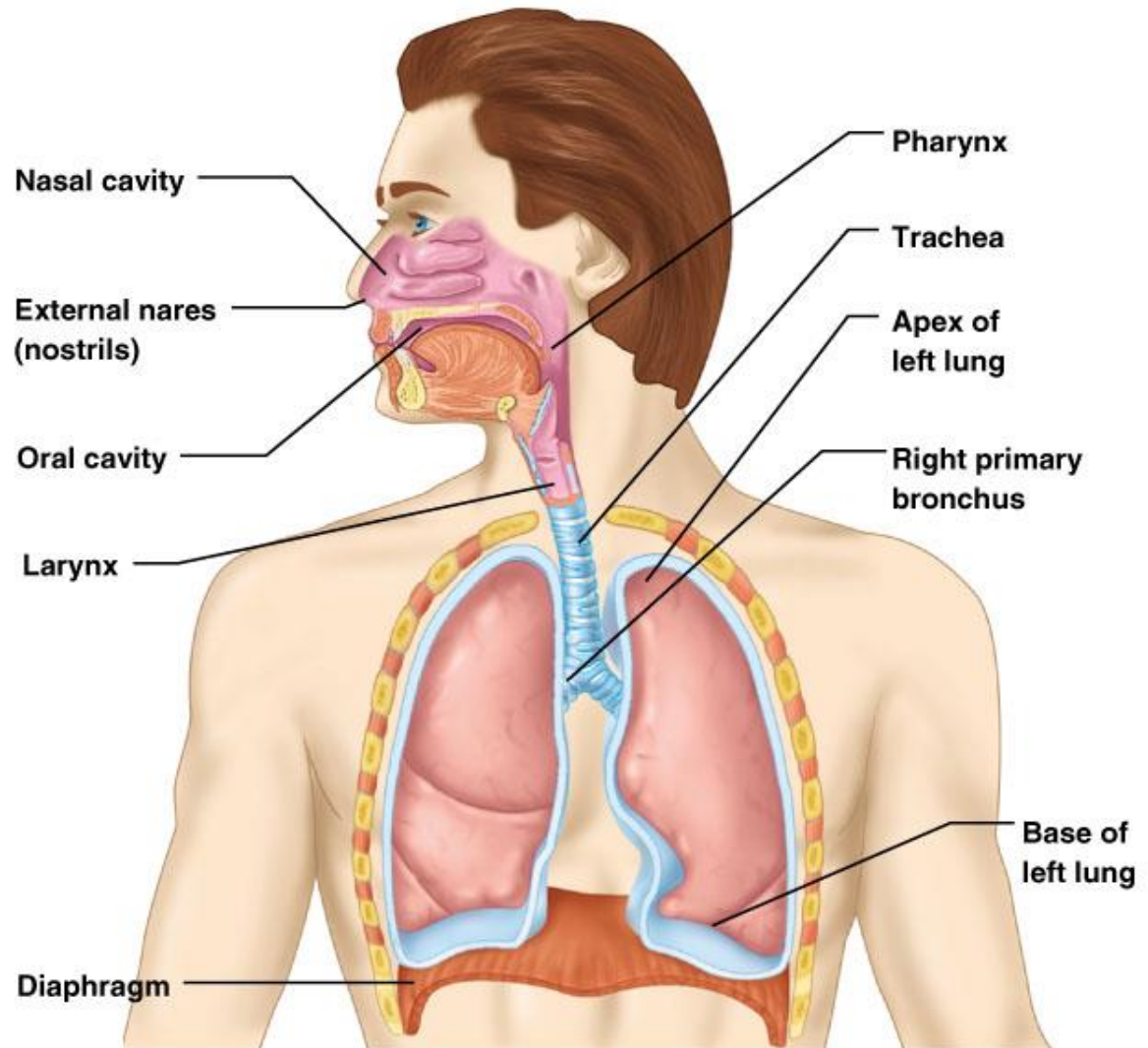


Organs of the Respiratory system

- Nose
- Pharynx
- Larynx
- Trachea
- Bronchi
- Lungs – alveoli



ANATOMY OF RESPIRATORY SYSTEM

OBJECTIVES:

By the end of this lecture, student should understand the functions and structure of the Respiratory System

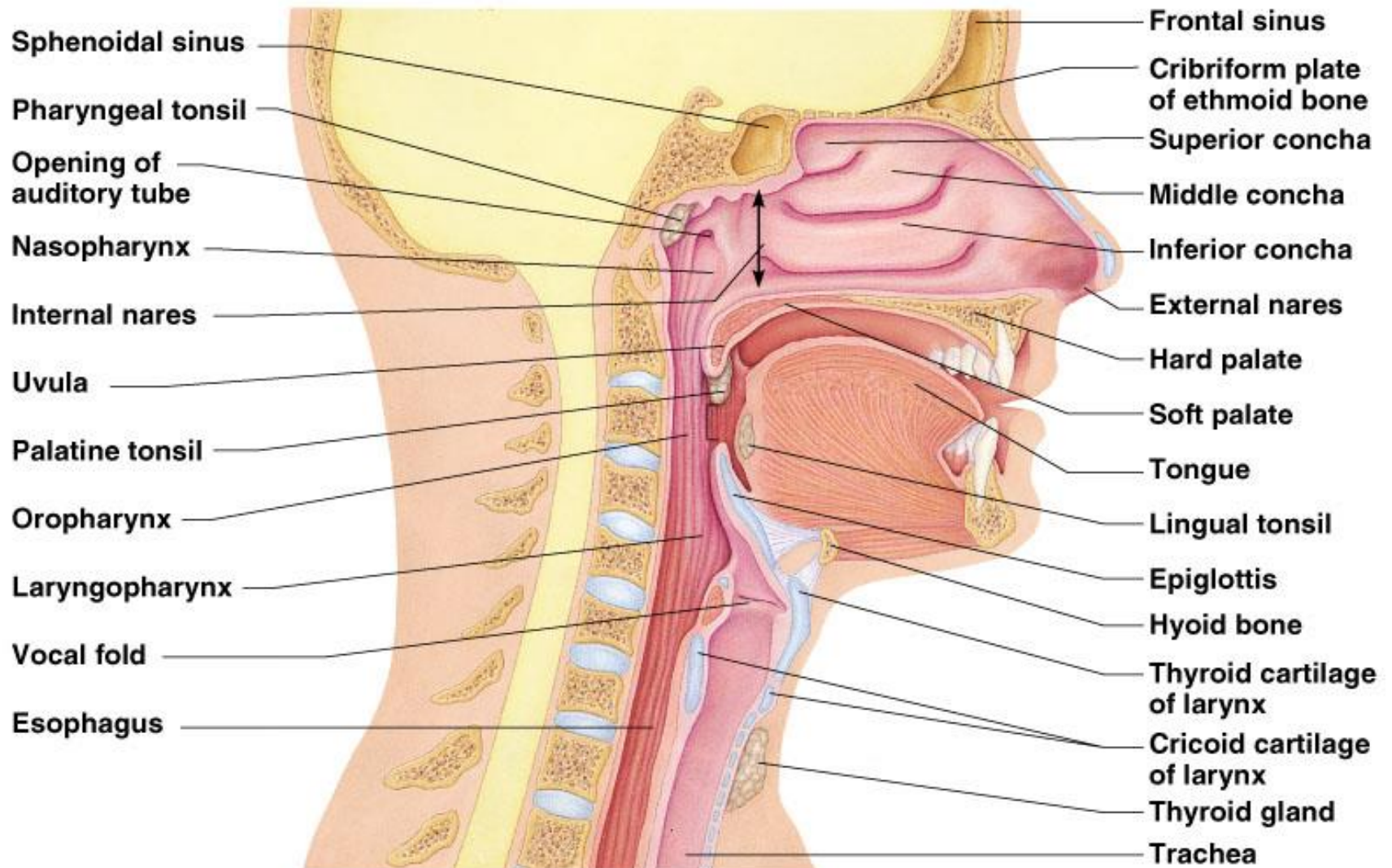
Functions of the Respiratory System

- Gas exchanges between blood and air
- Exchange place in the lungs in tiny air sacs, the alveoli
- Passageways purify, warm, and humidify air

The Nose

- The only externally visible part of the respiratory system
- Air enters the nose through the *external nares* (nostrils)
- The interior is the *nasal cavity* divided by a *nasal septum*

Upper Respiratory Tract

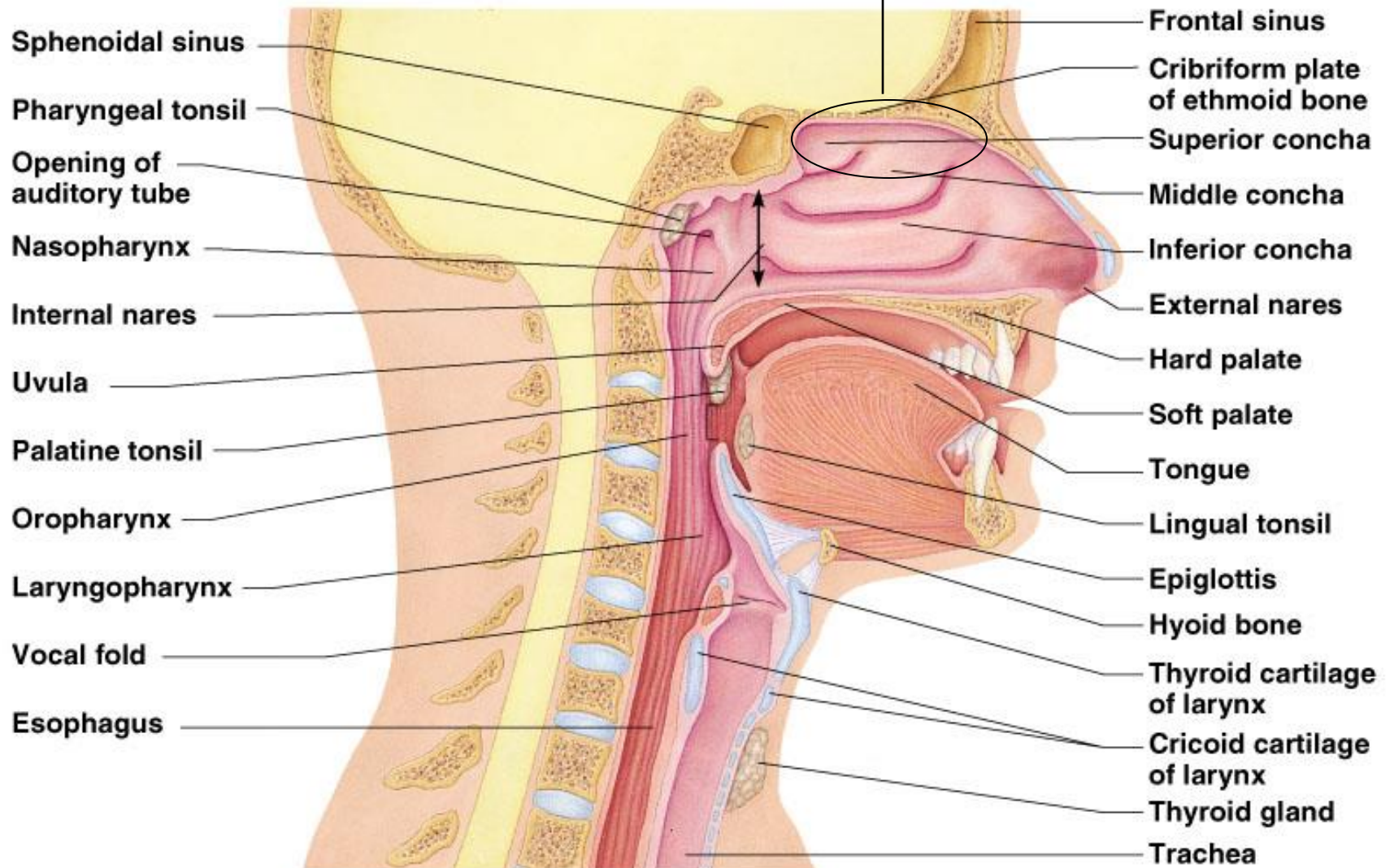


Anatomy of the Nasal Cavity

- ❖ Olfactory receptors are located in the *olfactory epithelium*
- ❖ The rest of the cavity is lined with mucous membrane
 - Moistens air
 - Traps incoming foreign particles

Upper Respiratory Tract

Olfactory epithelium



Anatomy of the Nasal Cavity

- Lateral walls have projections called conchae
 - “turbinate” bones
 - Increases surface area
 - Increases air turbulence within the nasal cavity

Anatomy of the Nasal Cavity

- The nasal cavity is separated from the oral cavity by the palate
 - Anterior hard palate (bone)
 - Posterior soft palate (muscle)

Paranasal Sinuses

- sinuses are paired air cavities/spaces (pockets) found in the cranial (head) bones.
- Sinuses are also referred to as "paranasal sinuses". They are connected to the nose on the facial part of the skull where air passes and mucus drains.

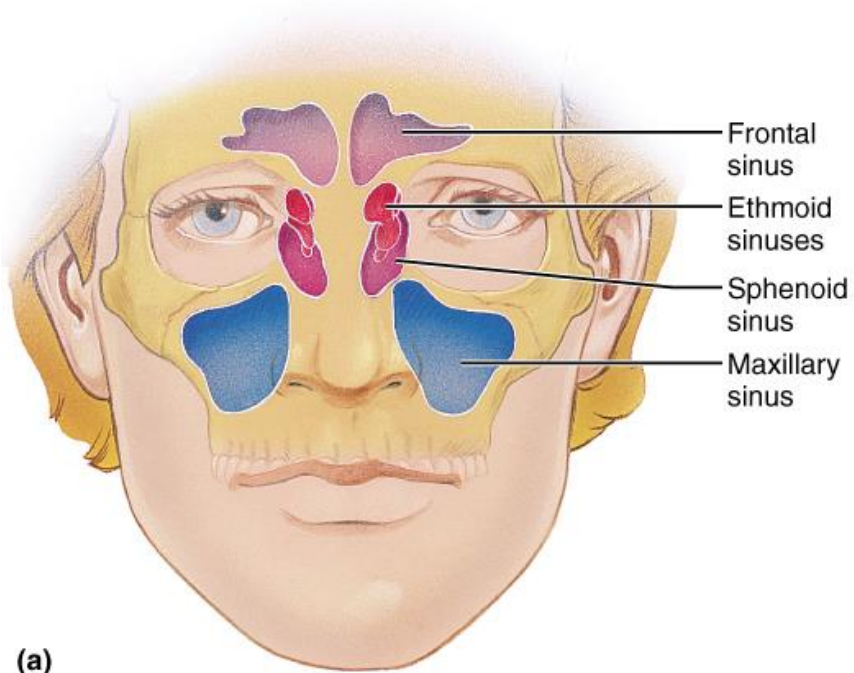
There are a total of four pairs of sinus cavities. They are given their names in accordance to where they are located on the face.

- Frontal sinuses
- Sphenoid sinuses
- Ethmoid sinuses
- Maxillary sinuses

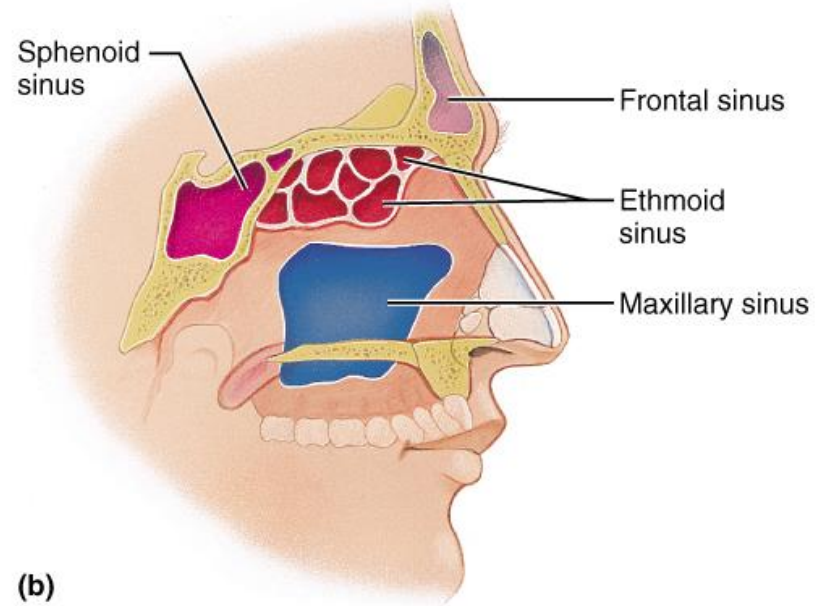
Paranasal Sinuses

- Function of the sinuses
 - Lighten the skull
 - Act as resonance chambers for speech
 - Produce mucus that drains into the nasal cavity

The Paranasal Sinuses



Anterior View



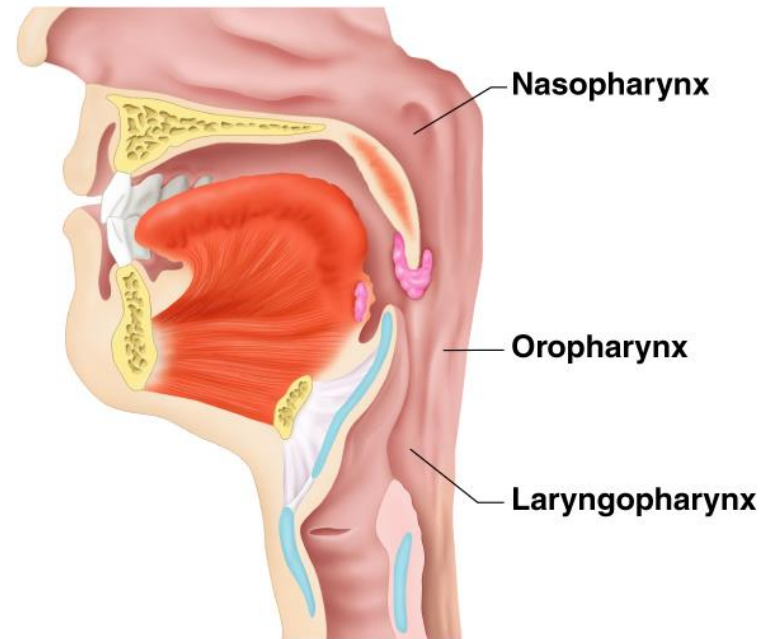
Lateral View

Pharynx (Throat)

- ❖ Muscular passage from nasal cavity to larynx
- ❖ Three regions:
 - Nasopharynx – superior, behind nasal cavity
 - Oropharynx – middle, behind mouth
 - Laryngopharynx – inferior, attached to larynx

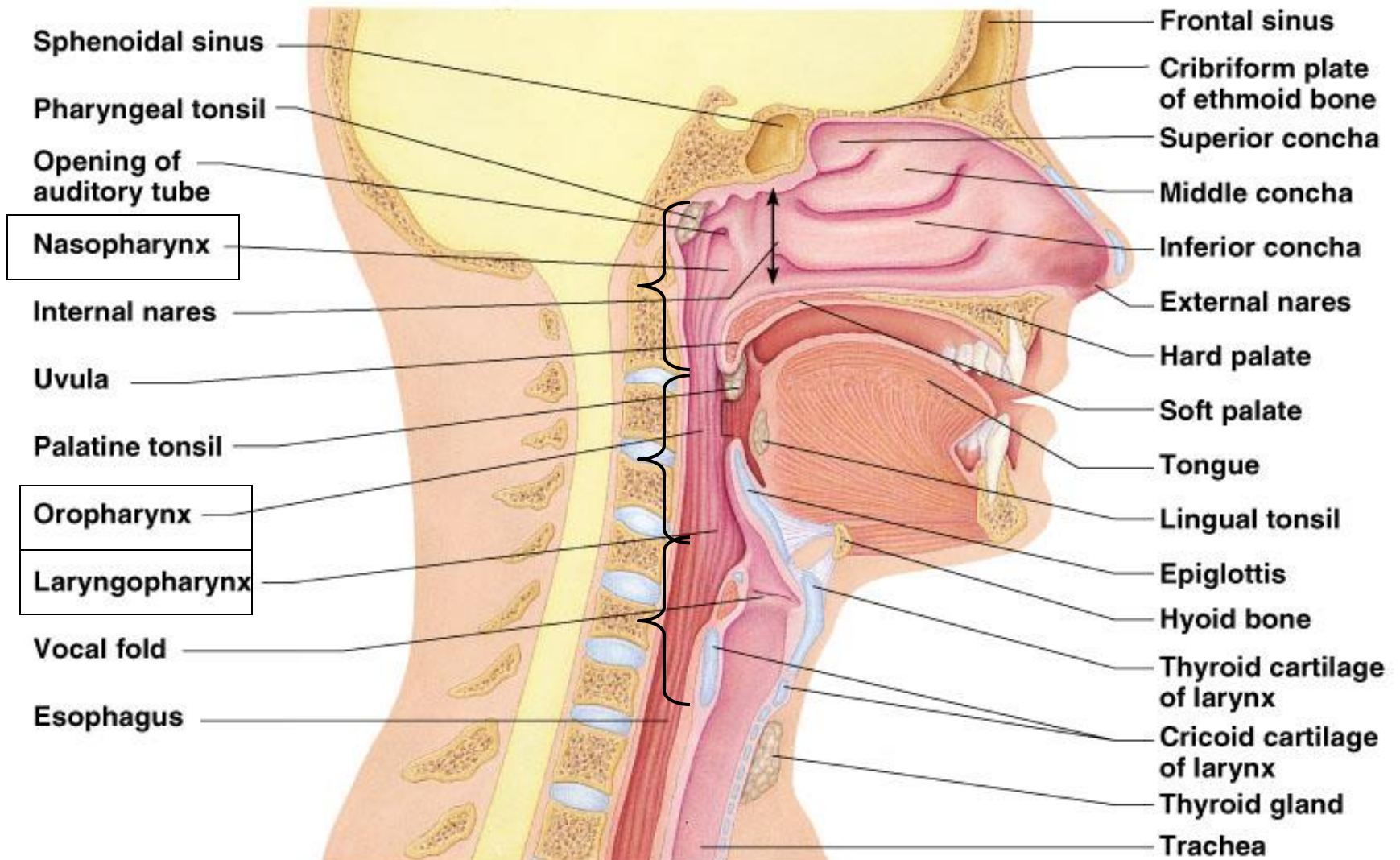
Pharynx (Throat)

- ❖ Nasopharynx is only respiratory
- ❖ The oropharynx and laryngopharynx
 - Common passageways for air and food
 - Part of two body systems



(a)

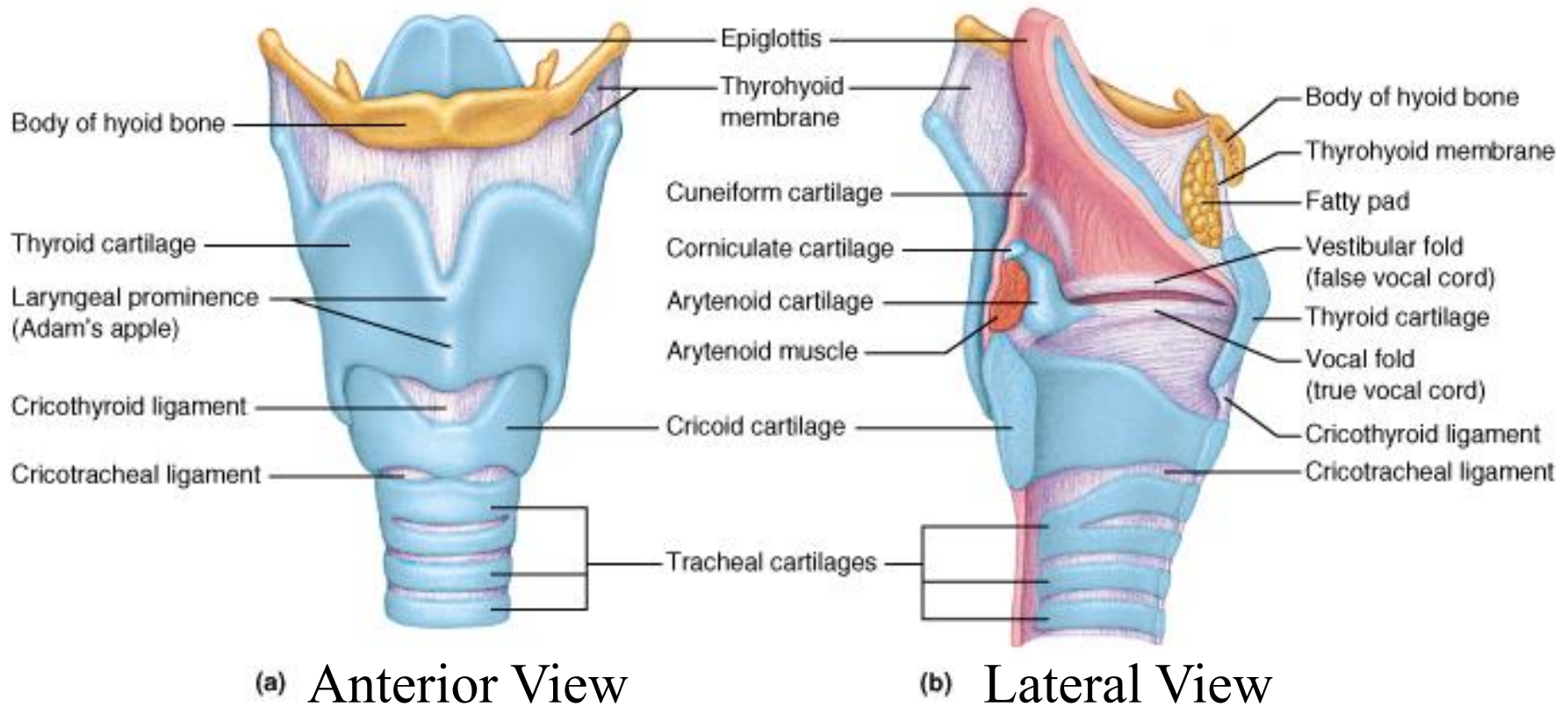
Upper Respiratory Tract



Larynx (Voice Box)

- Routes air and food into proper channels
- Plays a role in speech
- Consists of 9 cartilage structures

Anatomy of the Larynx



Structures of the Larynx

- **Thyroid cartilage**
 - Largest hyaline cartilage
 - Protrudes anteriorly (Adam's apple)
- **Epiglottis**
 - Superior opening of the larynx
 - Protects larynx during swallowing

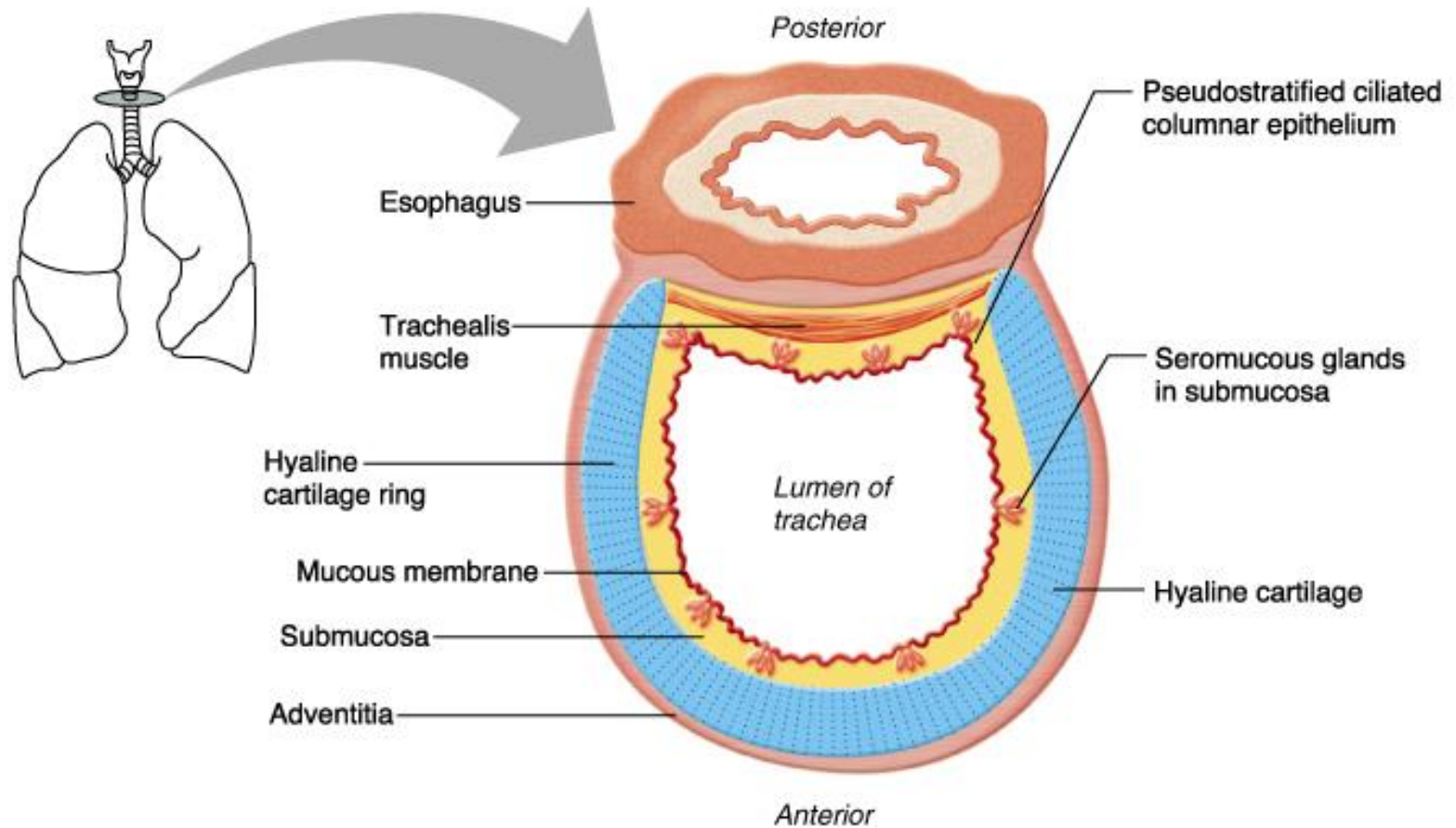
Structures of the Larynx

- *False vocal cords*
 - Act as valves
- *True vocal cords* (vocal folds)
 - Vibrate with expelled air to create sound (speech)
- *Glottis* – opening between vocal cords

Trachea:

- Connects larynx with bronchi
- Lined with ciliated mucous membrane

The Trachea

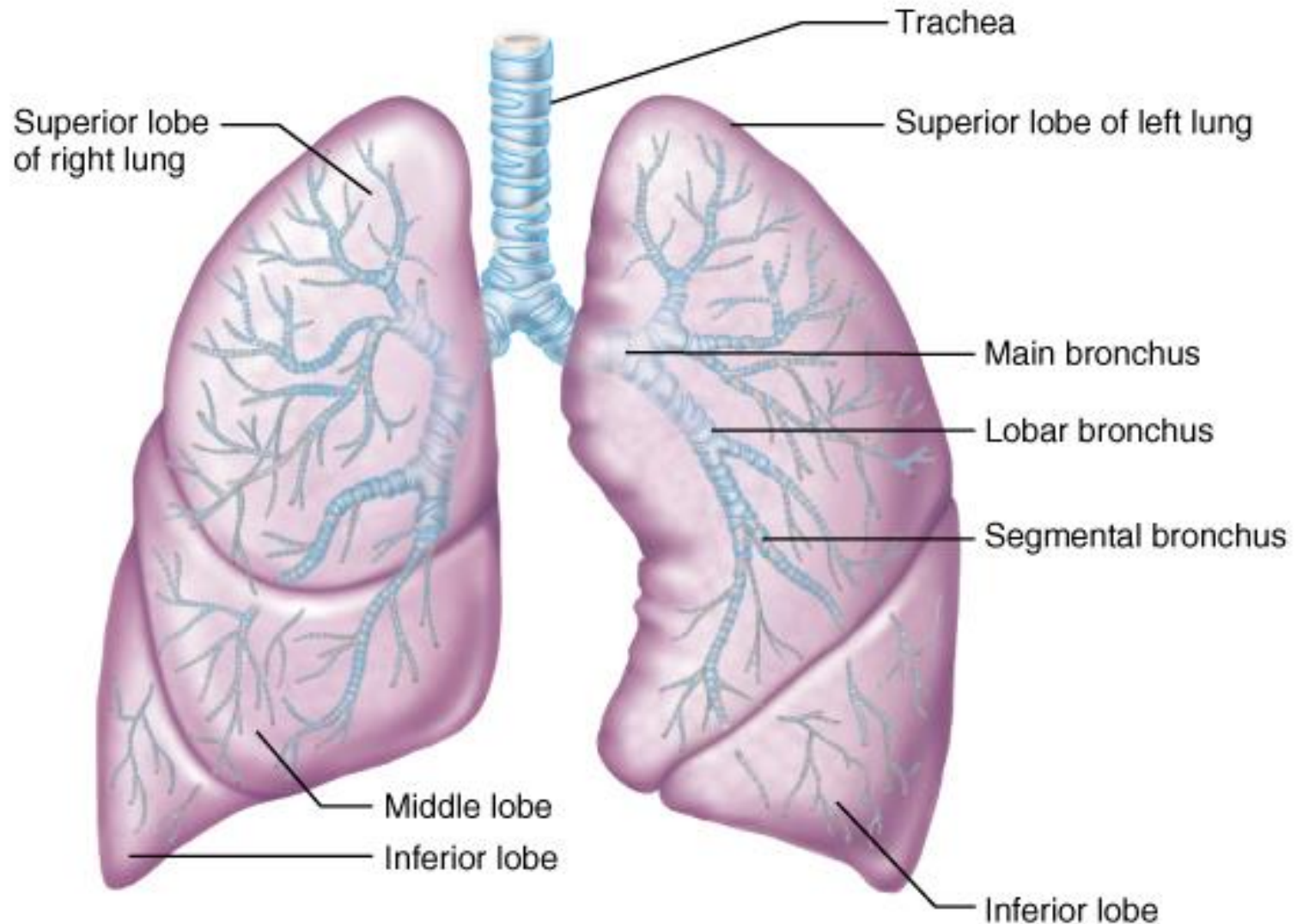


(a)

Primary Bronchi

- Formed by division of the trachea
- Enter the lung at the hilus
- Right bronchus: wider, shorter, and straighter than left
- Bronchi subdivide into smaller tubes

Bronchial (Respiratory) Tree



Lungs

Occupy most of the thoracic cavity

- *Apex* is near the clavicle (superior)
- *Base* rests on the diaphragm (inferior)

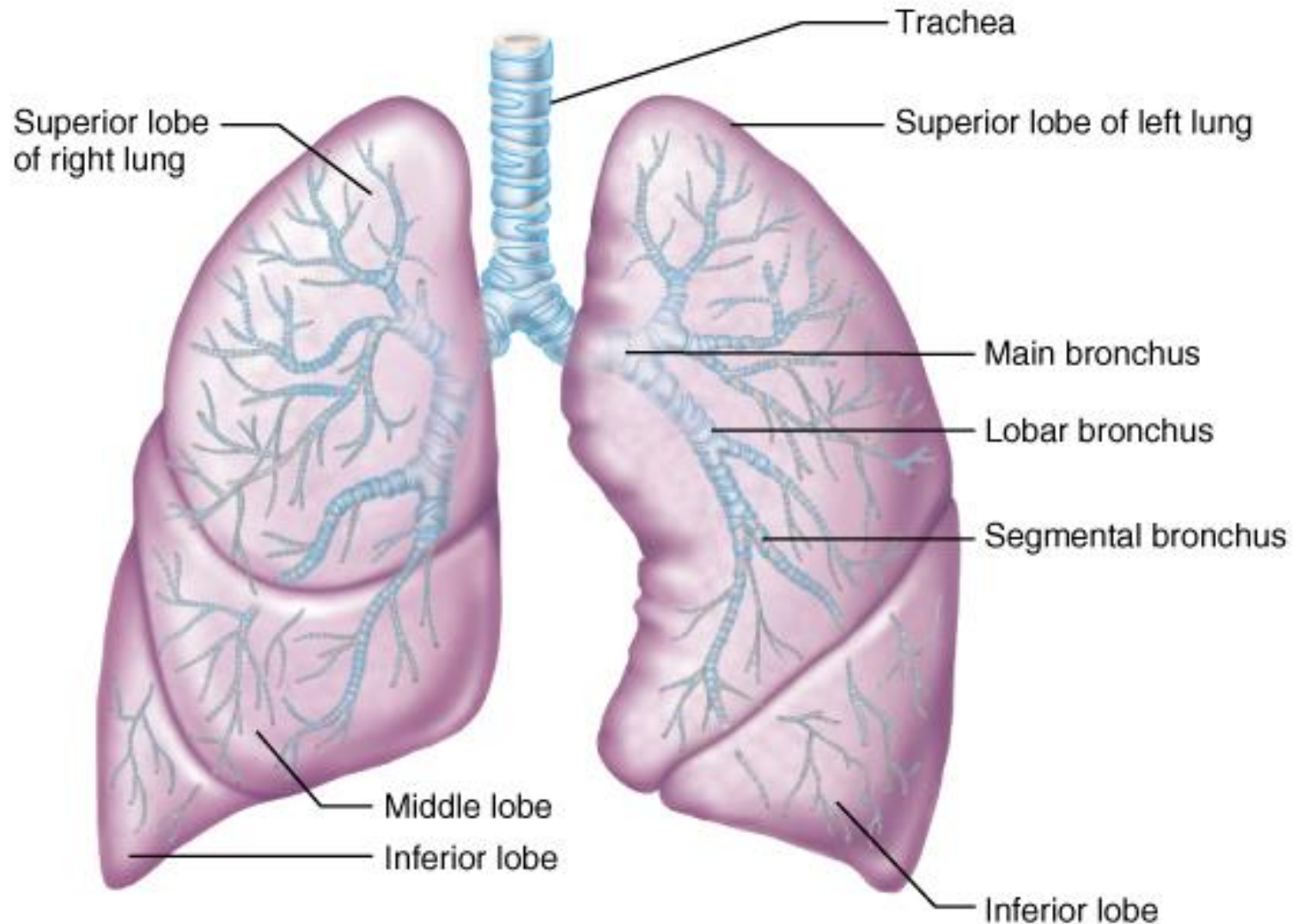
Each lung is divided into lobes by fissures

- *Right lung* – three lobes
- *Left lung* – two lobes

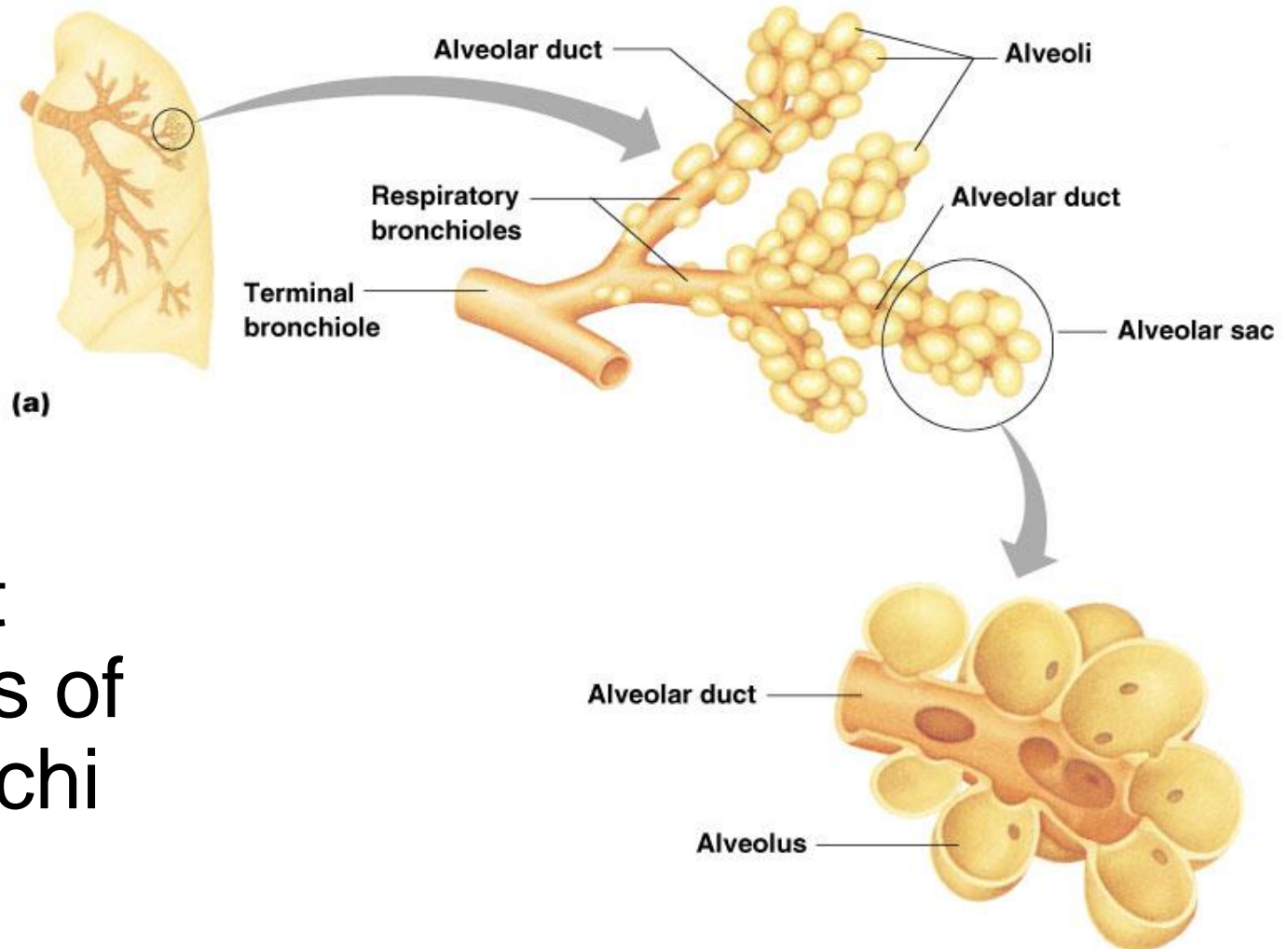
Respiratory Tree Divisions

- Primary bronchi
- Secondary (lobar) bronchi
- Tertiary bronchi
- Bronchioles
- Terminal bronchioles

Bronchial (Respiratory) Tree



Bronchioles



- Smallest branches of the bronchi

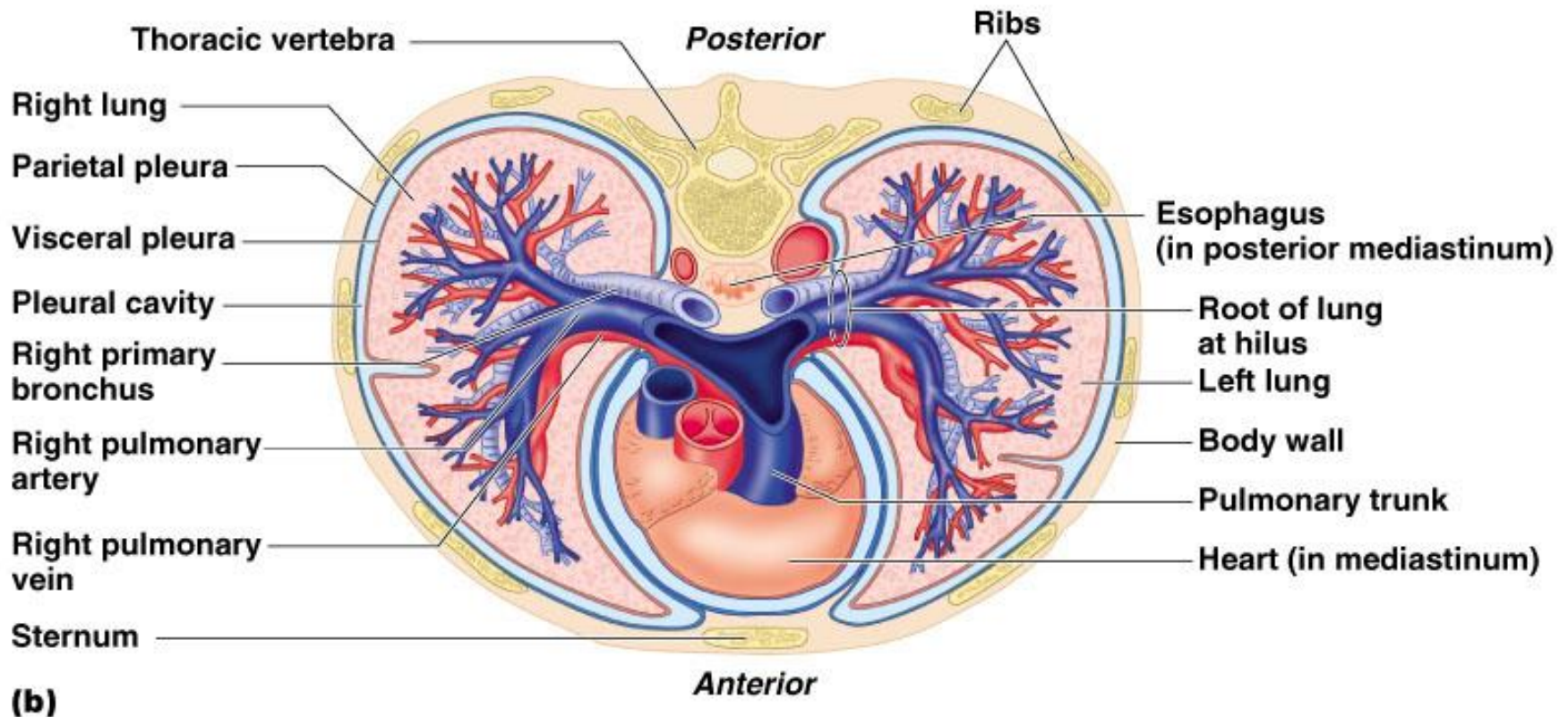
Respiratory Zone

- Structures
 - ❖ Respiratory bronchioles
 - ❖ Alveolar duct
 - ❖ Alveoli
- Site of gas exchange

Coverings of the Lungs

- *Visceral pleura* covers the lung surface
- *Pleural cavity* contains serous fluid
- Parietal pleura lines the walls of the thoracic cavity

Pleural Membranes and Cavity



THANK YOU