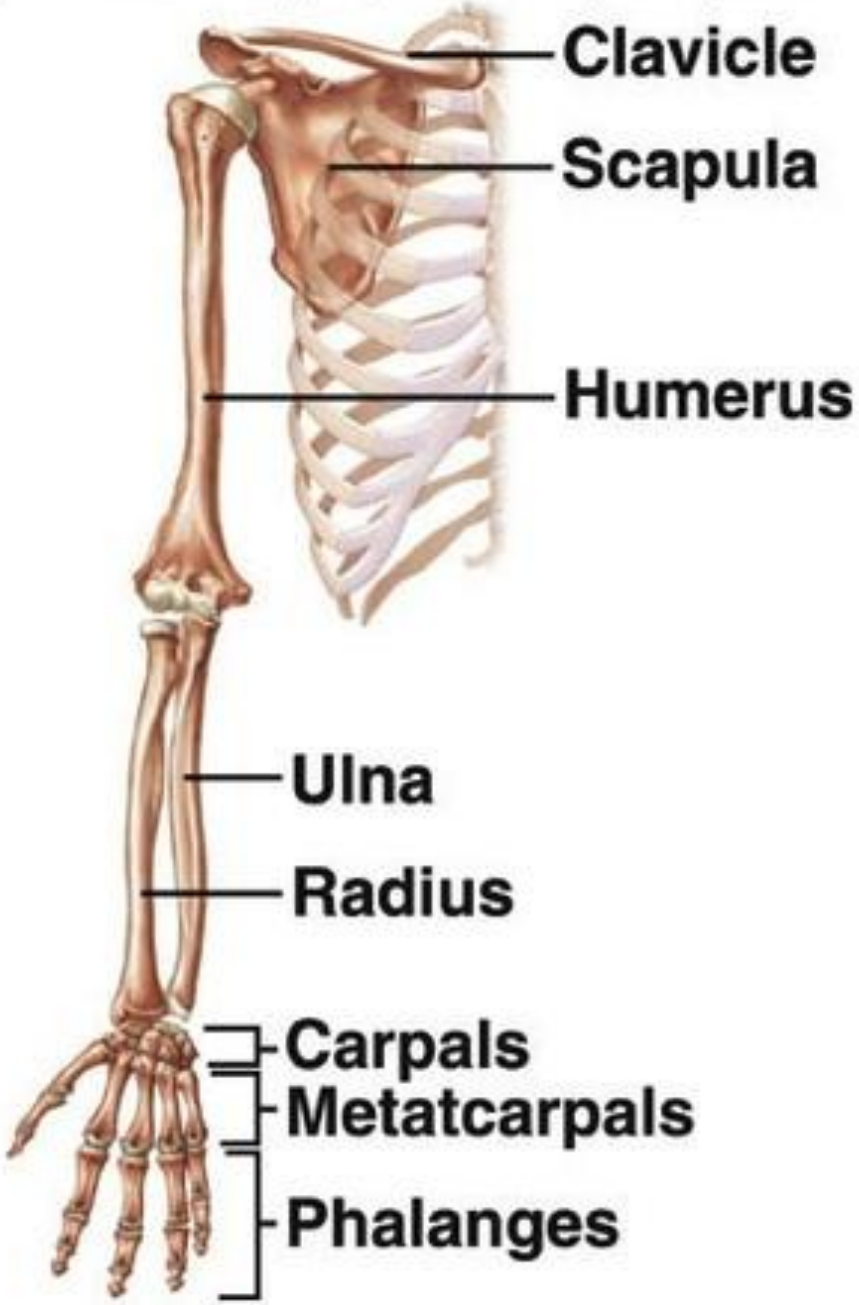
Ribs

Costal Cartilage

Sternum

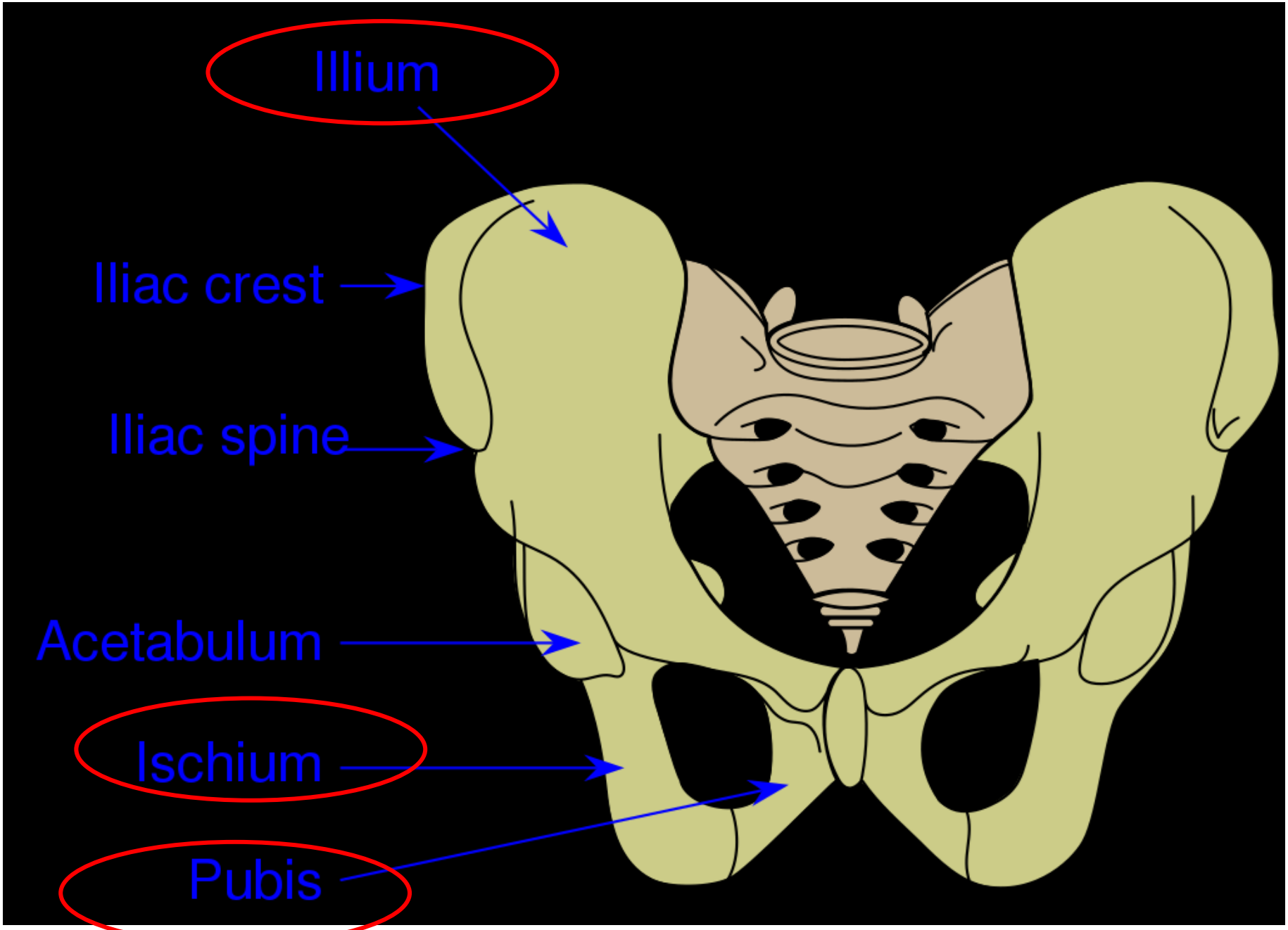
ARM

- There are a total of 64 bones in the arms.
- Upper arm bones (6 bones in total; 3 on each side)
- Humerus (2)
- Pectoral girdle (shoulder)
- Scapula (2)
- Clavicles (2)
- Lower arm bones (4 bones in total, 2 on each side) left bone
- Ulna (2)
- Radius (2)
- Hand (54 bones in total; 27 in each hand/ carpals, metacarpals and phalanges)



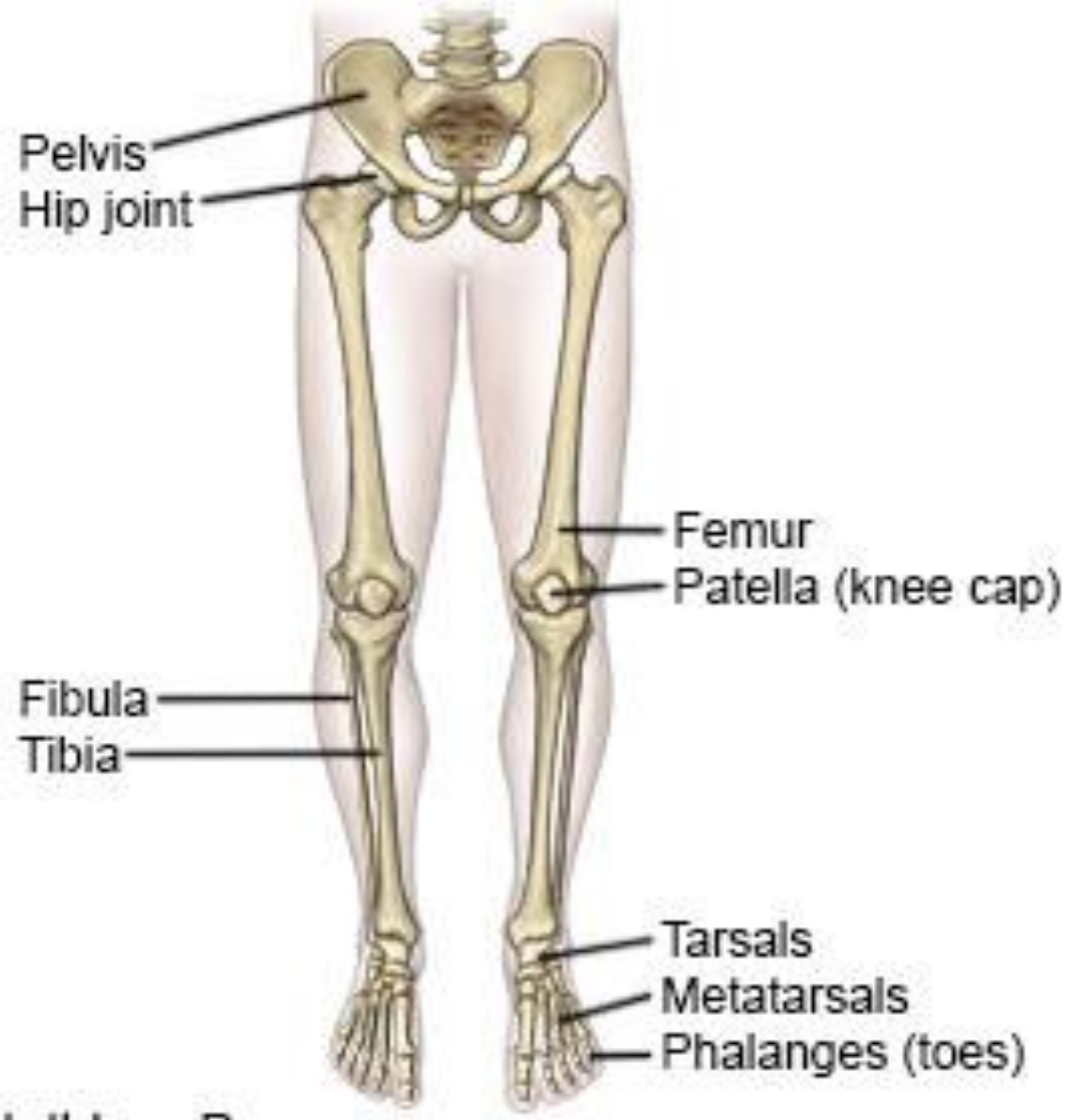
PELVIS (PELVIC GIRDLE)

- The pelvis (or hip bone) is made up of three regions that have fused to form two coxal bones. They are: **ilium, ischium, and pubis**

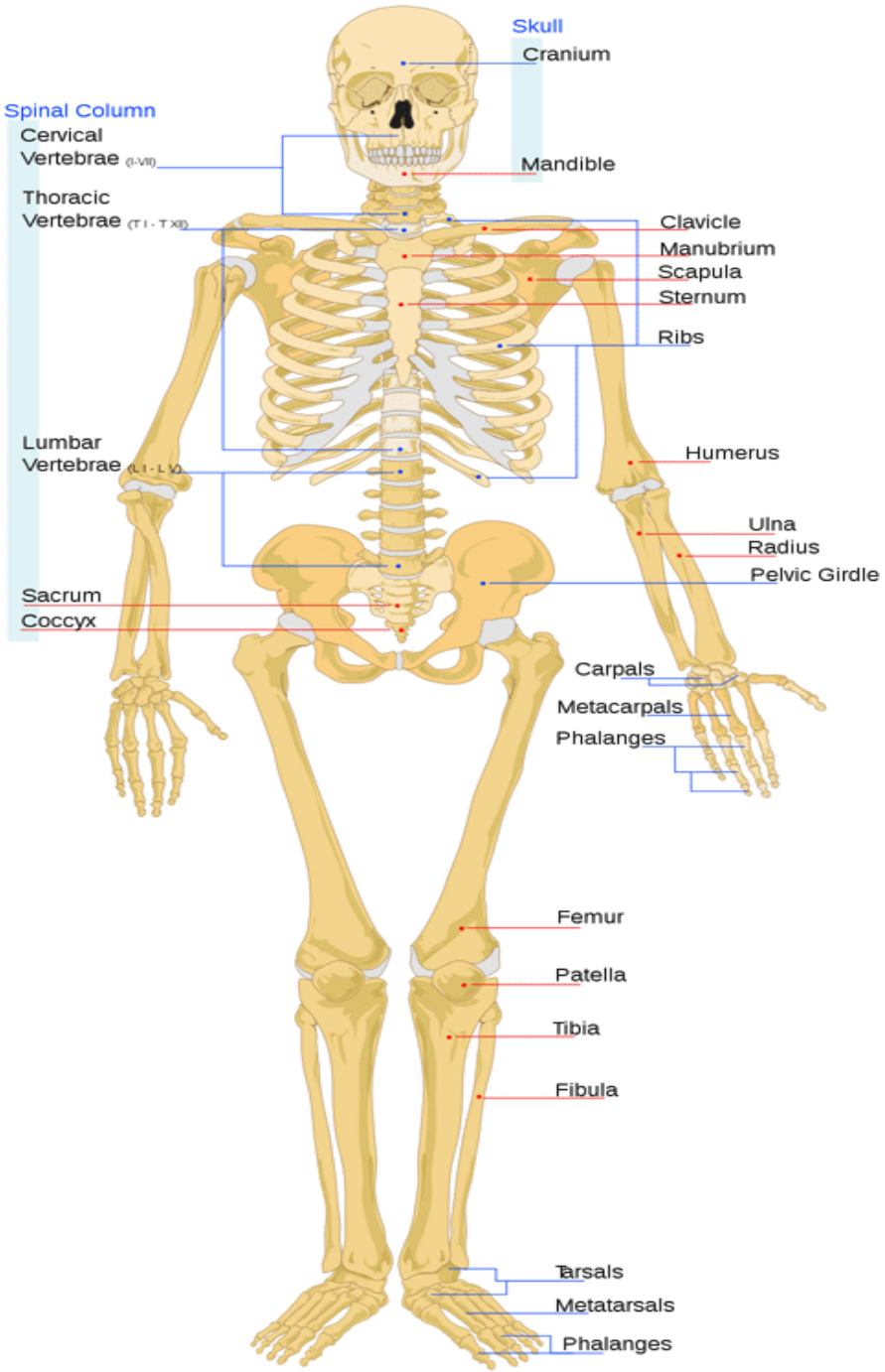

Illium
Iliac crest
Iliac spine
Acetabulum
Ischium
Pubis

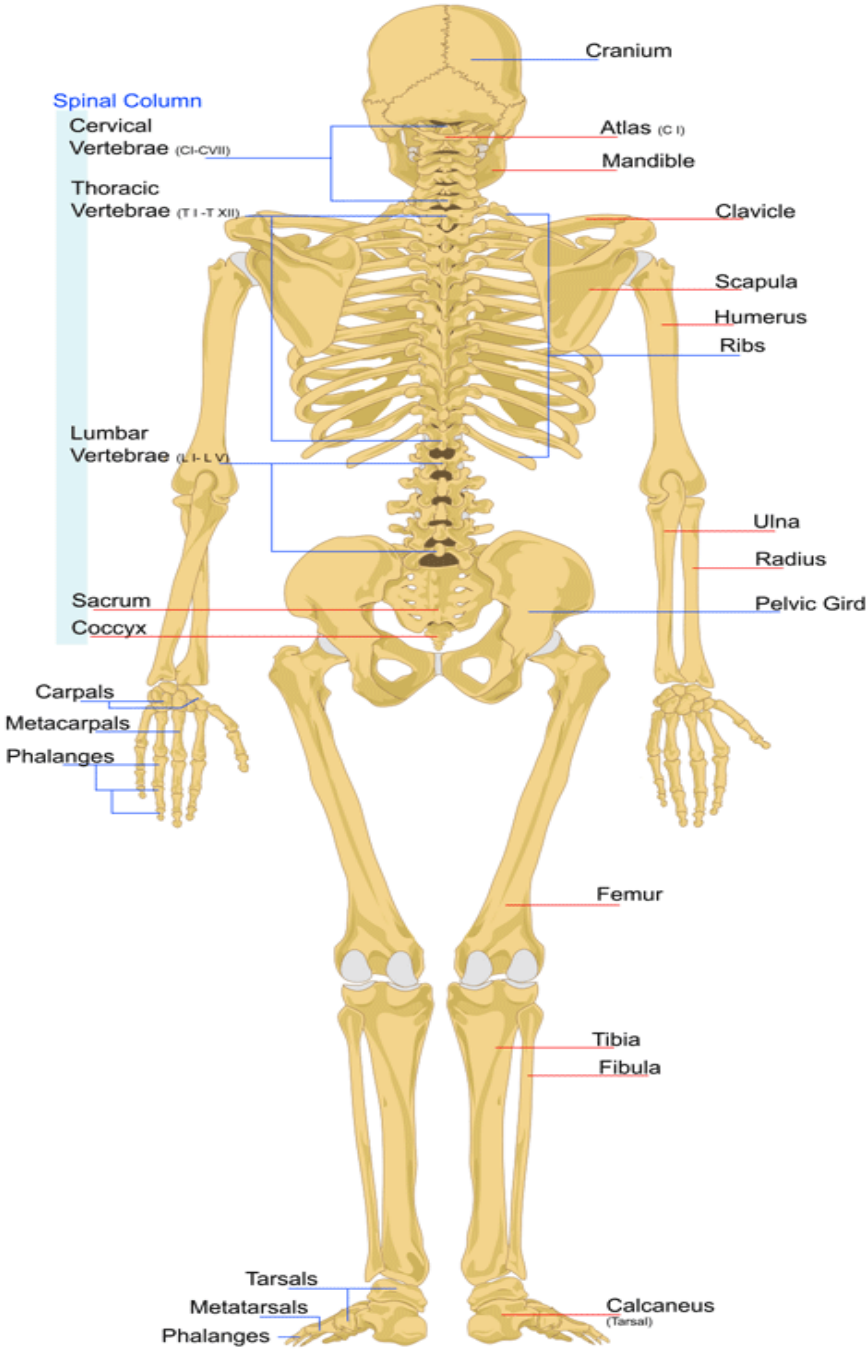
LEG

- There are a total of 60 bones in the legs.
- Femur (2 bones)
- Patella or kneecap (2 bones)
- Tibia (2 bones)
- Fibula (2 bones)
- Foot (52 bones in total, 26 per foot- tarsals, metatarsals, phalanges)



Adult Leg Bones


Skull
Cranium
Spinal Column
Cervical Vertebrae (I-VII)
Mandible
Thoracic Vertebrae (T I - T XII)
Clavicle
Manubrium
Scapula
Sternum
Ribs
Lumbar Vertebrae (L I - L V)
Humerus
Ulna
Radius
Pelvic Girdle
Sacrum
Coccyx
Carpals
Metacarpals
Phalanges
Femur
Patella
Tibia
Fibula
Tarsals
Metatarsals
Phalanges


Cranium
Spinal Column
Cervical Vertebrae (CI-CVII)
Atlas (C I)
Mandible
Thoracic Vertebrae (T I -T XII)
Clavicle
Scapula
Humerus
Ribs
Lumbar Vertebrae (L I-L V)
Ulna
Radius
Sacrum
Coccyx
Pelvic Gird
Carpals
Metacarpals
Phalanges
Femur
Tibia
Fibula
Tarsals
Metatarsals
Phalanges
Calcaneus
(Tarsal)