A SKULL FOR HALLOWEEN!

Prepared for Clermont County Jail Pupil/Inmates

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Front View of Skull showing bones (in color). (22 total bones in the skull.)
Lateral View of the Skull
Skull Skeletal Landmarks that you can easily feel.

- **FRONTAL**
  - Glabella ("little smooth")
  - Superior orbital ridge
  - Superciliary ridge
    ("above the hairs [eyebrows]

- **OCCIPITAL**
  - occipital ridge
  - Superior ridge of orbit

- **NASAL**

- **ZYGOMATIC ("cheek bone")**
  (joins maxilla, temporal and frontal)

- **MAXILLA ("upper jaw")**
  - Palate
  - Upper teeth
  - Maxillary sinus

- **MANDIBLE**
  - lower teeth
  - Mandibular angle

- **TEMPORAL**
  - auditory meatus (ear hole...)
  - Mastoid process (below the ear)
  - Temporomandibular joint (TMJ)

- **CERVICAL VERTEBRA ("neck")**
The skull is formed from two groups of bones:

**CRANIUM** (= “brain-box”) 8 bones hold the brain.

**FACIAL** 14 bones form the face.
A second view of cranial versus facial bones
Calvarium: Roof of the cranium
Formed from four bones.

Coronal = crown
Parietal = wall
Sagittal = arrow
Lambdoid = “L”-like
Occipital:
Oc- = against
Capital = the head
“Sutures” tie skull bones together.

- As the bones of the **cranium** form over the brain in the fetus, they are disconnected, to ease passage through the birth canal.
- Then, they are joined by “interdigitations” which form “sutures.”
Cranial bones in fetus are floating.

This allows the fetal skull to adapt to the shape of the birth canal.

This explains why many neonatal infants have “coneheads...”

The spaces between the floating plates can be felt in a newborn as “fontanelles”.

Left parietal

Right fetal frontal

Left fetal frontal

temporal
The two fetal frontal bones will fuse together to form the frontal bone.

Eventually, all bones will be joined by sutures.
Side View of cranial bones.
FRONTAL BONE

- The frontal bone forms the forehead and the upper portion of the orbits.
PARIETAL BONE  
(side walls of cranium)

- The parietal bone forms the side (walls) of the cranium.
- The R and L parietal bones are joined by the sagittal suture.
OCCIPITAL BONE

- The occipital bone forms the rear of the cranium.
- It possesses two major features.
- The occipital protuberance can be felt at the lower rear of the skull.
- The foramen magnum forms the exit of the spinal cord from the brain.

Occipital:
- Oc- = against
- Cipital (capital) = head

Protuberance:
- Pro = forward
- Tuber = bump

Foramen = hole or passageway
Magnum = large
TEMPORAL bones form the temples.

- Major external features:
  - External auditory meatus (ear holes)
  - Mastoid processes
  - Zygomatic processes

- Supports the mandible.
- Houses inner ear organs
- Crucial to chewing and speaking.

Auditory = hearing
Meatus = large canal
Mastoid = breast like
Zygo- = join
TEMPORAL BONES
Internal and inferior views in rotation
The temporal bone provides a pocket (fossa) into which the mandibular condyle sits. It is unusually loose, allowing a variety of movements of the mandible, important for chewing.
Action of the TMJ

- You may hear your jaw click as you open your mouth wide...

- TMJ problems are common, and can make chewing painful.
FEATURES:
Mental protuberance (mental = chin; protuberance = forward bump)
Mandibular angle: rear corner of your jaw
ZYGOMATIC bone (cheek bone)

- “Joins” three bones together:
  - TEMPORAL
  - FRONTAL
  - MAXILLA

- It is strong, can absorb blows to the head.

Zygo – to join, or yoke

(Yoga is derived from this same wood root.)
MAXILLA

- Forms the lower medial border of the orbit.
- Supports the cartilages of the nose.
- Supports the upper teeth.
- Joins the R and L halves of the face.
- Houses a large sinus.
MAXILLA: Upper Jaw “Center of the Face”

FORMS:
1) Floor of the orbit
2) Lateral walls of the nasal cavity
3) Holds upper teeth
4) Joins with FRONTAL and ZYGOMATIC bones
Three bones form the rim of the orbit: Frontal, Maxilla and the Zygomatic.

Note that the rim of the orbit is highly reinforced, especially the frontal and the zygomatic.