Bones of the skull & face
The **cranium** is composed of eight bones:
- frontal
- Occipital
- Sphenoid
- ethmoid
- parietal (2)
- Temporal (2)
Cranium = brain case or helmet

- **Frontal Bone (1)**
  - Forehead
  - Roof of nasal cavity
  - Roof of orbits
  - Frontal sinuses
  - Supraorbital foramen
- **Articulates with the parietal bones along the coronal suture**
- **Forms superior portion of orbit**
- **Contains 2 frontal (paranasal) sinuses**
**Cranium**

- **Parietal Bones (2)**
  - Side walls of cranium
  - Roof of cranium
  - Sagittal suture
  - Coronal suture

**Parietal bones** = base of skull

**Articulations:**
1. Anteriorly with frontal bones at the coronal suture
2. Posteriorly with occipital bone at lambdoid suture
3. Laterally with temporal bones at squamous suture
4. Between bones at sagittal sinus
Sutures

Coronal Suture

Frontal bone

Parietal bones
Occipital bone articulates with paired parietal bones along the lambdoid suture

**Foramen magnum** (large hole) = opening in occipital bone where nerve fibers pass through from the brain into the spinal cord

**Occipital condyles** = rounded processes on either of foramen magnum which articulate with the first vertebra (atlas)
Sutures

Lambdoid Suture

Occipital bone

Parietal bones
Fig. 7.14

- Sutural bones
- Parietal bone
- Occipital bone
- Temporal bone
Sutures

Sagittal Suture

Parietal bones
**Cranium**

- **Temporal Bones (2)**
  - Side walls of cranium
  - Floor of cranium
  - Floors and sides of orbits
  - Squamous suture
  - External acoustic meatus
  - Mandibular fossa
  - Mastoid process
  - Styloid process
  - Zygomatic process

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**Temporal Bones** lie inferior to **parietal bones** at the squamous suture

**Zygomatic process** = bar like extensions that meets zygomatic bone

**External acoustic meatus** = opening in tympanic region which opens to the inner portion of the ear

**Styloid process** = needle-like extension (attachment for muscles)

**Mastoid process** = rounded process that extends down from the mastoid region of temporal bone (attachment for neck muscles)

**Mandibular process** = depression where mandibular condyle articulates
Facial Skeleton

- **Maxillae Bones (2)**
  - Upper jaw
  - Anterior roof of mouth
  - Floors of orbits
  - Sides of nasal cavity
  - Floors of nasal cavity
  - Alveolar processes
  - Maxillary sinuses
  - Palatine process

**Maxillae** = upper jaw
- Contains two maxillary (paranasal) sinuses
Maxillae

Maxillary teeth

Infraorbital foramina
Parietal bone
Frontal bone
Coronal suture
Lacrimal bone
Ethmoid bone
Squamous suture
Sphenoid bone
Temporal bone
Perpendicular plate of the ethmoid bone
Infraorbital foramen
Vomer bone
Mandible

Supraorbital foramen
Nasal bone
Sphenoid bone
Middle nasal concha of the ethmoid bone
Zygomatic bone
Inferior nasal concha
Maxilla
Mental foramen
Facial Skeleton

• Zygomatic Bones (2)
  • Prominences of cheeks
  • Lateral walls of orbits
  • Floors of orbits
  • Temporal process

**Zygomatic bones = Cheek bones**
- Temporal process projects posteriorly and articulates with the *zygomatic process* of the temporal bone

These two processes compose the zygomatic arch
Facial Skeleton

- Zygomatic Bones (2)
  - Prominences of cheeks
  - Lateral walls of orbits
  - Floors of orbits
  - Temporal process
Frontal bone
Fig. 7.18

Supraorbital notch
Optic canal
Nasal bone
Ethmoid bone
Lacrimal bone
Maxilla
Infraorbital foramen

Frontal bone
Superior orbital fissure
Sphenoid bone
Palatine bone
Inferior orbital fissure
Zygomatic bone
Facial Skeleton = shapes the face and provides attachment for various muscles that move the jaw and control facial expression

Lacrimal Bones (2)
- Medial walls of orbits
- Groove from orbit to nasal cavity

Nasal Bones (2)
- Bridge of nose

Lacrimal Bones =
- Median walls of orbit
- Contains lacrimal foramen for tear drainage

Nasal Bones =
- Bridge of nose
**Vomer Bone (1)**
Inferior portion of nasal septum

**Inferior Nasal Conchae (2)**
Extend from lateral walls of nasal cavity

Vomer=
Perpendicular plate of the ethmoid bone forms the superior portion of nasal septum
Facial Skeleton

**Mandible Bone (1)**
- Lower jawbone
- Body
- Ramus
- Mandibular condyle
- Coronoid process
- Alveolar process
- Mandibular foramen
- Mental foramen

**Mandible**
- Largest & strongest bone in the face
- Mandibular condyle articulates with the mandibular fossa of the temporal bone at the temporomandibular joint (TMJ)
  *only movable bone in the skull*
Frontal sinus
Maxillary sinus
Sphenoidal sinus
Ethmoidal air cells
Maxillary sinus
Zygomatic bone
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<td>Form upper jaw, anterior roof of mouth, floors of orbits, and sides and floor of nasal cavity</td>
<td>Alveolar processes, maxillary sinuses, palatine process</td>
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<td>Palatine (2)</td>
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<td>Branch of pharyngeal artery (in life, opening is largely covered by fibrocartilage)</td>
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<td>Base of skull in occipital bone</td>
<td>Inferior part of brainstem connecting to spinal cord, also certain arteries</td>
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<td>Near margin of foramen magnum in occipital bone</td>
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