

# Major Openings in the Skull

## 1- Openings seen in a frontal view

Opening	Location	Structures passing through it
<b>Supra orbital foramen</b>	Frontal bone	Supra orbital nerve and vessels
<b>Infra orbital foramen</b>	Maxilla	Infra orbital nerve and vessels
<b>Mental foramen</b>	Mandible (near the apices of lower premolars)	Mental nerve and vessels
<b>Openings in the orbit</b>		
<b>Anterior ethmoidal foramen</b>	Medial orbital wall	Anterior ethmoidal nerve and vessels
<b>Posterior ethmoidal foramen</b>	Medial orbital wall	Posterior ethmoidal nerve and vessels
<b>Nasolacrimal canal</b>	Lacrimal bone (anteromedial part of orbit)	Nasolacrimal duct
<b>Superior orbital fissure</b>	Between greater and lesser wings of the sphenoid	<ul style="list-style-type: none"> <li>- Oculomotor nerve</li> <li>- Trochlear nerve</li> <li>- Abducens nerve</li> <li>- Branches of the ophthalmic nerve (Frontal, Lacrimal and Nasociliary)</li> <li>- Superior ophthalmic vein</li> </ul>
<b>Inferior orbital fissure</b>	Between greater wing of the sphenoid and maxilla	<ul style="list-style-type: none"> <li>- Zygomatic nerve</li> <li>- Infraorbital nerve</li> </ul>
<b>Optic canal</b>	Anterior part of Sphenoid bone	<ul style="list-style-type: none"> <li>- Optic nerve</li> <li>- Ophthalmic artery</li> </ul>

## 2- Openings seen in the lateral view

Opening	Location	Structures passing through it
<b>Zygomaticotemporal foramen</b>	Zygomatic bone	Zygomaticotemporal nerve and vessels
<b>Zygomatofacial foramen</b>	Zygomatic bone	Zygomatofacial nerve and vessels
<b>Pterygomaxillary fissure</b>	Between maxilla and lateral pterygoid plate	<ul style="list-style-type: none"> <li>- Maxillary nerve</li> <li>- Maxillary artery</li> </ul>
<b>External acoustic meatus</b>	Temporal bone	Sound waves

## 3- Openings seen in a superior view

Opening	Location	Structures passing through it
<b>Parietal foramina</b>	Parietal bone (anterior to lambdoid on either side of sagittal suture)	Emissary veins

## 4- Openings seen in an interior view

Opening	Location	Structures passing through it
<b><u>Anterior Cranial Fossa:</u></b>		
<b>Olfactory Foramina</b>	Cribriform plate of ethmoid on either side of crista galli	Olfactory nerve fibers
<b><u>Middle Cranial Fossa:</u></b>		
<b>Superior Orbital fissure</b>	Has been explained previously	
<b>Optic canal</b>	Has been explained previously	

<b>Foramen rotundum</b>	Greater wing of sphenoid (posterior to the medial end of superior orbital fissure)	Maxillary division of Trigeminal nerve
<b>Foramen Ovale</b>	Greater wing of sphenoid (posterolateral to foramen rotundum)	- Mandibular division of Trigeminal nerve
<b>Foramen Spinosum</b>	Greater wing of sphenoid (posterolateral to foramen ovale)	- Middle meningeal artery
<b>Foramen lacerum</b>	Between the apex of petrous part of the temporal bone and the body of the sphenoid <b>Notes:</b> -Large irregular shaped foramen - The inferior opening of the foramen lacerum in life is filled by cartilage and fibrous tissue	- Internal carotid artery  -The carotid canal opens into the side of the foramen lacerum above the closed inferior opening.
<b><u>Posterior cranial fossa:</u></b>		
<b>Internal auditory meatus</b>	Middle of the posterior surface of petrous part of temporal bone	- Facial nerve - Vestibulocochlear nerve
<b>Jugular foramen</b>	Between the petrous part of temporal bone and the basilar part of the occipital bone	- Internal Jugular vein - Glossopharyngeal nerve - Vagus nerve - Accessory nerve
<b>Foramen magnum</b>	Middle of basilar part of the occipital bone	- Spinal medulla - Vertebral arteries
<b>Hypoglossal canal</b>	- Anterior and above the occipital condyle (inferior view) - Anterolateral to foramen magnum (interior view)	Hypoglossal nerve

## 5- Openings seen in the inferior view

Opening	Location	Structures passing through it
<b>Incisive foramen</b>	Maxilla (anterior part of the hard palate)	<ul style="list-style-type: none"> <li>- Nasopalatine nerve</li> <li>- Nasopalatine branch of sphenopalatine artery</li> </ul>
<b>Greater Palatine foramen</b>	Between Palatine bone and maxilla (posterolateral corner of hard palate)	<ul style="list-style-type: none"> <li>- Greater palatine nerve</li> <li>- Descending palatine branch of maxillary artery</li> </ul>
<b>Stylomastoid foramen</b>	Between mastoid and lateral styloid processes	Facial nerve
<b>Foramen oval</b> <b>Foramen spinosum</b> <b>Carotid canal</b> <b>Jugular foramen</b> <b>Foramen magnum</b> <b>Hypoglossal canal</b>	<p>Have been explained previously  Note: carotid canal can be seen only from the inferior view at a site posterolateral to petrous temporal bone</p>	

**This is the End of the Appendix – Good Luck**