



# AIRWAY ANATOMY FOR AIRWAY MANAGEMENT

DND Primary Care Paramedicine

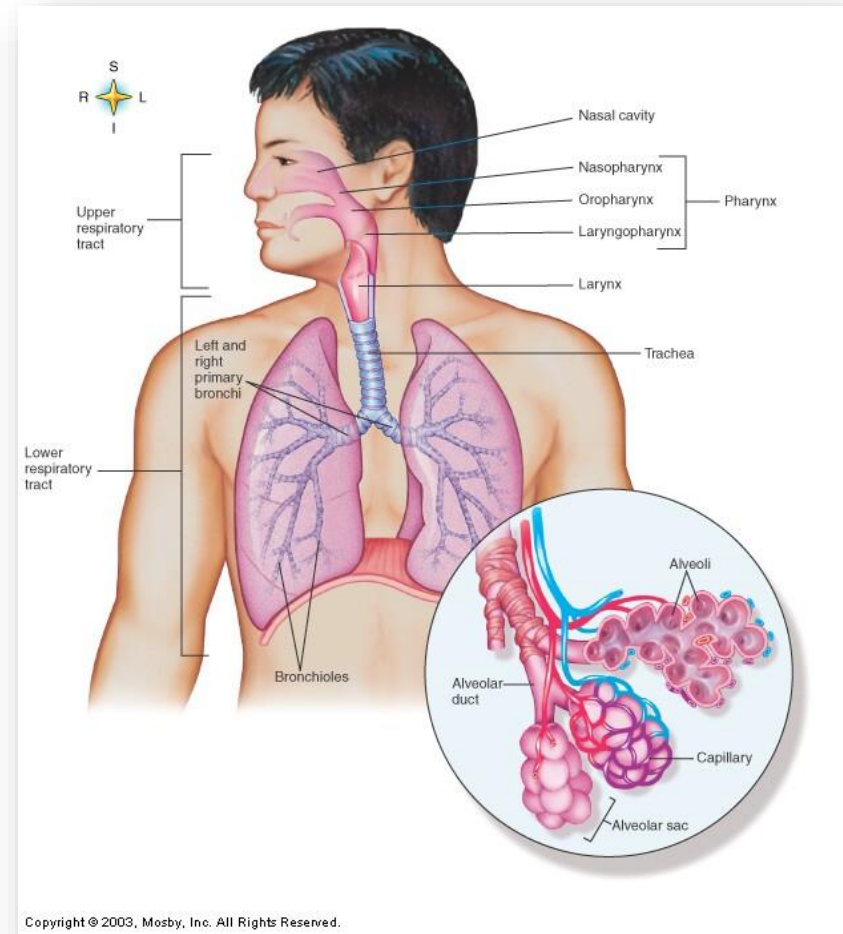
Module: 03

Section: 06

- Identify the structures of the Respiratory System
- Discuss the function of each structure
- Relate the function and structure to airway management

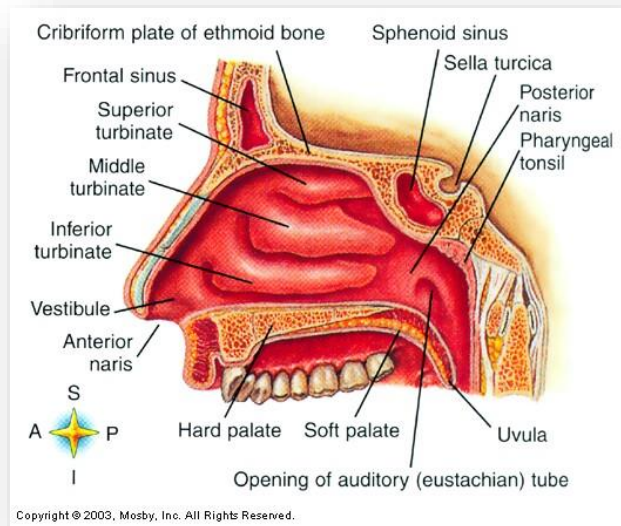
# The Respiratory System

- Divided into two sections:
  - Upper Airway
  - Lower Airway



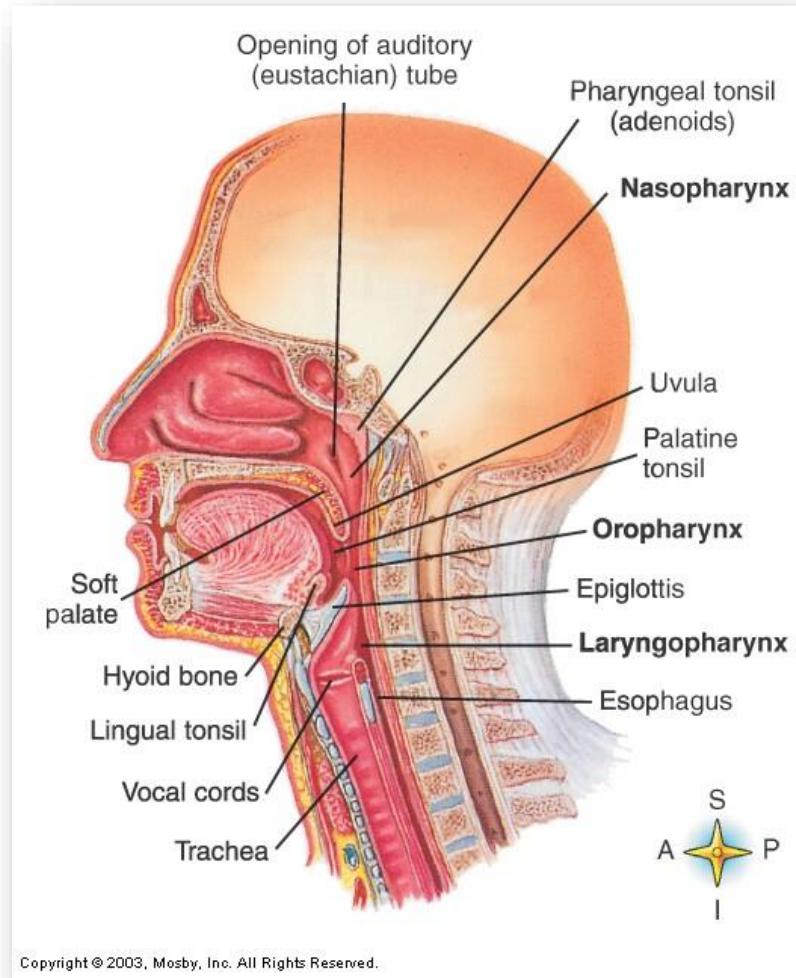
- Nasal cavity
- Oral Cavity
- Pharynx
  - Nasopharynx
  - Oropharynx
  - Laryngopharynx
- Larynx

- Anatomy
  - Anterior (external) nares
  - Nasal septum
  - Vestibule
  - Turbinates (conchae)
    - Inferior, middle and superior
  - Internal (posterior) nares



- Function
  - Nasal mucosa
    - Ciliated columnar epithelium
    - Rich in goblet cells
  - Rich in vasculature
    - Heat air as it enters the system
    - Cilia trap foreign materials
    - Goblet cells “package” for excretion
  - Roof of nose (above superior turbinate)
    - Olfactory epithelium





- **Anatomy**

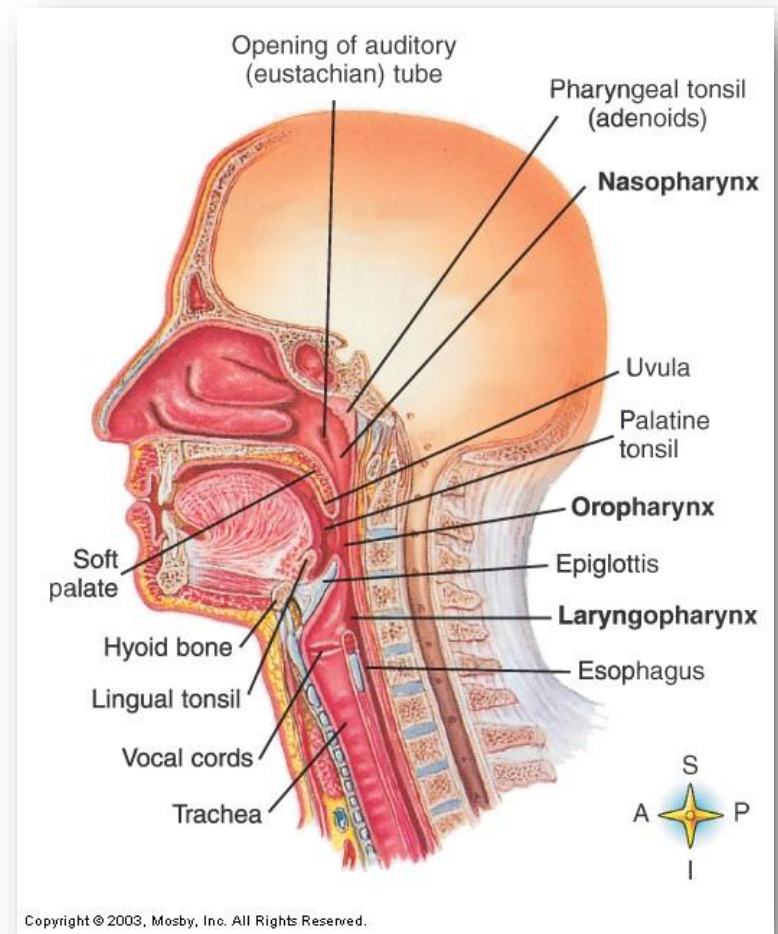
- Entrance of nutrients and liquid

- Lips
- Teeth
- Tongue
- Hard palate
- Soft palate
- Uvula

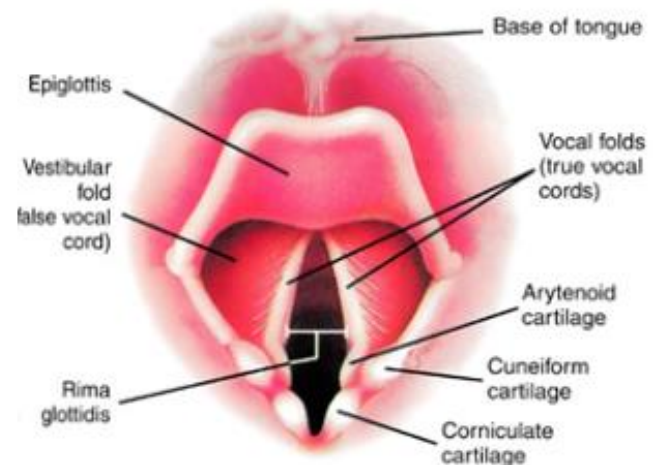
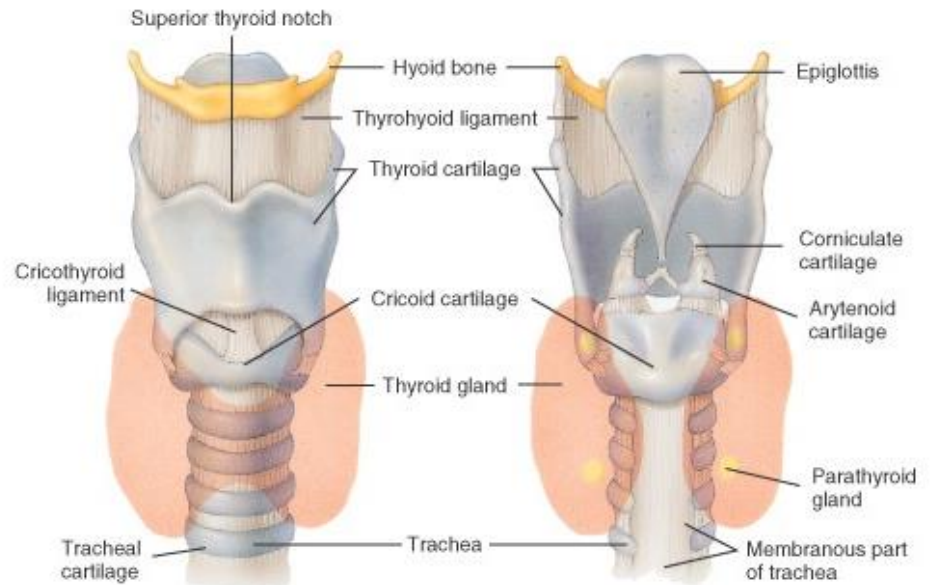
- **Function**

- Acts as a secondary respiratory tract if nasal cavity blocked
- Direct food and liquid down towards the esophagus

- Extends from the base of the skull to the esophagus
- Divided into 3 sections:
  - Nasopharynx
    - Pharyngeal tonsils (adenoids if enlarged)
    - Does not collapse
  - Oropharynx
    - Palatine tonsils (at the fauces)
    - Lingual tonsils (base of the tongue)
  - Laryngopharynx
- Muscular with a mucous membrane
- Ciliated

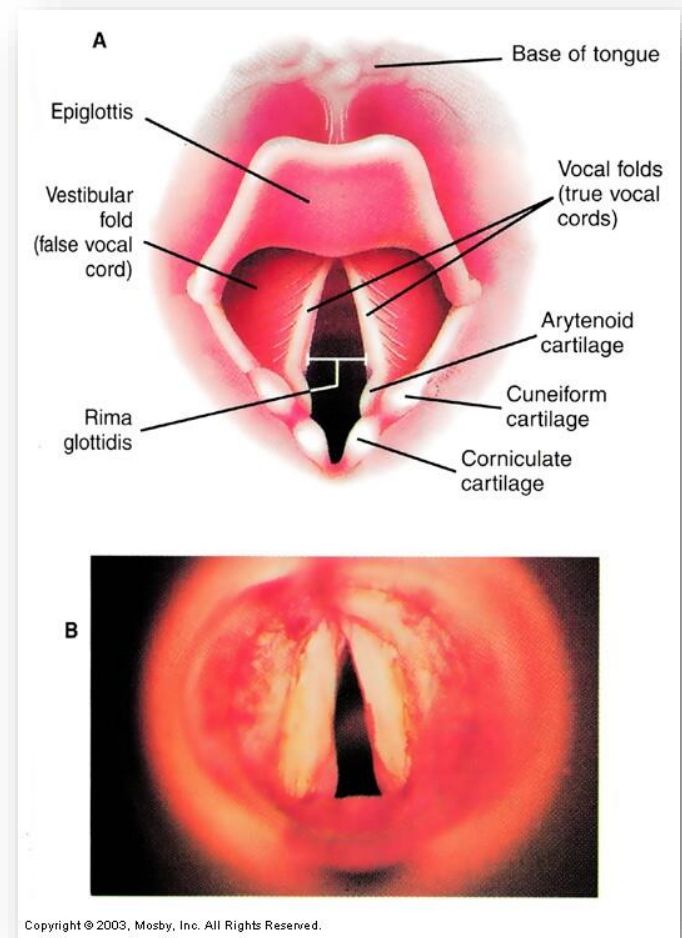


- Comprised of 9 Cartilages
  - Thyroid Cartilage
  - Cricoid Cartilage
  - Epiglottis
  - Corniculate (X 2)
  - Cuneiform (X 2)
  - Arytenoid (X 2)
- Extends from the root of the tongue to the trachea
- Lined with ciliated mucous membrane
- This membrane forms two pairs of folds



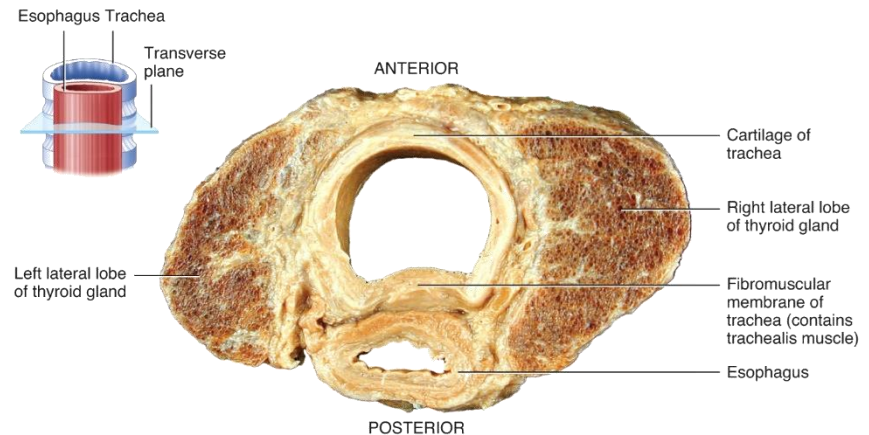
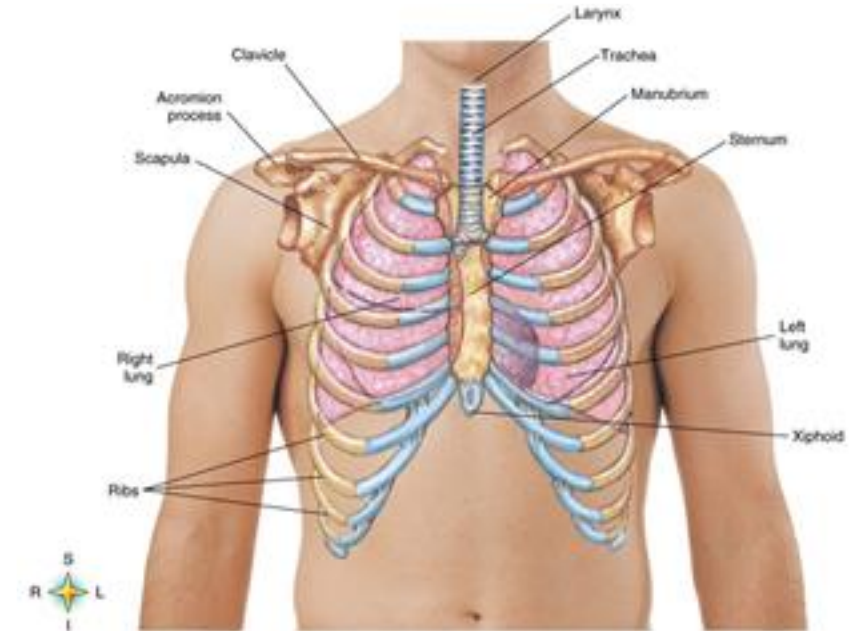


- Upper pair
  - Vestibular fold (false vocal cords)
  - Play no part in pronunciation
- Lower pair
  - Vocal folds (true vocal cords)

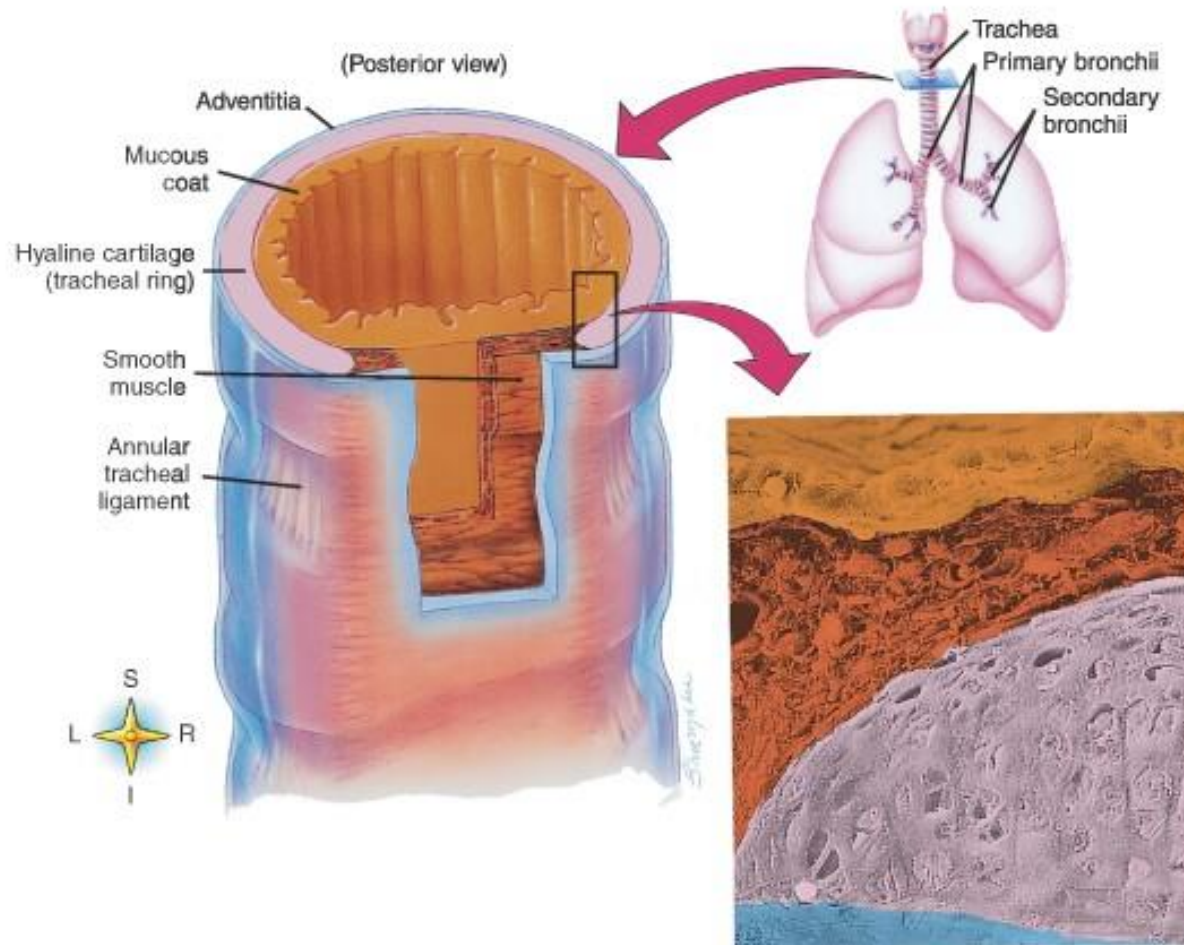


- Trachea
- Bronchi
- Alveoli

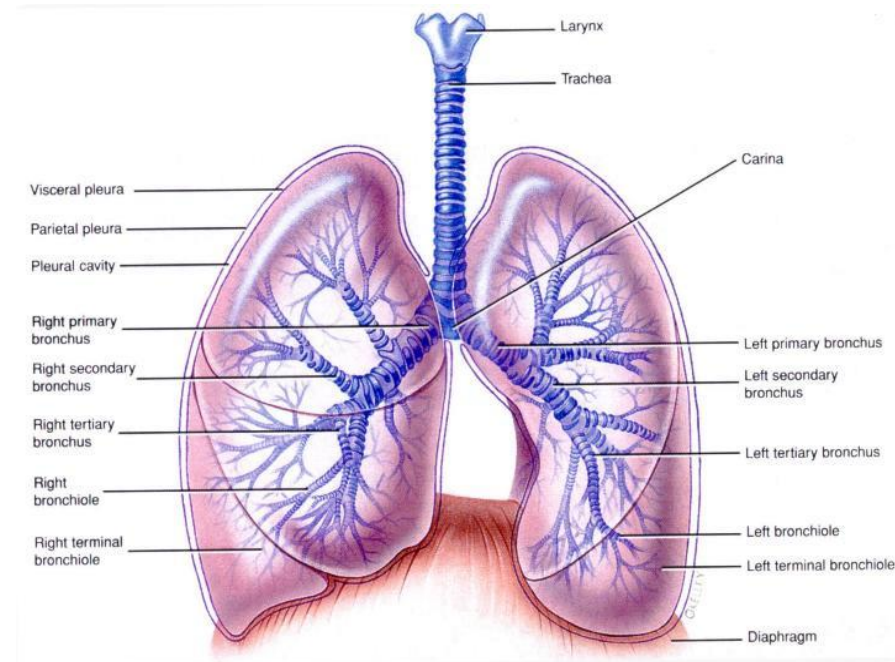
- Approx. 12 cm long
  - Extends from the larynx to the primary bronchi
  - Is approx. 2.5 cm in diameter
- C-shaped cartilage
- Has ciliated epithelium cells



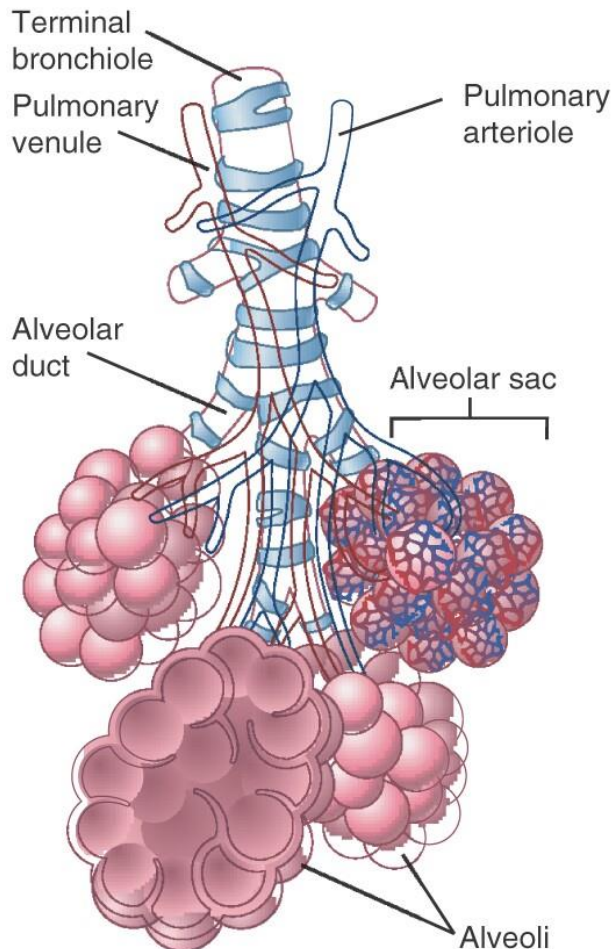
Superior view of transverse section of thyroid gland, trachea, and esophagus



- Anatomy
  - Carina
  - Ciliated membranes
  - Primary bronchi (right and left mainstem)
    - Still C-shaped
  - Secondary bronchi (complete rings)
  - Tertiary bronchi (complete rings)
  - Bronchioles (no cartilage, muscular)
- Function
  - Distribution of air to the alveoli

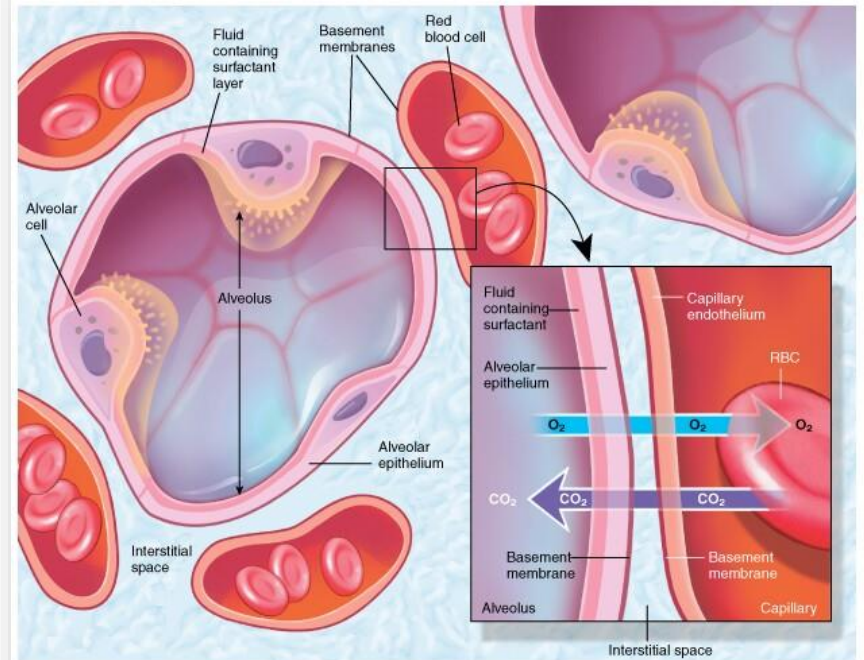




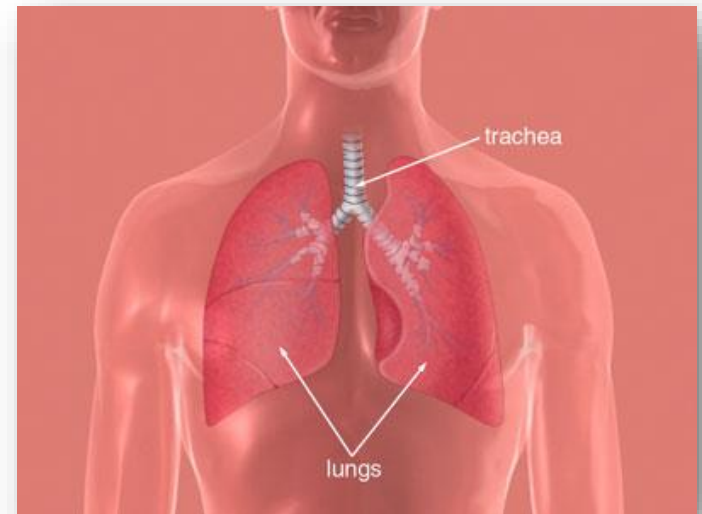


- Anatomy
  - Alveolar ducts
  - Alveoli
    - Capillary abundant on outer surface
  - Surfactant
    - Lipid derivative that helps reduce surface tension
    - Produced by Type II Alveolar cells
    - Prevents collapse of the lung
  - Single layer of epithelial tissue (respiratory membrane)
- Function
  - Location of gas exchange

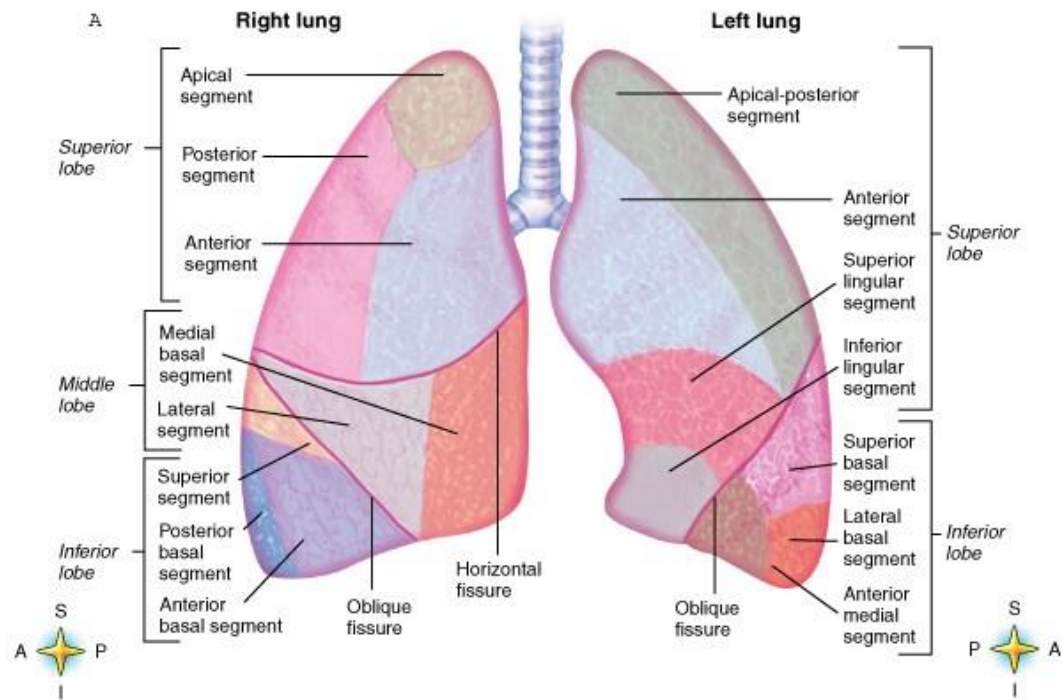
- Respiratory Membrane
- Surfactant
  - Reduce surface tension



- Cone shaped
- Base
  - Rests on the diaphragm
- Apex
- Costal surface
  - Lies against the rib cage
- Only point of attachment is the hilum
- Right and left lungs are separated by the mediastinum



- Right
  - 3 lobes
    - URL, MRL, LRL (superior, middle and inferior)
  - Divided by oblique and horizontal fissures
  
- Left
  - 2 lobes (cardiac notch)
    - ULL, LLL (superior and inferior)
  - Divided by oblique fissure



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- Each lung covered with pleura
  - Visceral
    - Firmly attached to the surface of the lung
  - Parietal
    - Lines the wall of the thorax
- Potential space in between is called the pleural cavity
- This contains a serous fluid that acts as a lubricant to reduce friction

