



RADIOGRAPHIC TECHNIQUE-2

LINES & PLANES OF PROJECTION OF THE SKULL

Sawa University

College of health and medical techniques

Department of Radiology Tech.

3rd Academic year

LEC.1

THEORETICAL

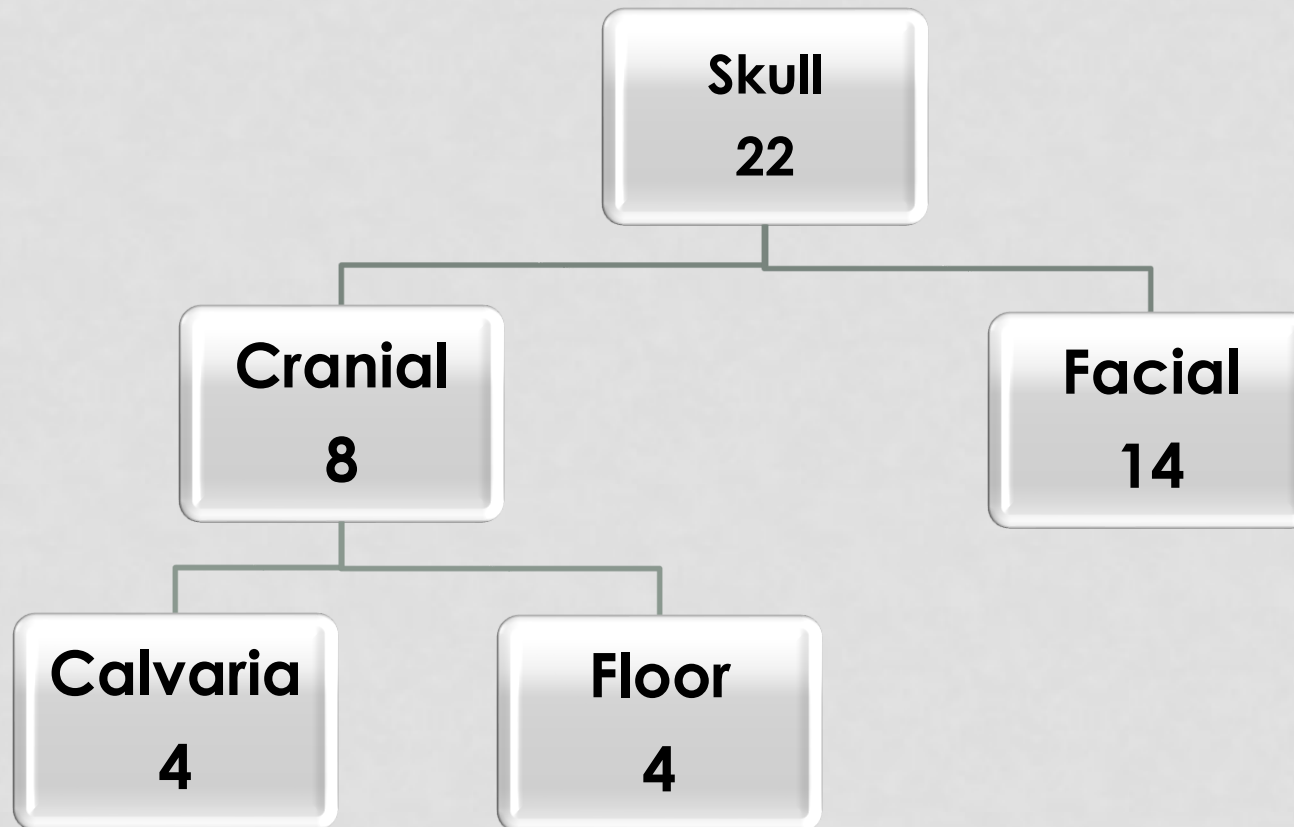
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M.Sc Radiology Technology**

Lines & Planes of Projection of The Skull

- The importance of plain radiography of the skull has decreased in recent years.
- What is the importance of skull X-ray?
- The radiology technologist must have a good understanding of the anatomy, positioning, landmarks, and equipment used for imaging.

Lines & Planes of Projection of The Skull

The skull rests on the superior aspect of the vertebral column.



Lines & Planes of Projection of The Skull

Cranial bones (8)

Calvaria

Frontal	1
Occipital	1
parietal (Rt&Lt)	2

Floor

Ethmoid	1
Sphenoid	1
Temporal (Rt&Lt)	2

Facial bones (14)

Nasal (Rt&Lt)	2
Lacrimal (Rt&Lt)	2
Maxillary(Rt&Lt)	2
Zygomatic (Rt&Lt)	2
Palatine (Rt&Lt)	2
Inferior nasal conchae(Rt &Lt)	2
Vomer	1
Mandible	1

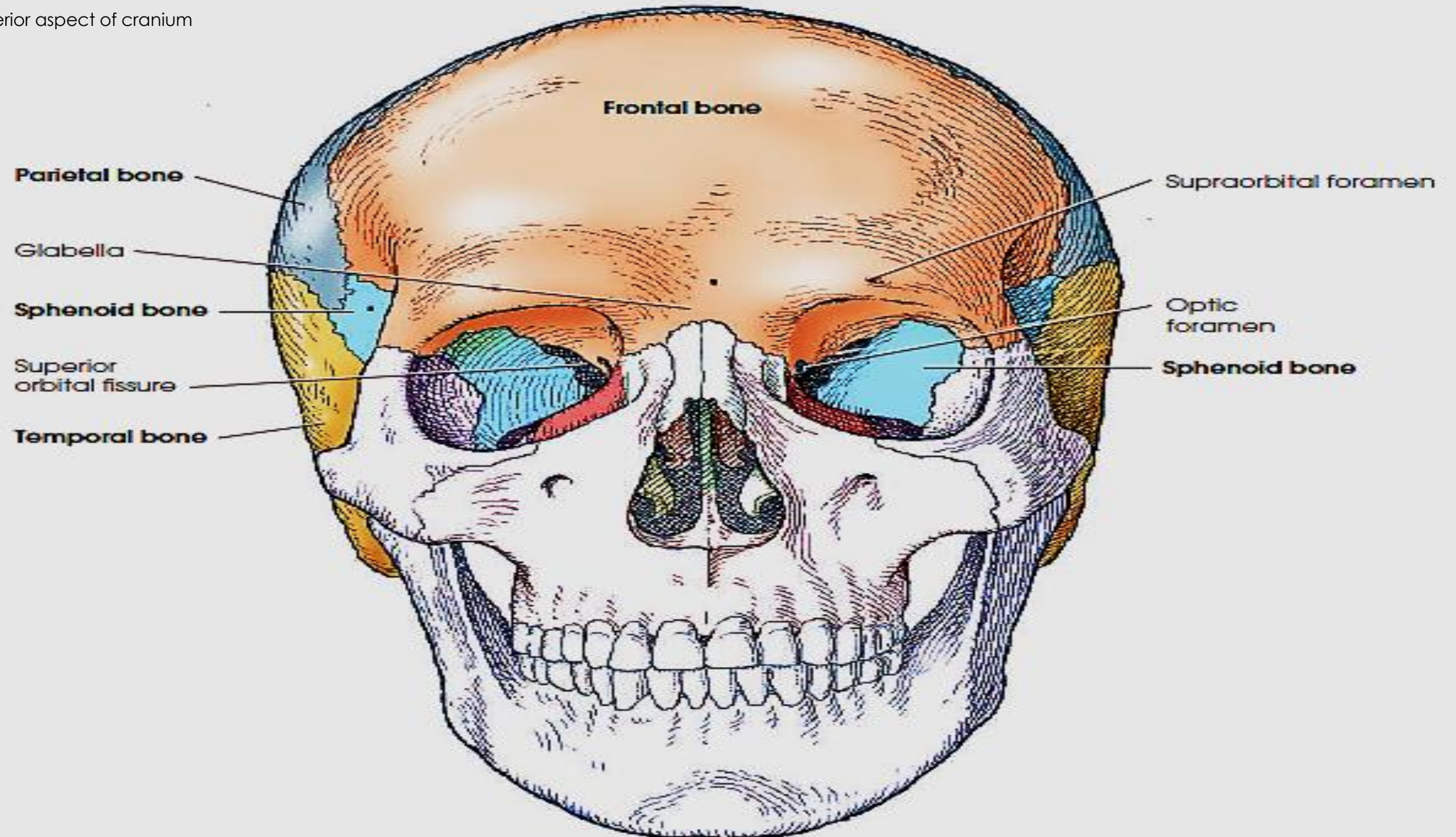
Lines & Planes of Projection of The Skull

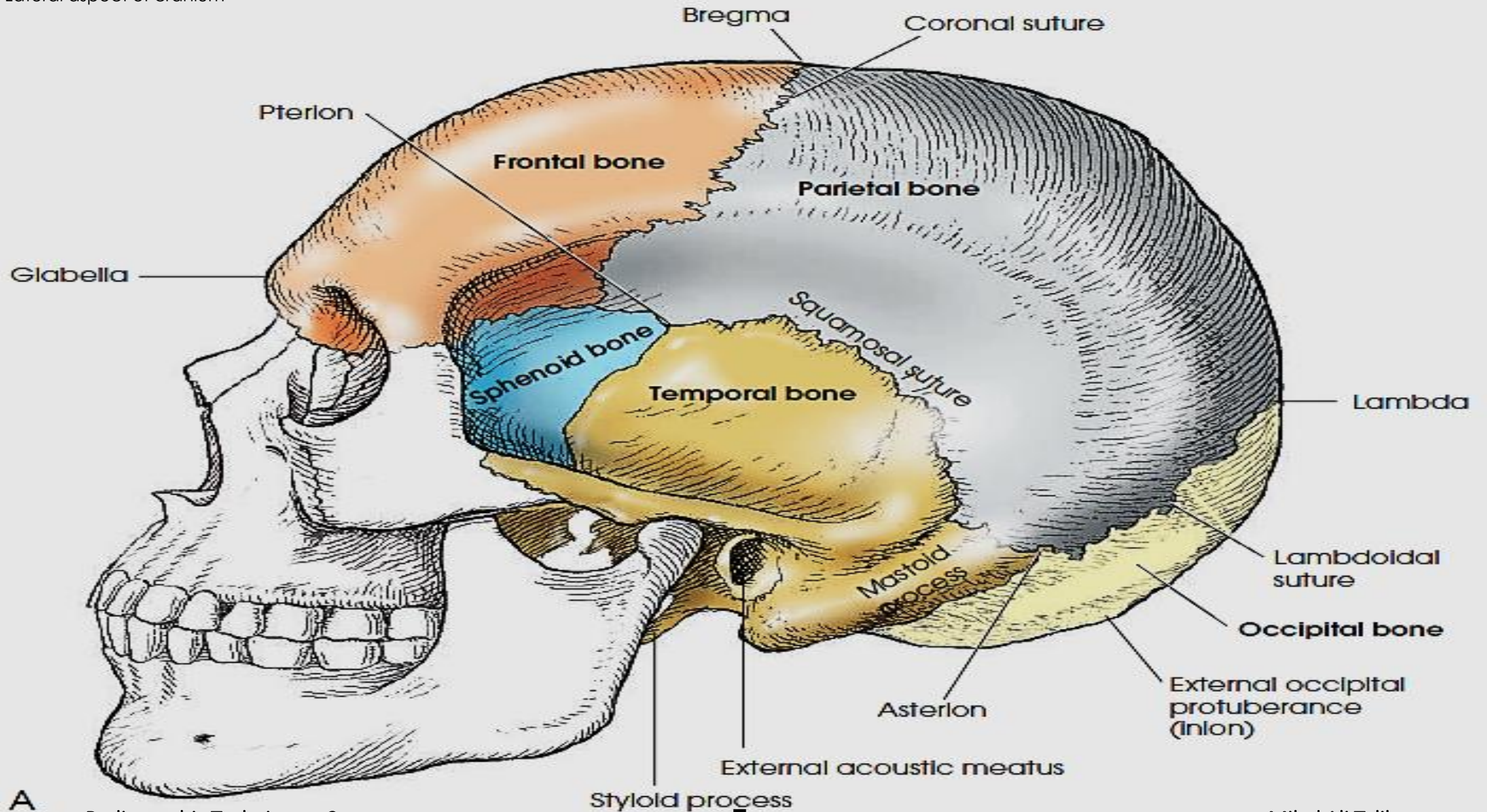
Cranial bones

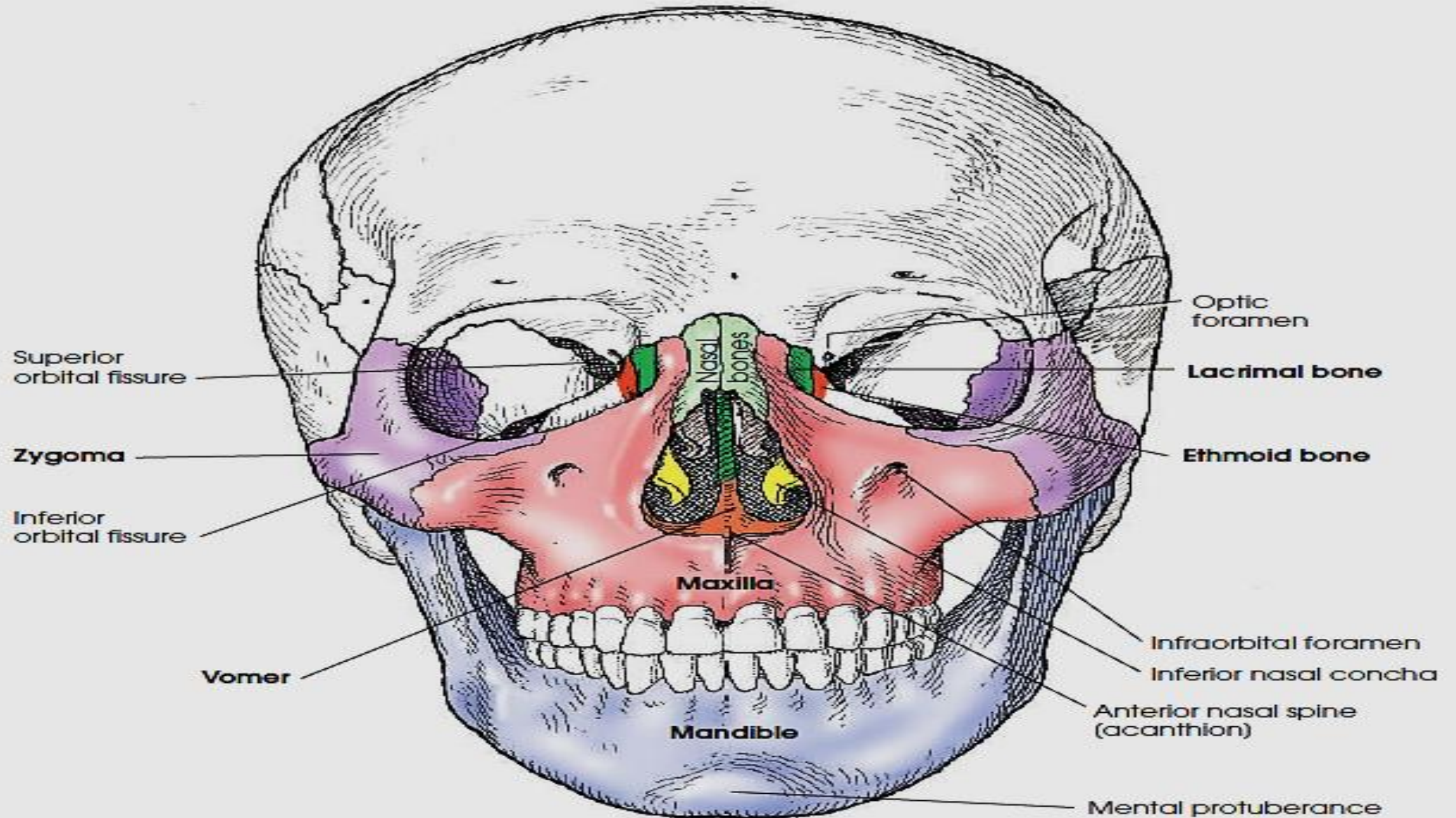
- Form a protective housing for the brain
- 8 cranial bones
- Calvaria and the floor

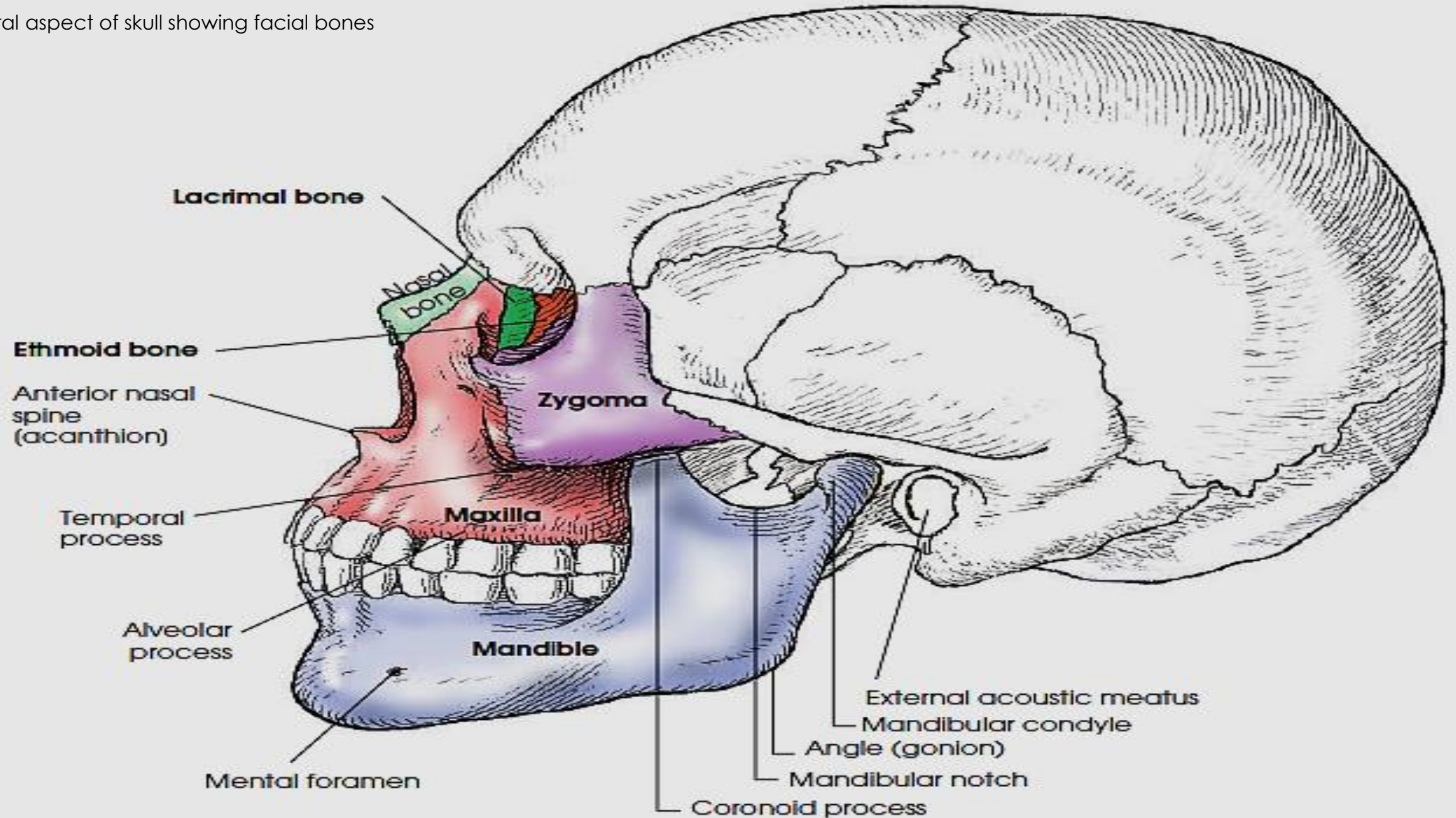
Facial bones

- Provide structure, shape, and support for the face
- Form a protective housing for the upper ends of the respiratory, digestive tracts and sight organs.
- 14 facial bones.

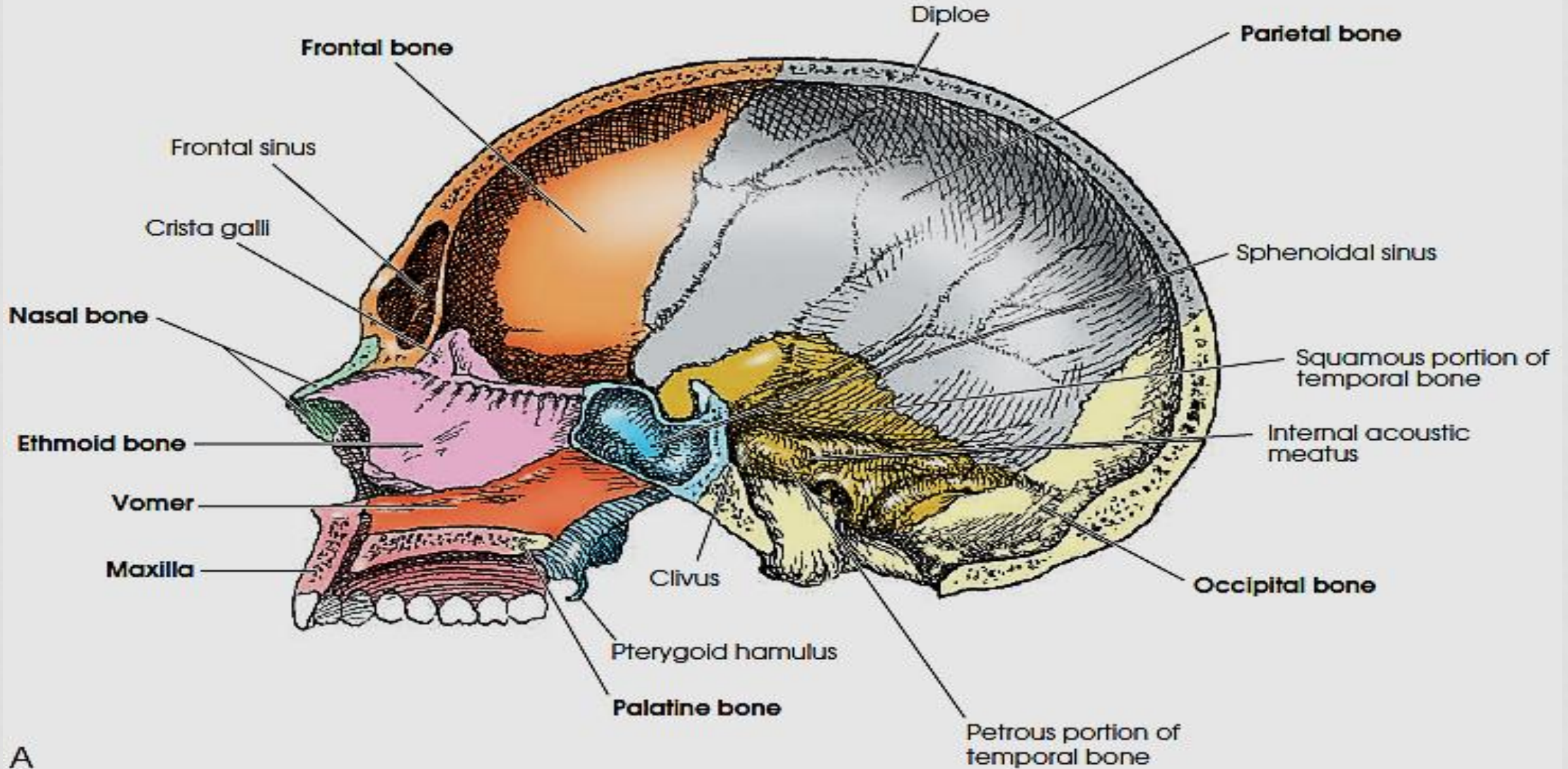








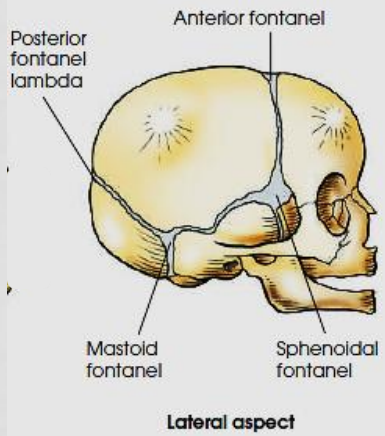
Lateral aspect of interior of cranium.



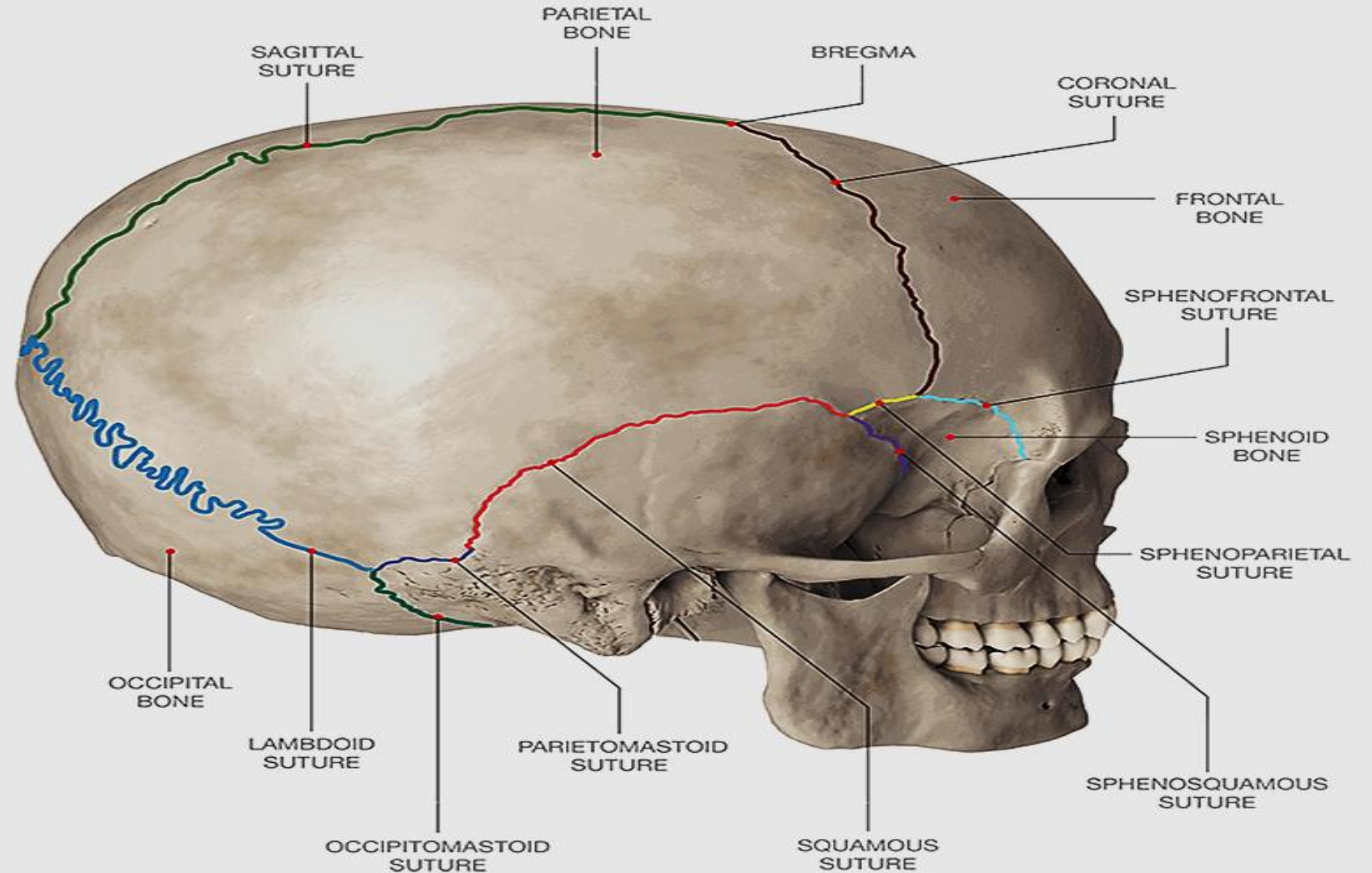
A

Lines & Planes of Projection of The Skull

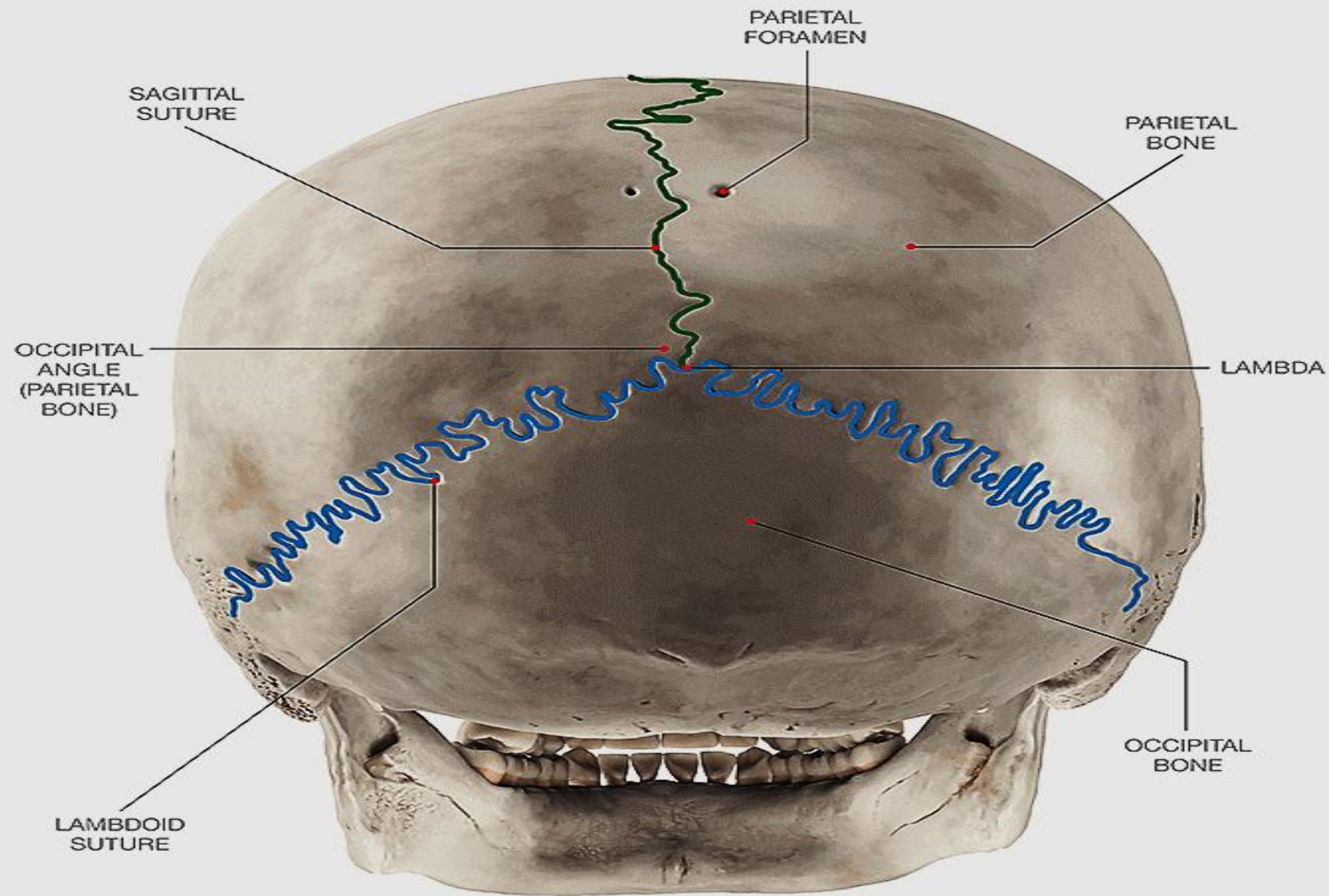
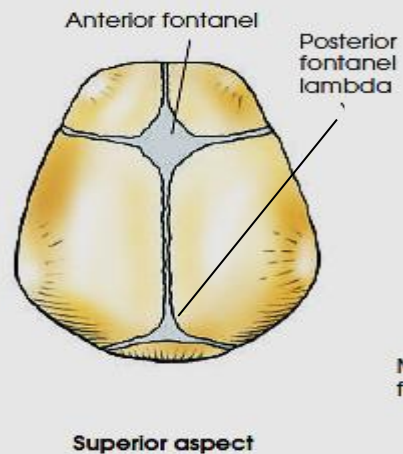
- **Sutures:** fibrous joints between the bones of the cranium and face, except for the mandible, the sutures are:
 1. Coronal
 2. sagittal
 3. Squamosal
 4. Lambdoidal
- **Bregma:** is The junction of the coronal and sagittal sutures.
- **Lambda:** is the junction of the lambdoidal and sagittal sutures.

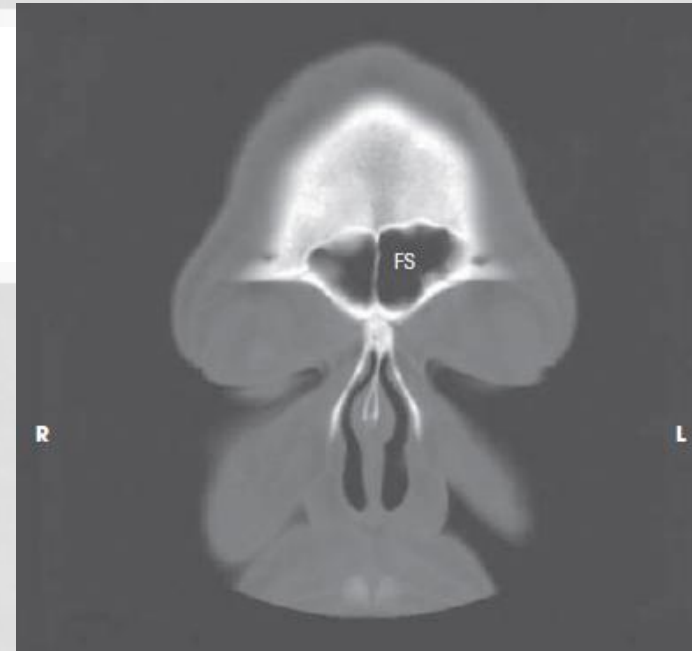
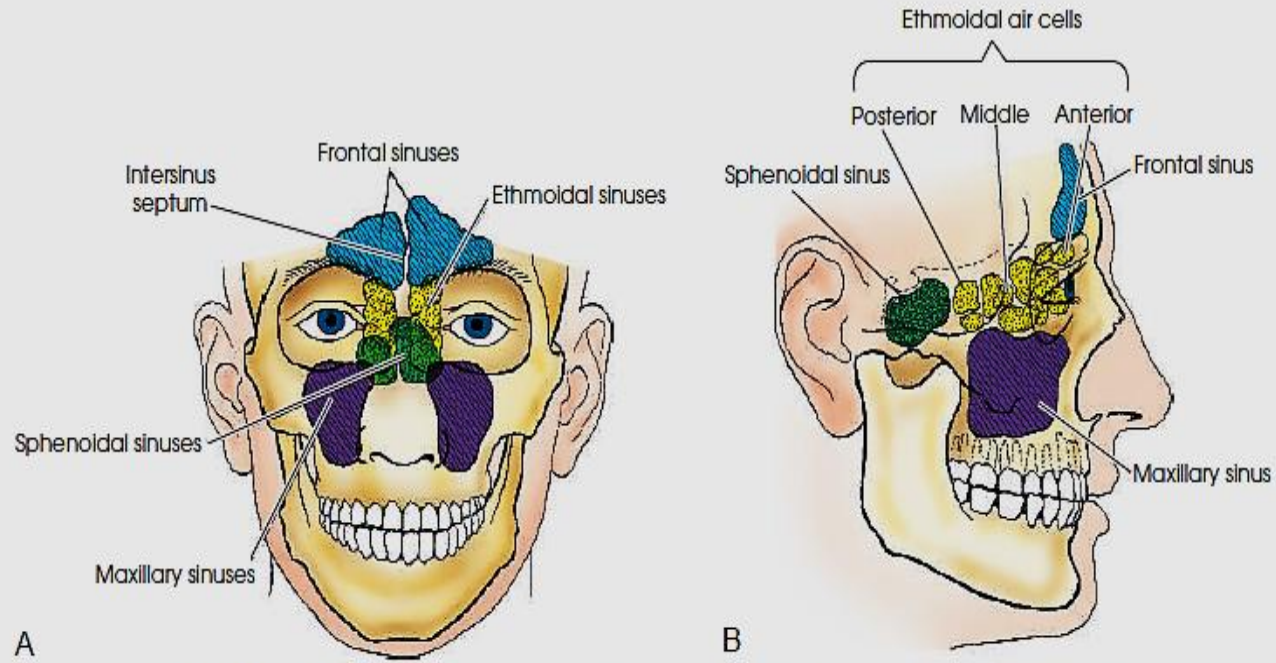


SUTURES OF THE SKULL



SUTURES OF THE SKULL





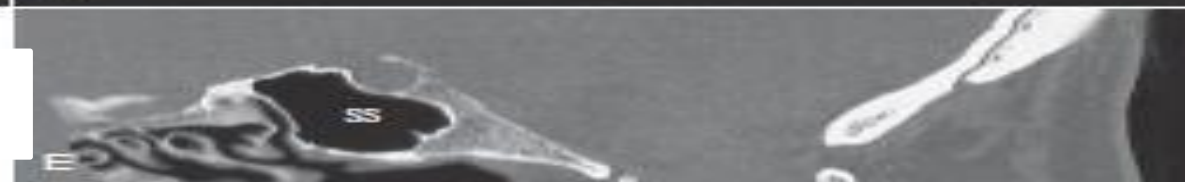
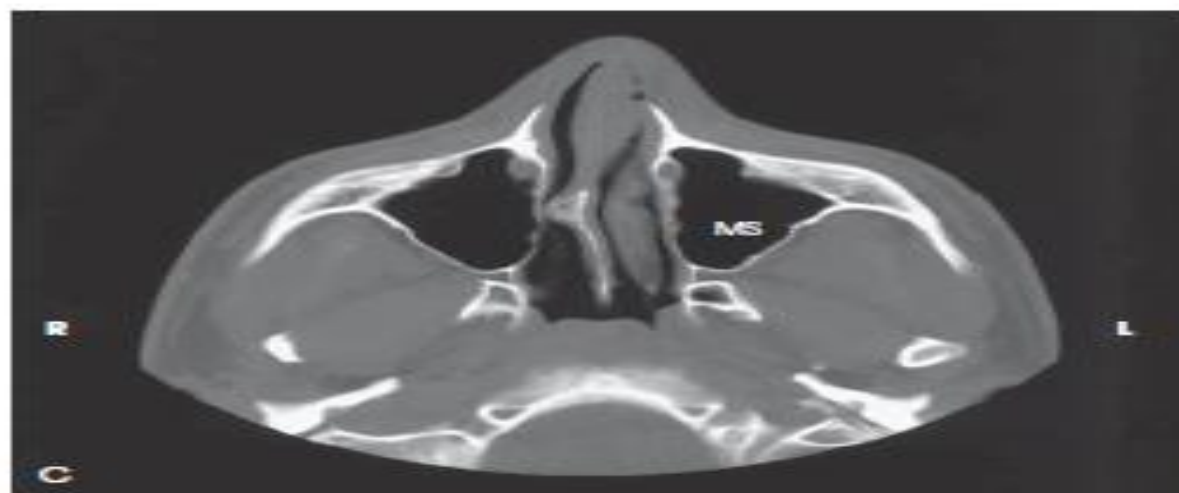
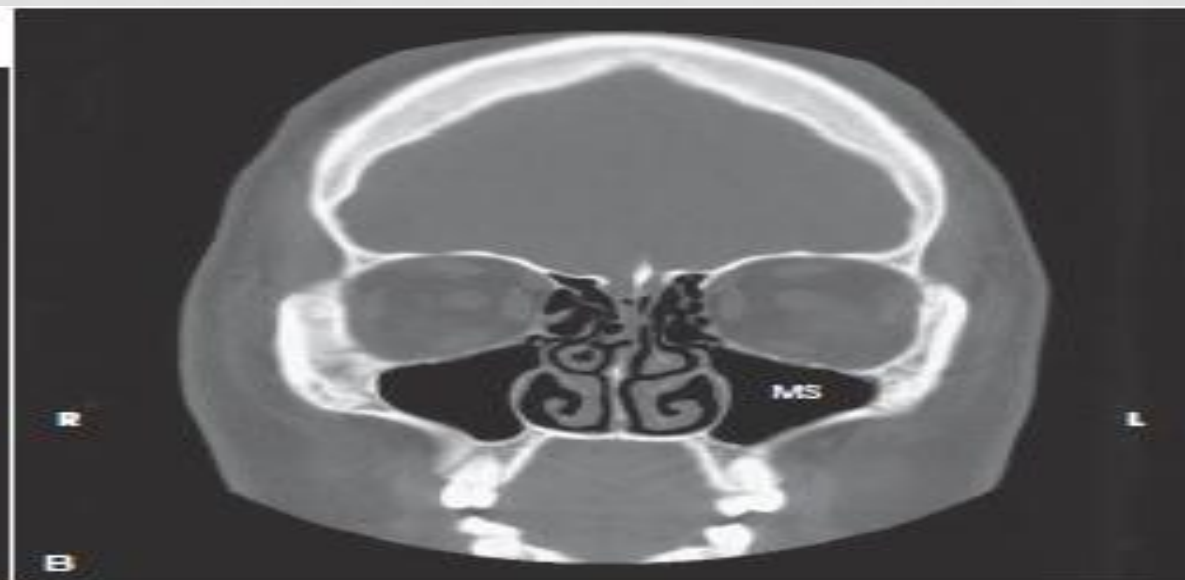
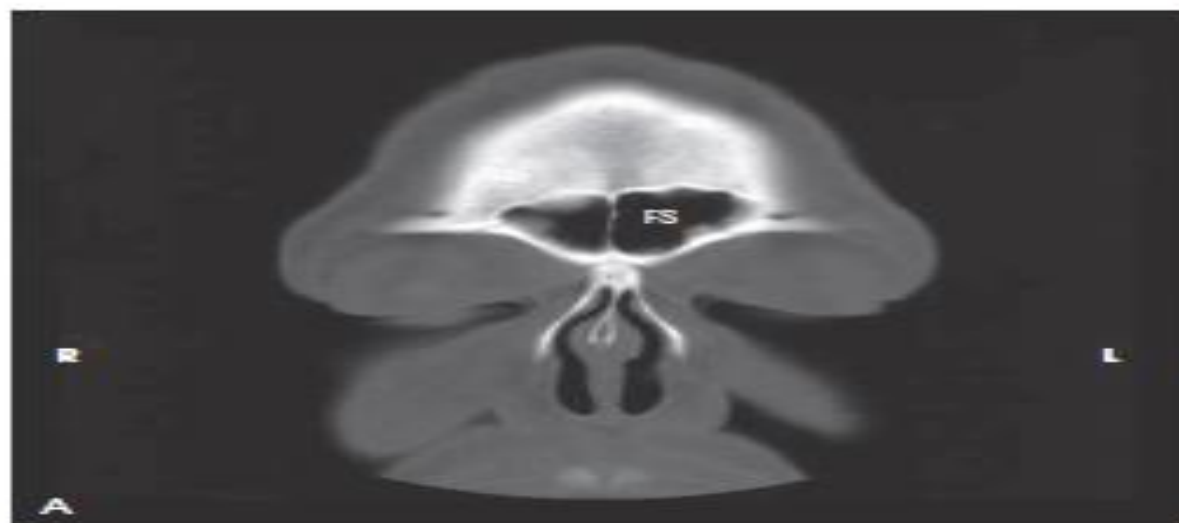


Fig. 20-36 A, Coronal CT image of frontal sinus (FS). B, Coronal CT scan of maxillary sinus (MS). C, Coronal CT scan of maxillary sinus (MS). D, Axial CT image of sphenoid sinus (SS). E, Sagittal CT image of sphenoid sinus (SS).

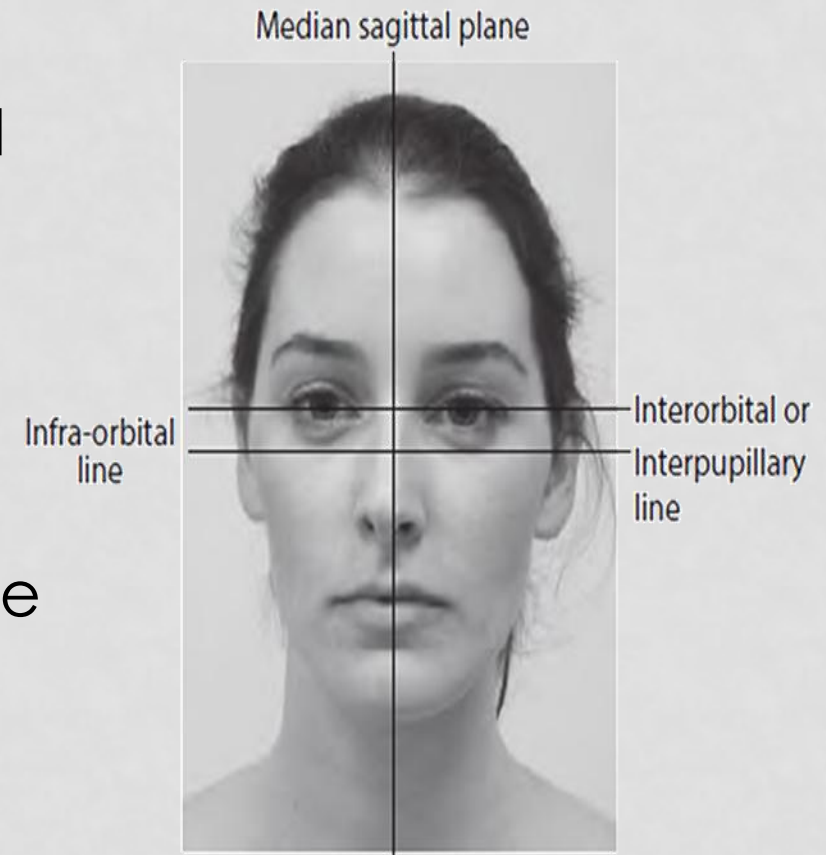
Lines & Planes of Projection of The Skull

All radiography of the skull is undertaken with reference to a series of lines or planes of the skull and face.

Lines:

1. Interpupillary (interorbital) line: joins the centre of the two orbits or the centre of the two pupils when the eyes are looking straight forward

2. Infraorbital line: joins the two inferior infraorbital points.



Lines & Planes of Projection of The Skull

3. Anthropological baseline: passes from the infraorbital point to the upper border of the EAM.

4. Orbito-meatal baseline (radiographic baseline): extends from the outer canthus of the eye to the centre of the EAM. This is approximately 10° to the anthropological baseline.



A = Orbito-meatal or Radiographic baseline (RBL)

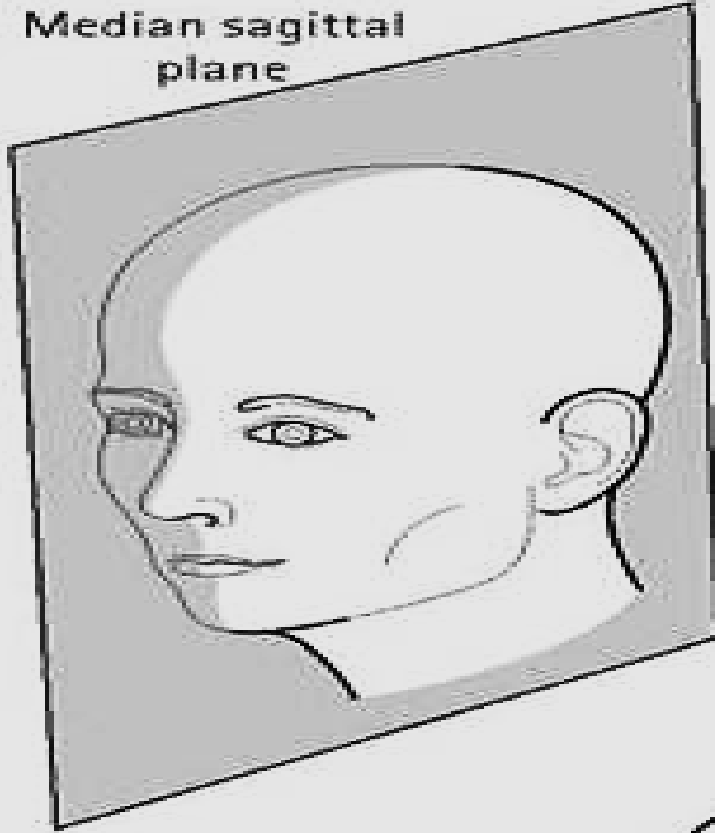
B = Anthropological baseline

Lines & Planes of Projection of The Skull

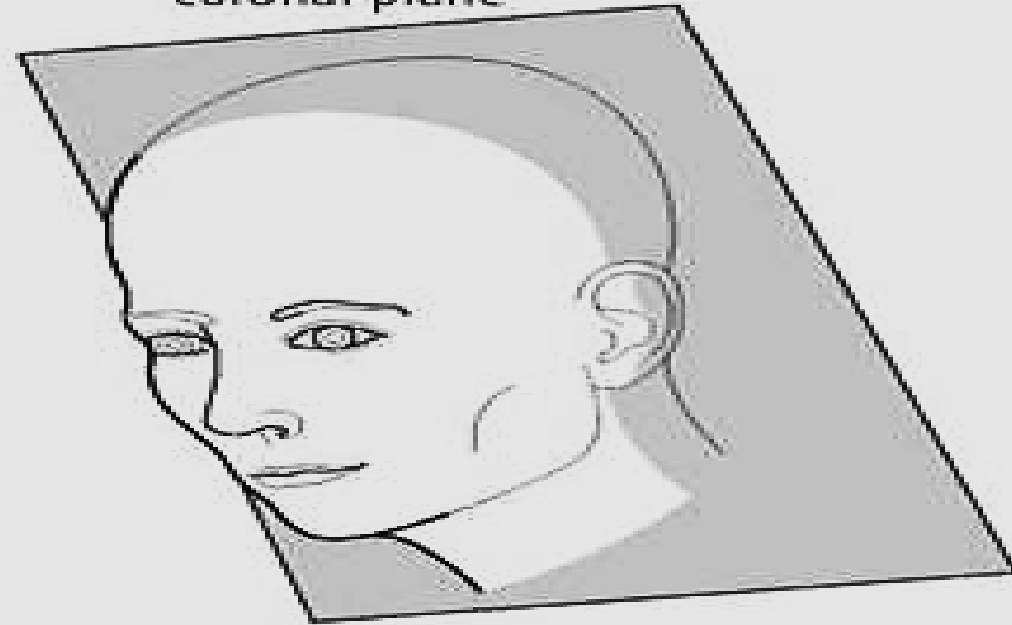
Planes of projections:

1. **Median sagittal plane:** divides the skull into right and left halves.
2. **Coronal planes:** are at right angles to the median sagittal plane and divide the head into anterior and posterior parts.
3. **Anthropological plane(axial plane):** a horizontal plane containing the two anthropological baselines and the infraorbital line.
4. **Auricular plane:** perpendicular to the anthropological plane and passes through the centre of the two EAMs. It is an example of a coronal plane.

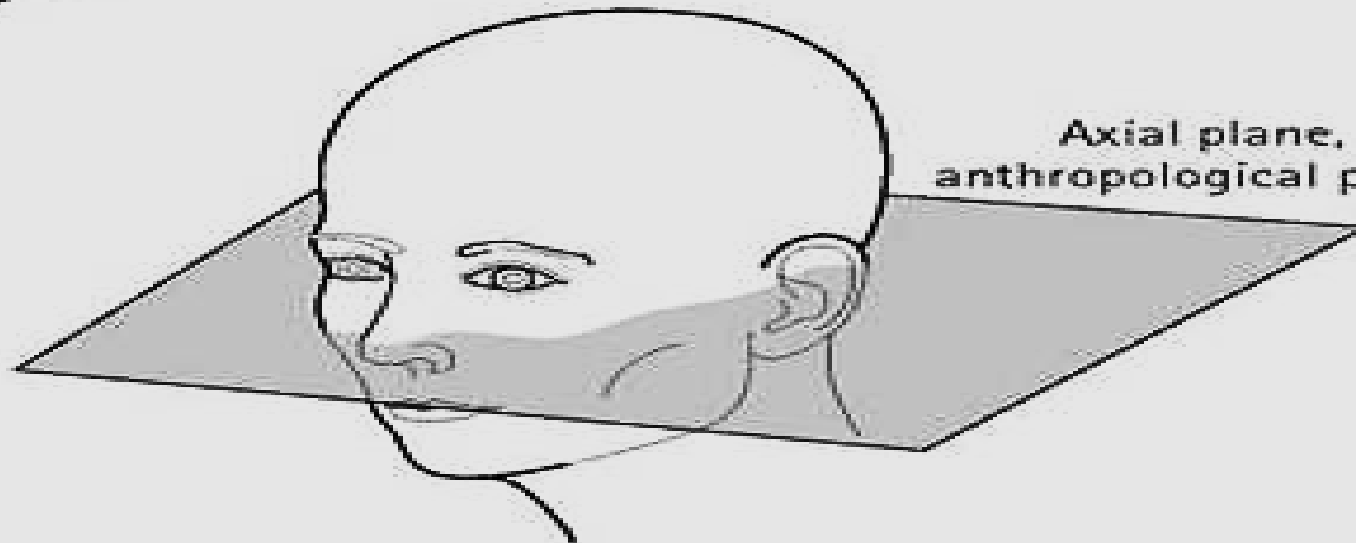
Median sagittal
plane



Auricular plane,
coronal plane

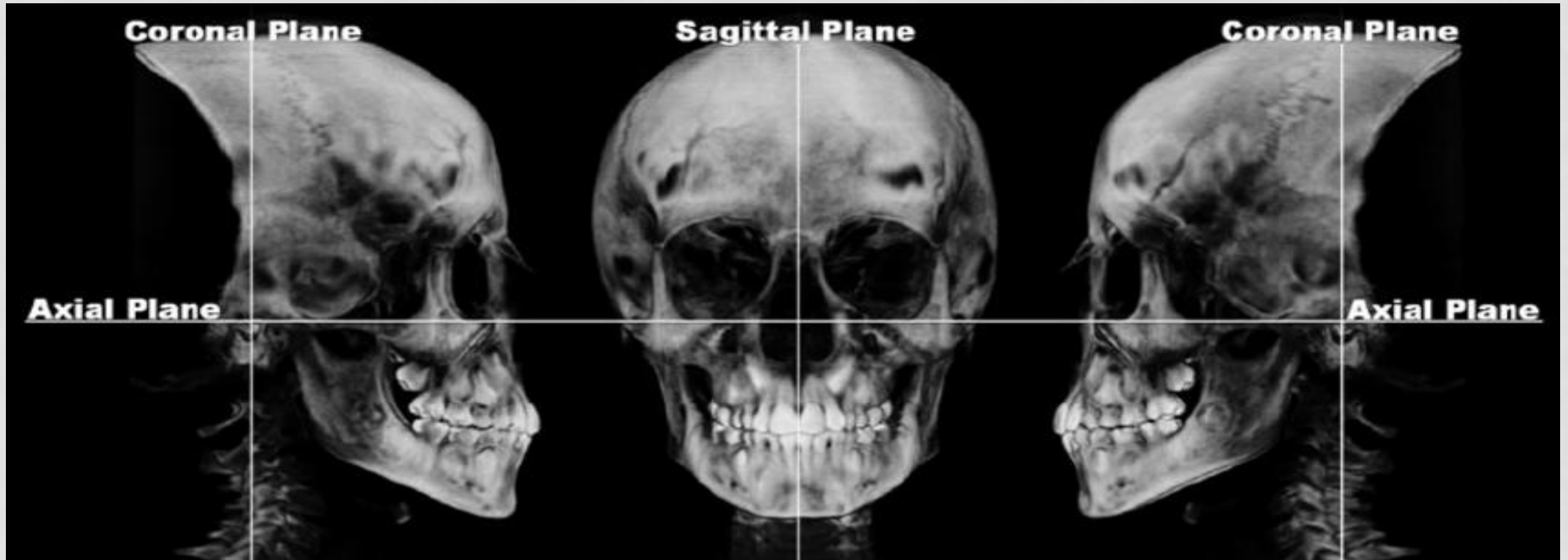


Axial plane,
anthropological plane

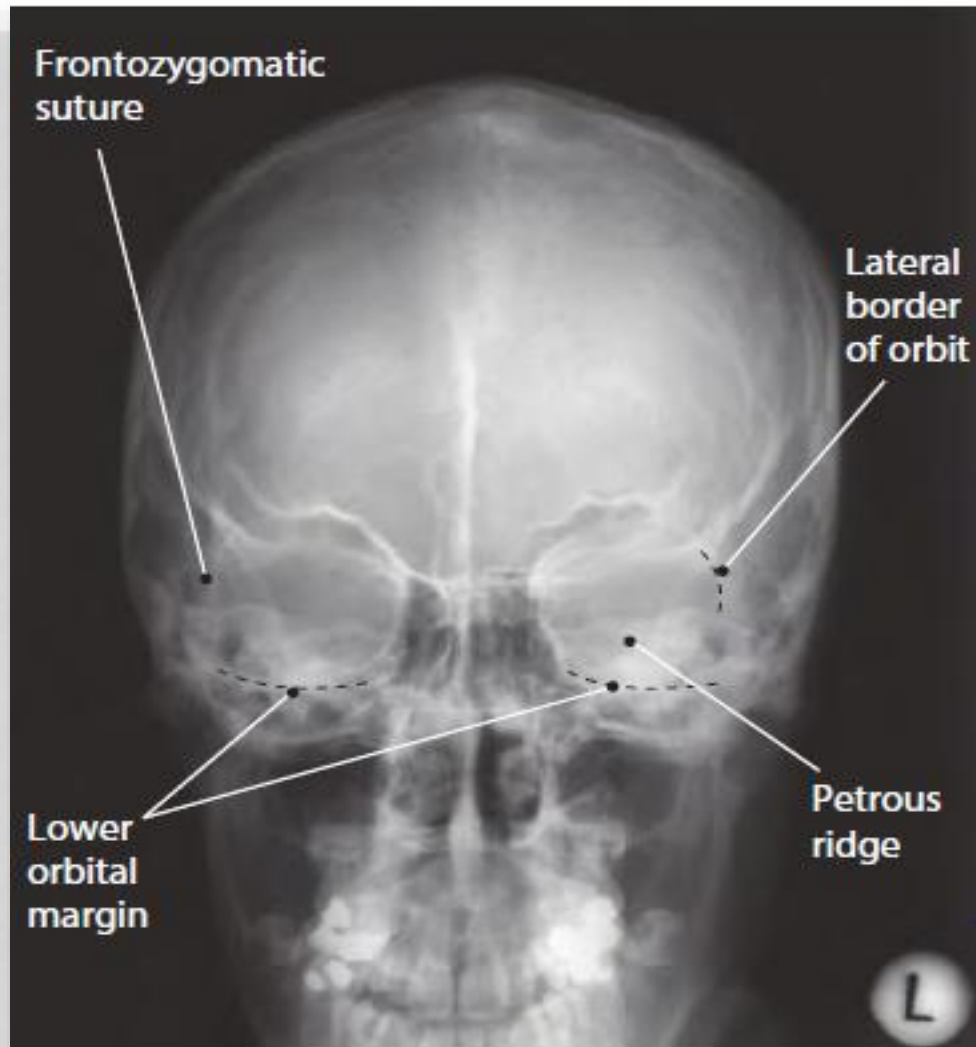


Lines & Planes of Projection of The Skull

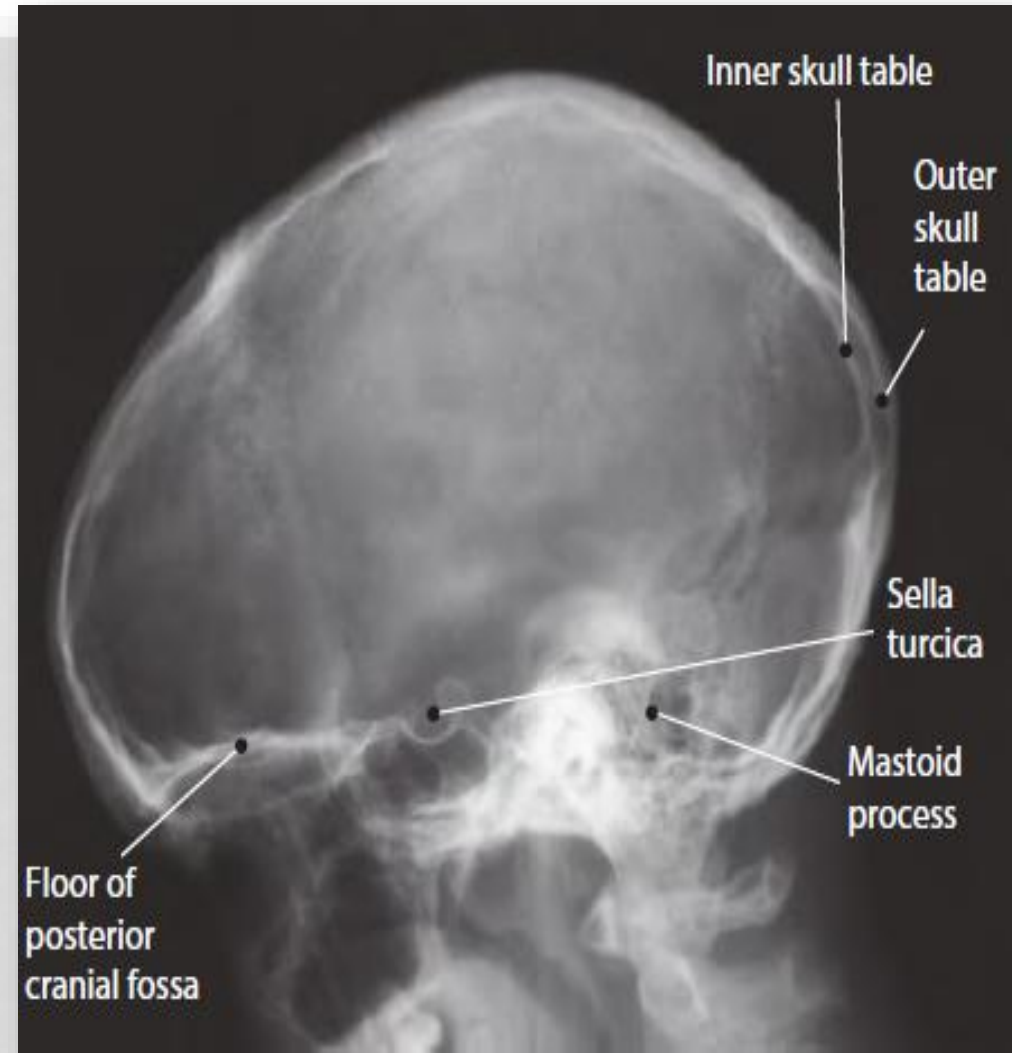
Planes of Projection



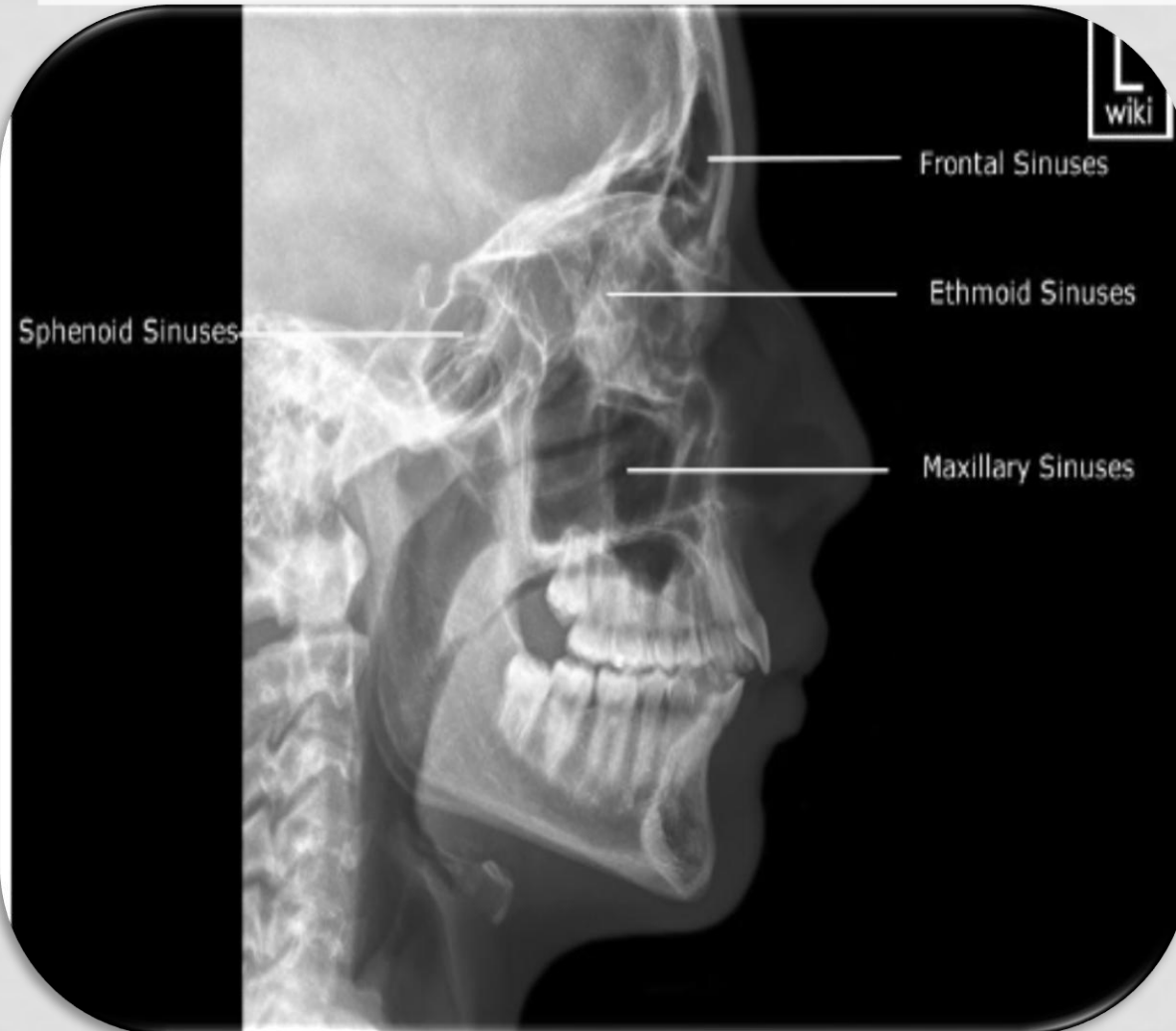
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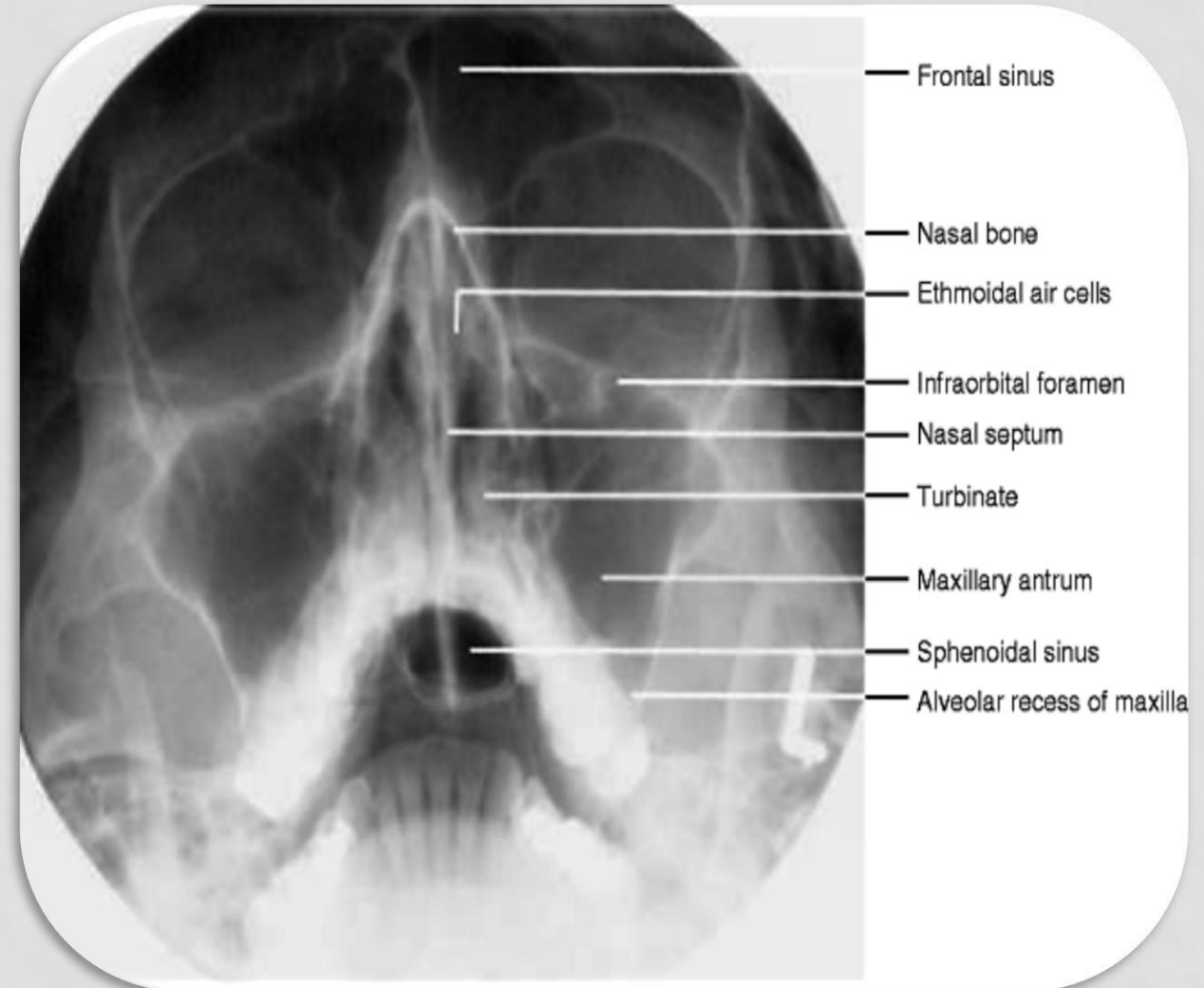
Radiographic Techniques -2



Lines & Planes of Projection of The Skull



Radiographic Techniques -2



Lines & Planes of Projection of The Skull

Patient preparation: Ensure all metal/radio-opaque objects are removed from the patient, e.g. hair clips or pins, false teeth.

General image quality guidelines and radiation protection considerations

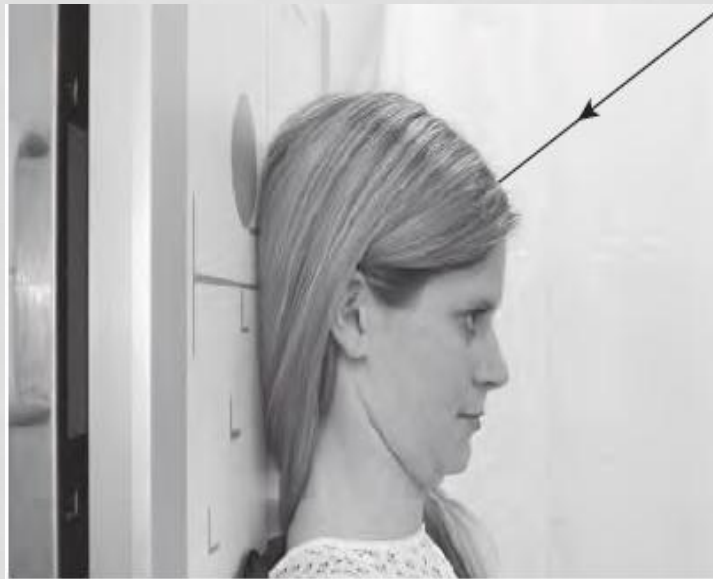
1. Images should have high resolution of all the skull structures
2. Important image details achieved by using fine focus and 70–85 kV tube voltage.
3. Whenever possible, use an OF (PA) rather than an FO (AP) technique as this greatly reduces the dose to the orbits.
4. A grid, moving or stationary, should be used for skull radiography.

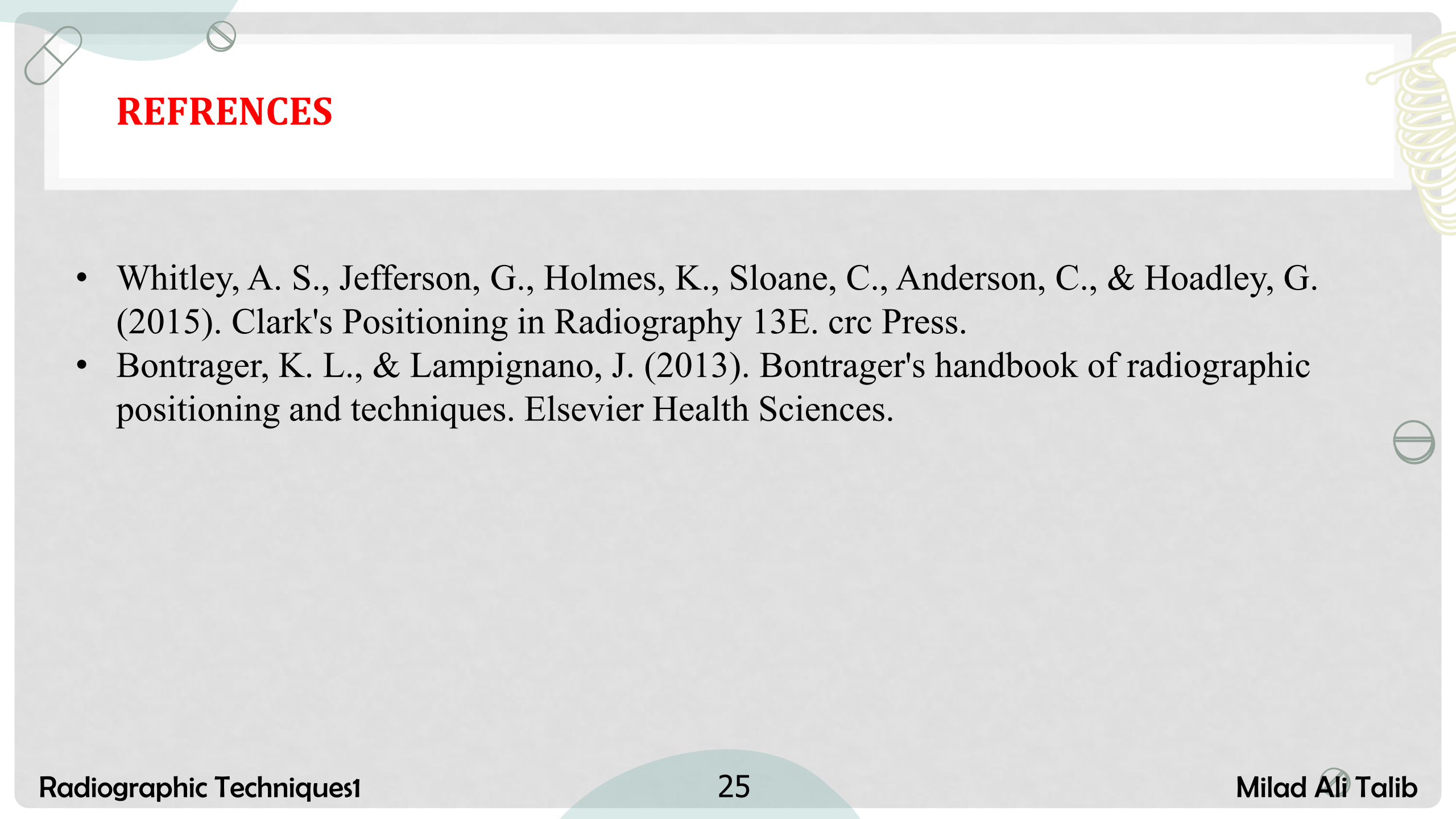
Lines & Planes of Projection of The Skull

Beam angulation:

Cranial angulation: the beam directed up the body towards the head .

Caudal angulation: If the central ray is angled toward the feet .





REFERENCES

- Whitley, A. S., Jefferson, G., Holmes, K., Sloane, C., Anderson, C., & Hoadley, G. (2015). Clark's Positioning in Radiography 13E. crc Press.
- Bontrager, K. L., & Lampignano, J. (2013). Bontrager's handbook of radiographic positioning and techniques. Elsevier Health Sciences.

*Thank
You*

