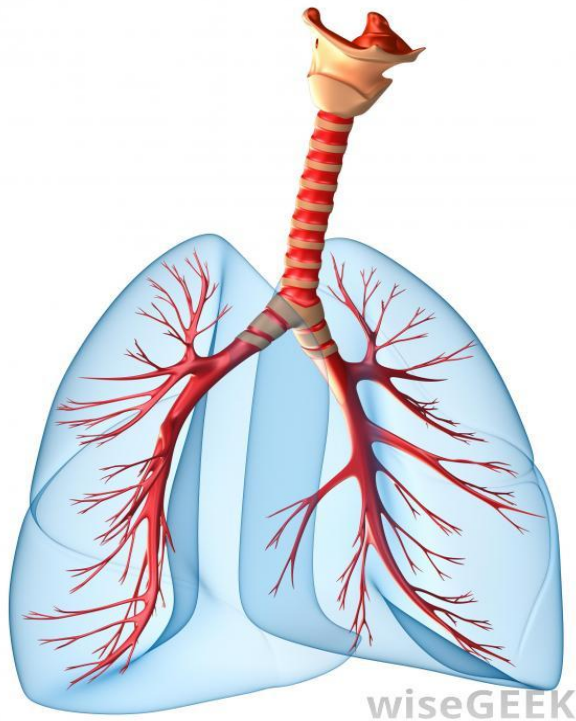




Anatomy Team

433

**King Saud University
College of medicine
Respiratory Block**



wiseGEEK

Nose, Nasal cavity, Paranasal Sinuses & Pharynx



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Objectives

At the end of the lecture, the students should be able to:

- ✓ Describe the boundaries of the nasal cavity.
- ✓ Describe the nasal conchae and meati.
- ✓ Demonstrate the openings in each meatus.
- ✓ Describe the paranasal sinuses and their functions
- ✓ Describe the pharynx and its parts

Color Index

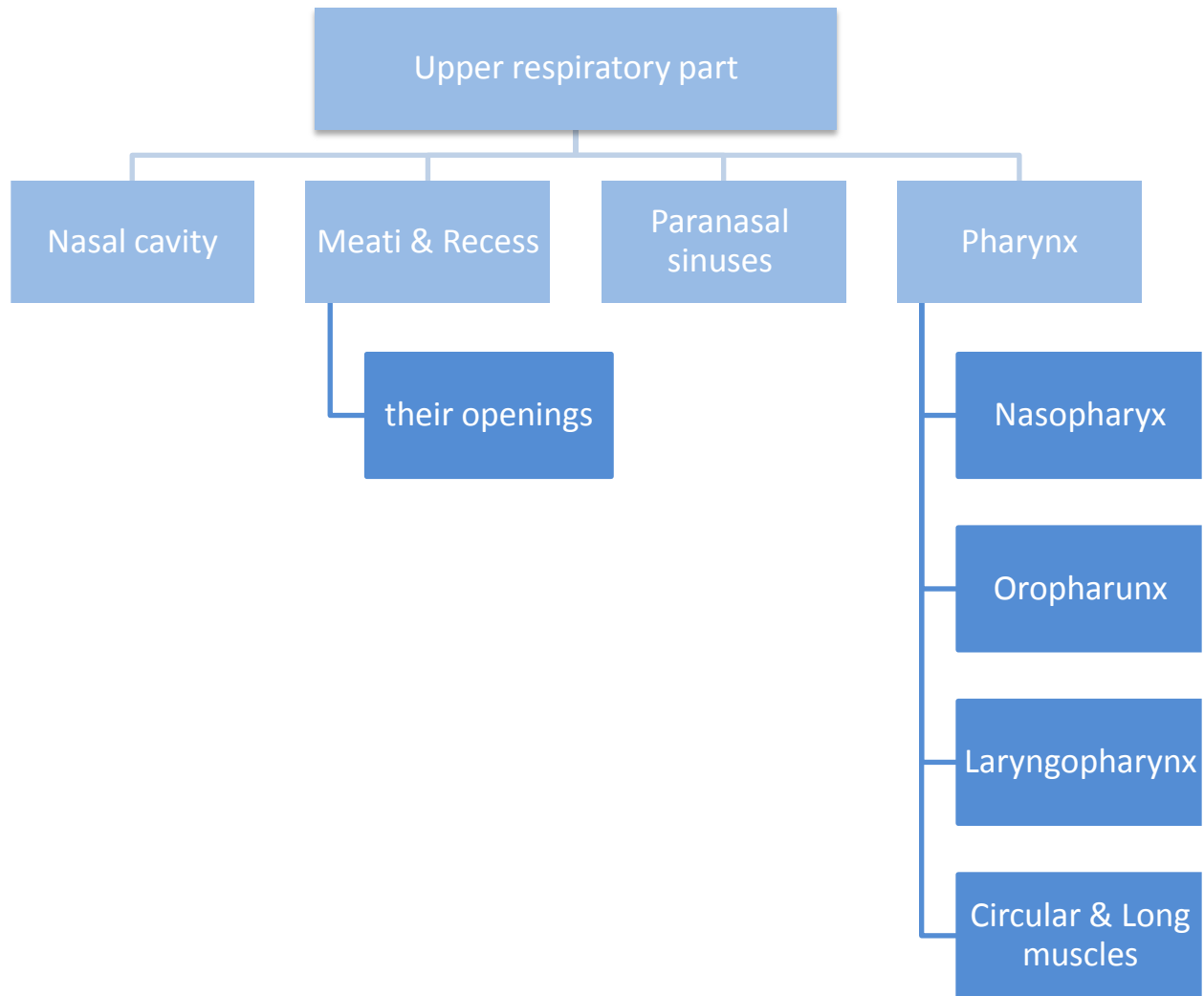
- **Red : Important.**
- **Violet: Explanation.**
- **Gray: Additional Notes.**

The rest colors are for
Coordination

Say " **بِسْمِ اللَّهِ** " then start



Mind Map

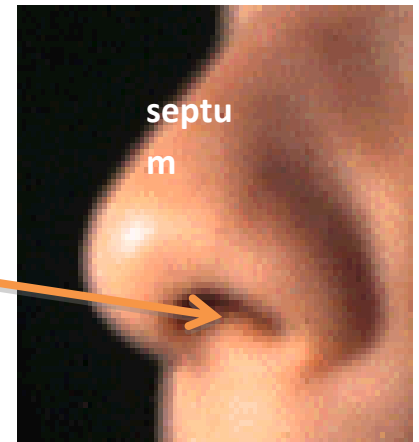


Nose?

It is the only visible part of respiratory system, and serves as the entrance to respiratory tract. It is formed by a bony skeleton above and plate of hyaline cartilage below.

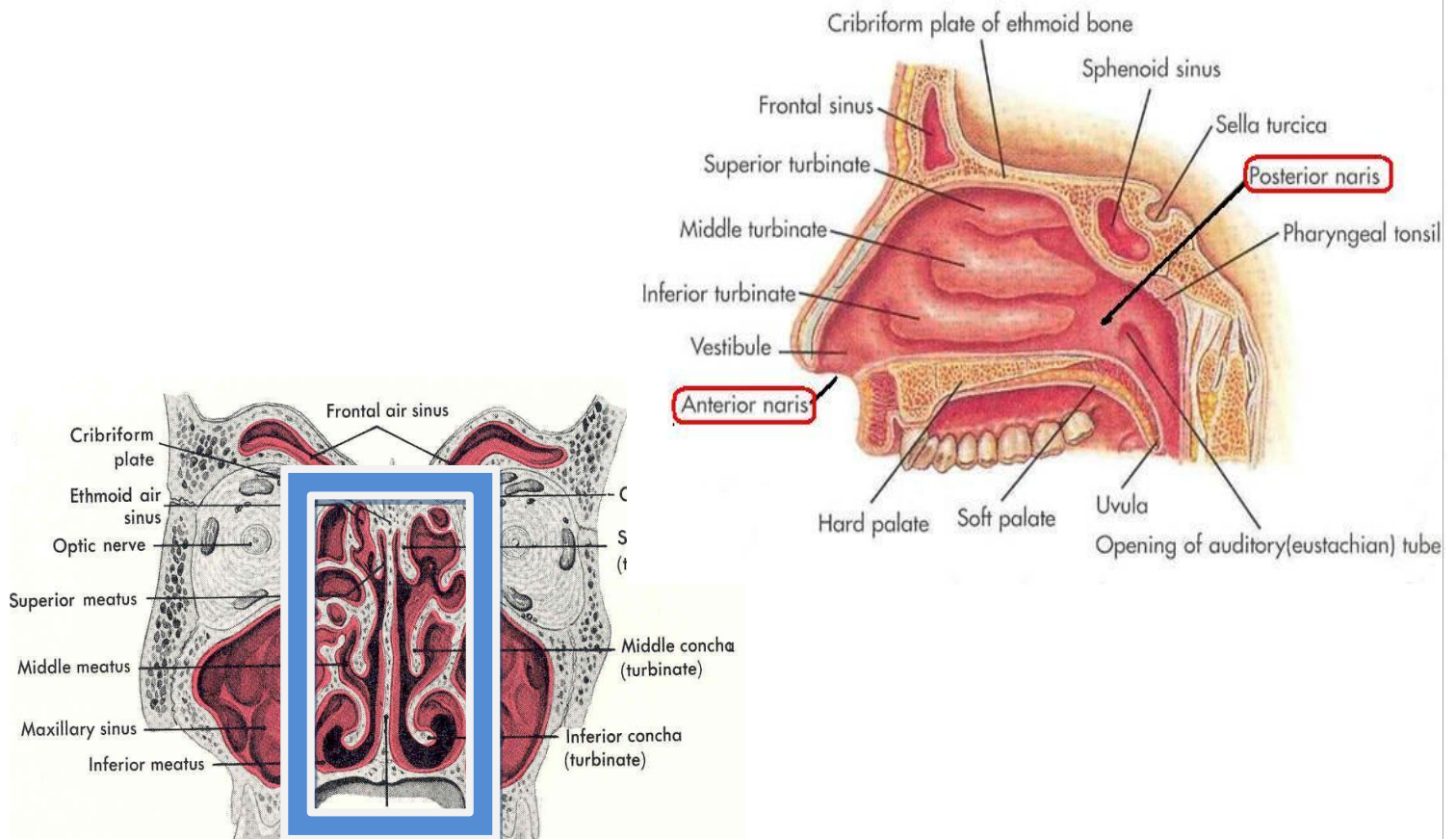
It has a nasal cavity separated into right and left by "Nasal septum (Medial wall)", and 2 opening:

- 1- External "anterior" nostril
- 2- Internal nostril "posterior aperture"

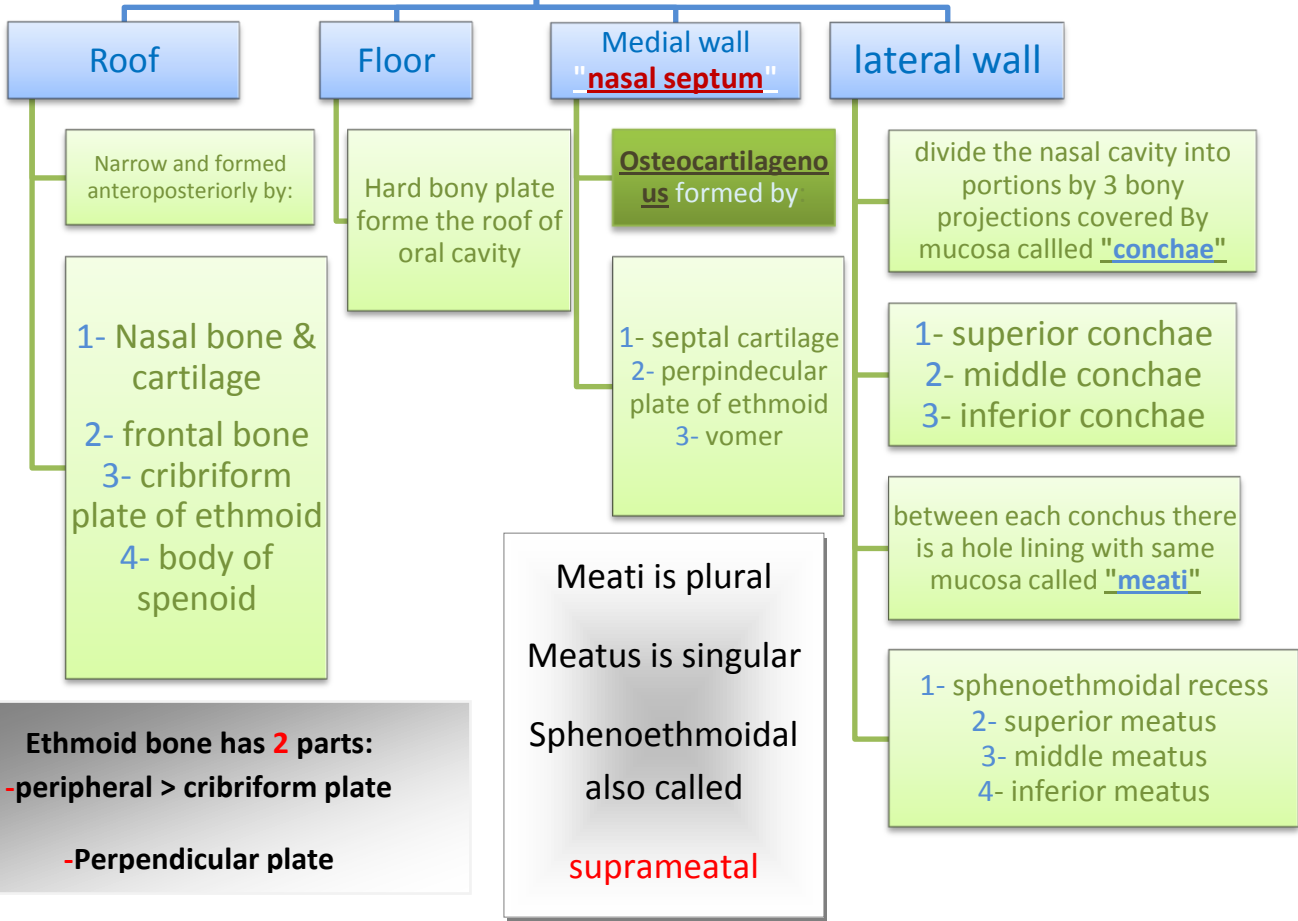


-Nasal Cavity:

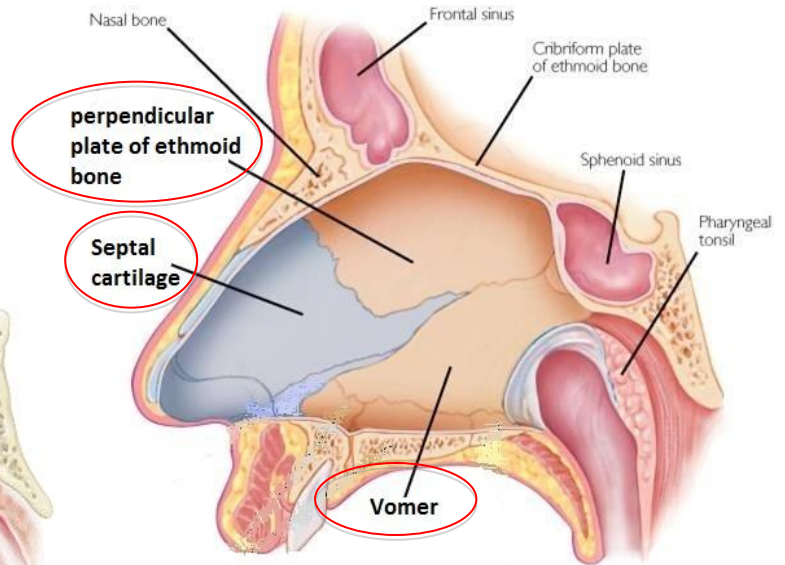
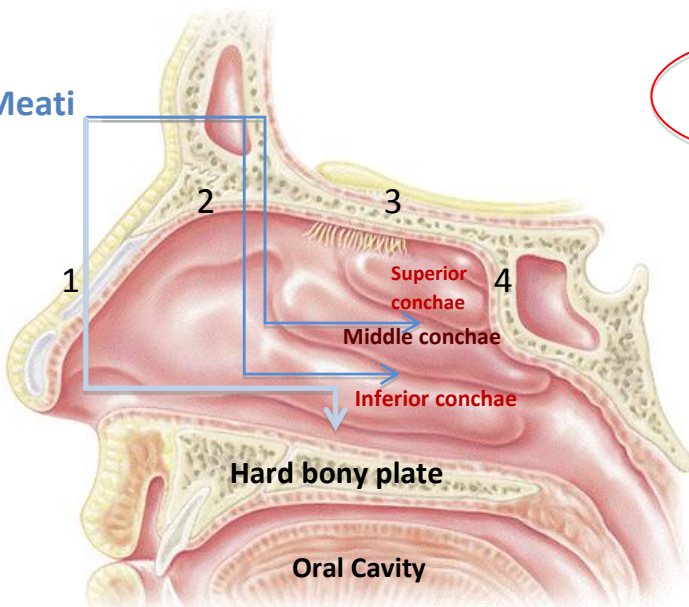
It extends from the external nostril to the posterior aperture (choanae) to open into pharynx divided into right and left by nasal septum.



boundaries of each half:



Meati



Each conchae is covered with **respiratory epithelium** to increase the surface area of nasal cavity



The recess & meati receives the openings of paranasal

Sphenoethmoidal recess	Sphenoid sinuses
Superior meati	Posterior ethmoidal sinus
Middle meati	Anterior & middle ethmoidal, facial, maxillary sinuses
Inferior meati	Nasolacrimal duct

Lacrimal = Teras

Recess = Space

When blinking the eye, the fluid is pushed into nasolacrimal duct through lacrimal membrane to enter the nasal cavity by inferior meatus.

Nerve supply	Blood supply	Lymphatics drainage	Venous drainage
1- Olfactory mucosa <u>"smell sensation"</u> innervated by olfactory nerve . 2- General sensation: ophthalmic and maxillary nerves . 3- Autonomic fibers	Branches of facial, ophthalmic and maxillary arteries . * they make a rich anastomosis around the <u>anterior portion of medial septum and vestibule</u>	1- submandibular lymph nodes 2- upper deep cervical lymph nodes	1- Facial veins 2- Ophthalmic veins 3- sphenopalatine veins

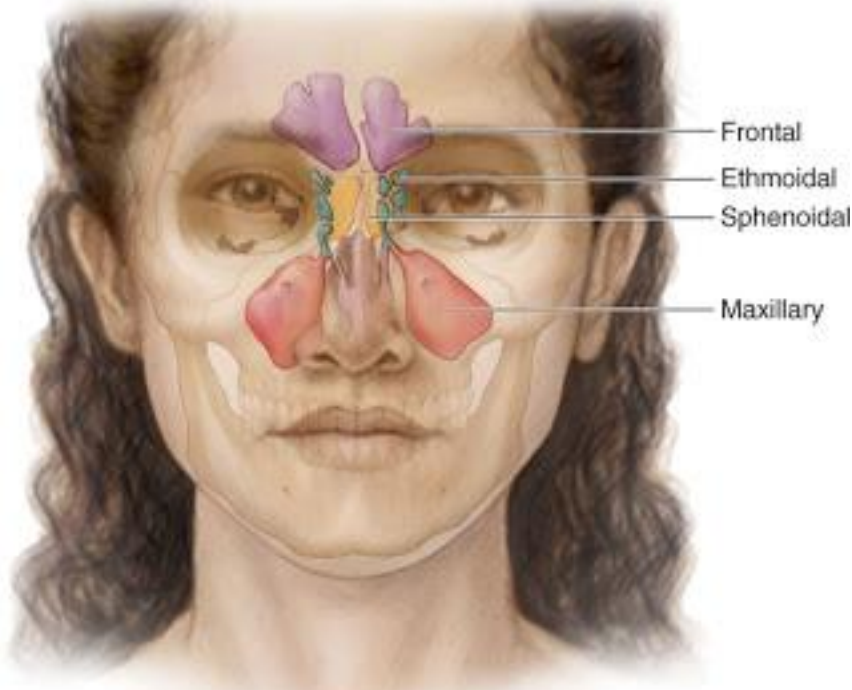
-Paranasal sinuses:

Air filled cavities located around the nasal bones (frontal, ethmoid, sphenoid and maxilla) the cavities are named according to the bones.

- 1) It is lined by respiratory membrane which continues with nasal cavity membrane
- 2) Constant secretion is drains into nasal cavity
- 3) Lighten the skull
- 4) Act as resonance chambers for speech
- 5) Air condition (warming, cooling, cleaning, protection)

Whenever there is an inflammation in respiratory membrane, the membrane of nasal cavity is affected too, which cause (sinusitis)

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Pharynx :

- Muscular tube lying behind the **nasal cavity, oral cavity & larynx**.
- Extends from the base of the skull to level of the 6th cervical vertebra, where it is continuous with the esophagus

Divided into three parts:

Nasopharynx

- ❖ Superior part
- ❖ communicates with the nasal cavity through **posterior nasal apertures**
- ❖ Extends from **the base of skull** to the **soft palate**.
- ❖ Contains **Pharyngeal tonsils** (adenoides) in its roof. **Connective tissue**
- ❖ Lateral wall shows:
- ❖ Opening of **auditory tube**, **Tubal elevation** (produced by posterior margin of the auditory tube).
- ❖ **Tubal tonsil** , **Salpingopharyngeal fold** (raised by salpingopharyngeus muscle).

Oropharynx:

- Middle part
- communicates with the oral cavity through the **oro-pharyngeal isthmus**
-
- Extends from **soft palate** to upper **border of epiglottis**.
- Lateral wall shows:

Palatoglossal fold, **Palatopharyngeal** fold, **Palatine tonsil** located in '**tonsillar fossa**', a depression between the two folds

Laryngopharynx :

- ❖ Inferior part
- ❖ communicates with the larynx through the **laryngeal inlet**
- ❖ Extends from **upper border of epiglottis** to **lower border of cricoid cartilage**

- ❖ **Piriform fossa** : A small depression situated on **either side of the laryngeal inlet**
- ❖ It is a common site for the **lodging of foreign bodies**
- ❖ Branches of **internal laryngeal & recurrent laryngeal nerves** lie deep to the mucous membrane of the fossa and are vulnerable to injury **during removal of a foreign body.**

Muscles of Pharynx :

Two type :

- 1) Circular (Constrictor) : Three muscles, overlap each other: Superior, Middle & Inferior

Propel the bolus of food down into the esophagus **narrowing the tube**

- 2) Longitudinal Muscles:

Three muscles:

- Stylopharyngeus
 - Salpingopharyngeus
 - Palatopharyngeus
- Elevate the larynx & pharynx during swallowing **shorting the tube**

Sensory Nerve Supply :	Motor Nerve Supply :
Nasopharynx: Maxillary nerve.	All the muscles of pharynx, except the stylopharyngeus are supplied by the pharyngeal plexus.
Oropharynx: Glossopharyngeal nerve.	Stylopharyngeus is supplied by the glossopharyngeal nerve .
Laryngopharynx: Vagus nerve.	

Pharyngeal plexus : A network of nerves (sensory, motor & sympathetic) located on the surface of the middle pharyngeal constrictor muscle, is formed by the:

- Pharyngeal branches of glossopharyngeal nerve (sensory)
- Pharyngeal branch of vagus nerve (motor)
- Sympathetic fibers from superior cervical

- **Arterial supply:** From branches of: Ascending pharyngeal artery, Ascending palatine artery , Facial artery, Maxillary artery , Lingual artery
- The **Veins** drain into pharyngeal venous plexus, which drains into the internal jugular vein
- The **Lymphatics** drain into the: Deep cervical, Retropharyngeal & Paratracheal lymph nodes

SUMMARY

- ❖ The nose is the visible part of the respiratory system
- ❖ Nasal Cavity Extends from the external (anterior) nares to the posterior nares
- ❖ The nasal cavity divided in to two part each has roof , lateral and medial wall
- ❖ The Paranasal Sinuses Air filled cavities located in the bones around the nasal cavity
- ❖ Pharynx Extends from the base of the skull to level of the 6th cervical vertebra
- ❖ The **Pharynx Divided into three parts Nasopharynx, Oropharynx, Laryngopharynx**
- ❖ Muscles of Pharynx is two type in **circular** and **longitudinal**



* [Introduction To Respiratory System 3D](#) (3Min)

* [Anatomy of nasal cavity](#) **Time duration: 7min**

* [Nasal Cavity](#) (2:35)

* [Pharynx](#) (2:52 M)

NOTE;

PHARYNX

EXTENDS FROM C1 TO C6

LARYNX

EXTENDS FROM C3 TO C6

*C6 AT THE LEVEL OF CRICOID CARTILAGE.



Multiple Choice Questions

Q1/ the nasal cavity is divided into 2 parts by?

- a/ lateral wall b/ external nostril c/ medial wall

Q2/cribriform plate is part of?

- a/ ethmoid b/ sphenoid c/ frontal

Q3/Nasolacrimal duct opens into?

- a/ superior meatus b/ inferior meatus c/ suprameatal

Q4/Which one of these is the middle part of Pharynx :

- a) Nasopharynx b) Oropharynx c) Laryngopharynx

Q5/the roof of Nasopharynx contains :

- a) Tubal tonsil b) Salpingopharyngeal fold c) adenoides

Q6/All the muscles of pharynx are supplied by the pharyngeal plexus except :

- a) stylopharyngeus b) Palatopharyngeus c) Salpingopharyngeus

Q Ans. :

1- c 2- a 3- b 4- b 5- c 6- a