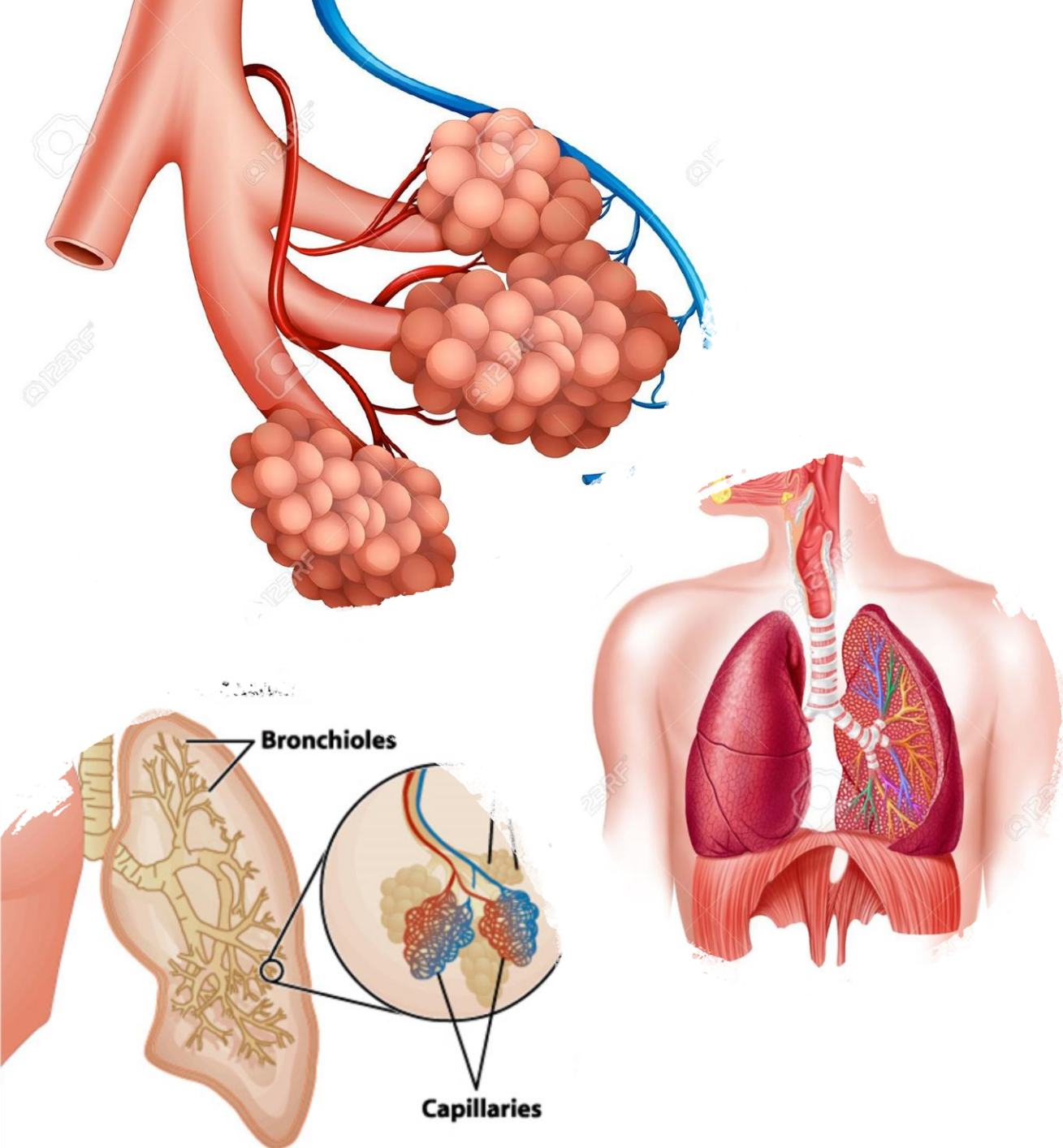


# The Respiratory System

Lesson 17

# The Respiratory System

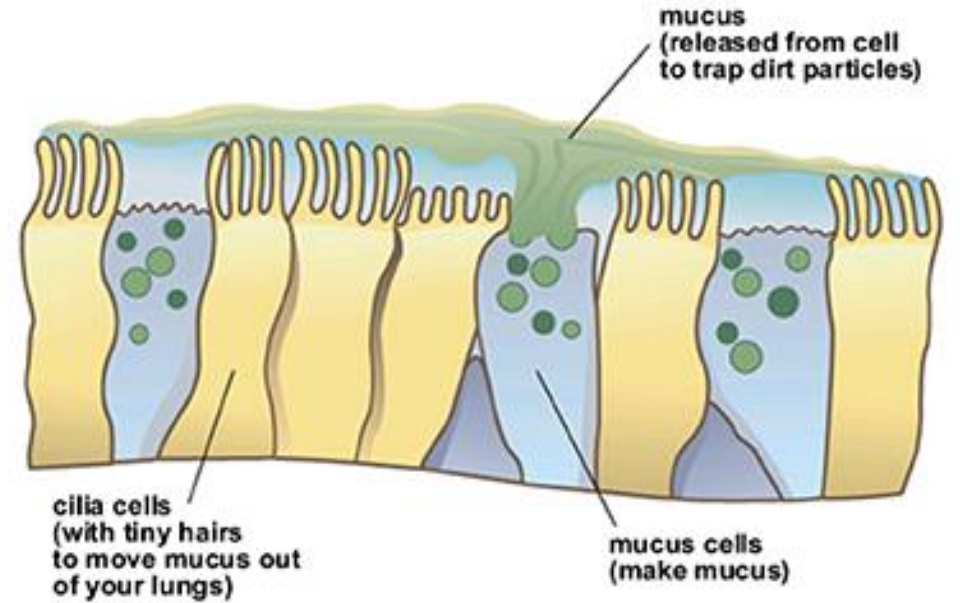
- Allow us to breathe in oxygen and exhale carbon dioxide
- Without gas exchange, we would be unable to survive
- In the **lungs**, oxygen is collected and carbon dioxide is released into the **alveoli**



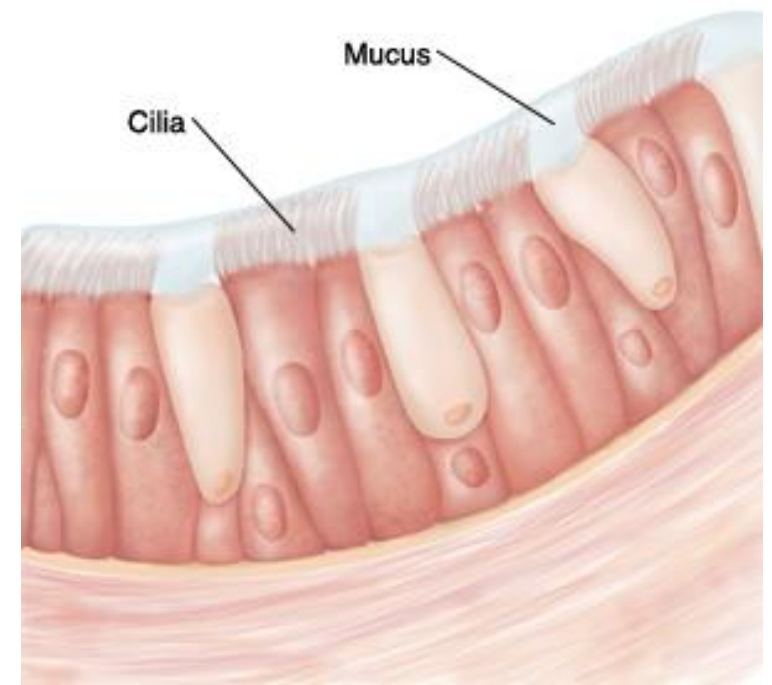
# Breathing

## The Respiratory System

- The process that brings oxygen into the body
- Begins when we inhale air through our nose or mouth
- The air is warmed and filtered by tiny hairs called **cilia**, and sticky **mucus** in your nose
- **Cilia** and **mucus** trap dirt and other particles and either push them back out the nostril or down into the digestive system



Airway Walls

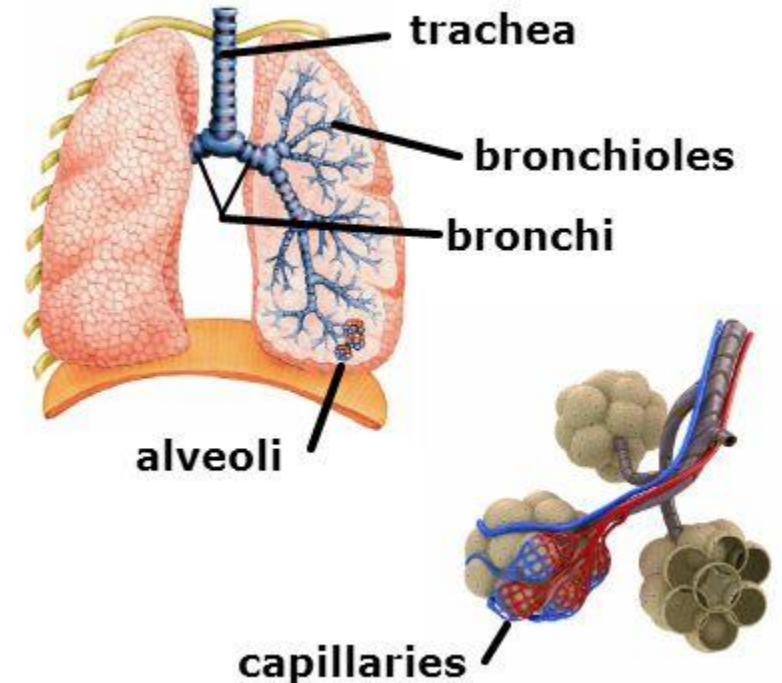
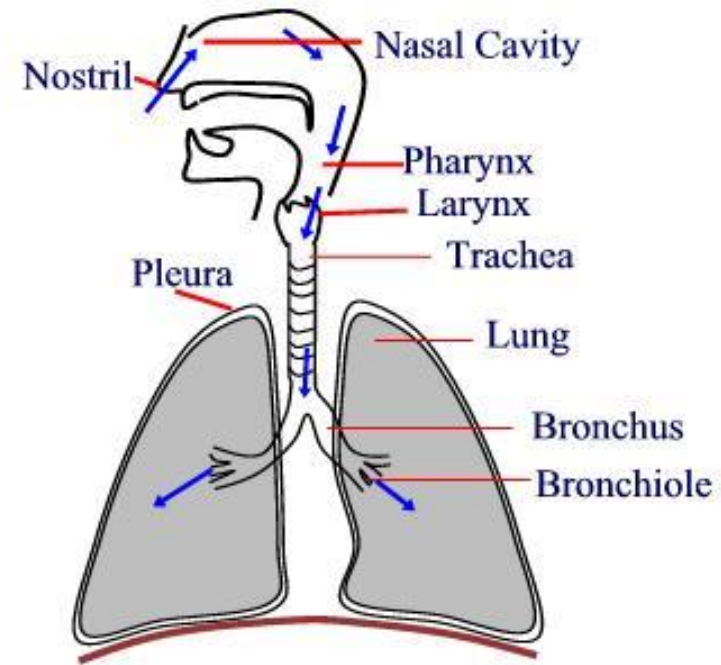




# Breathing

## The Respiratory System

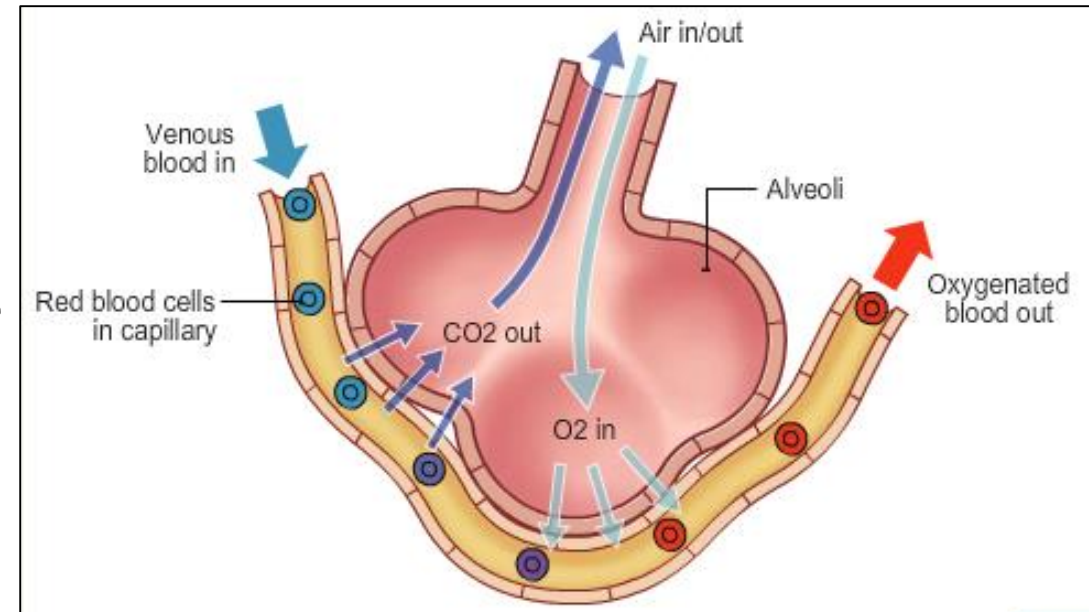
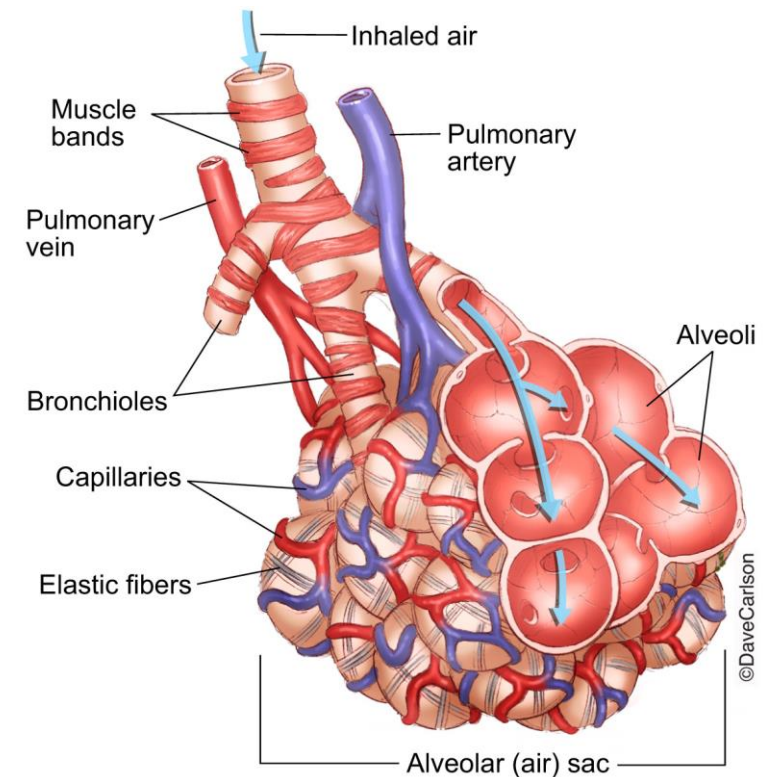
- The air continues down into the pharynx, past the epiglottis and through your **larynx** (voice box – contains vocal cords)
  - Vocal cords vibrate as air passes through them, producing sounds
- Then, the air goes into the airway passage called the **trachea**
- The bottom of the **trachea** branches off into two tubes called **bronchi** (sing. Bronchus)
  - Air passes through and goes directly to the lungs
- **Bronchi** branch into smaller air tubes called **bronchioles**
- Finally, air reaches tiny, thin-walled sacs called **alveoli** (sing. Alveolus)
  - Where gas exchange takes place



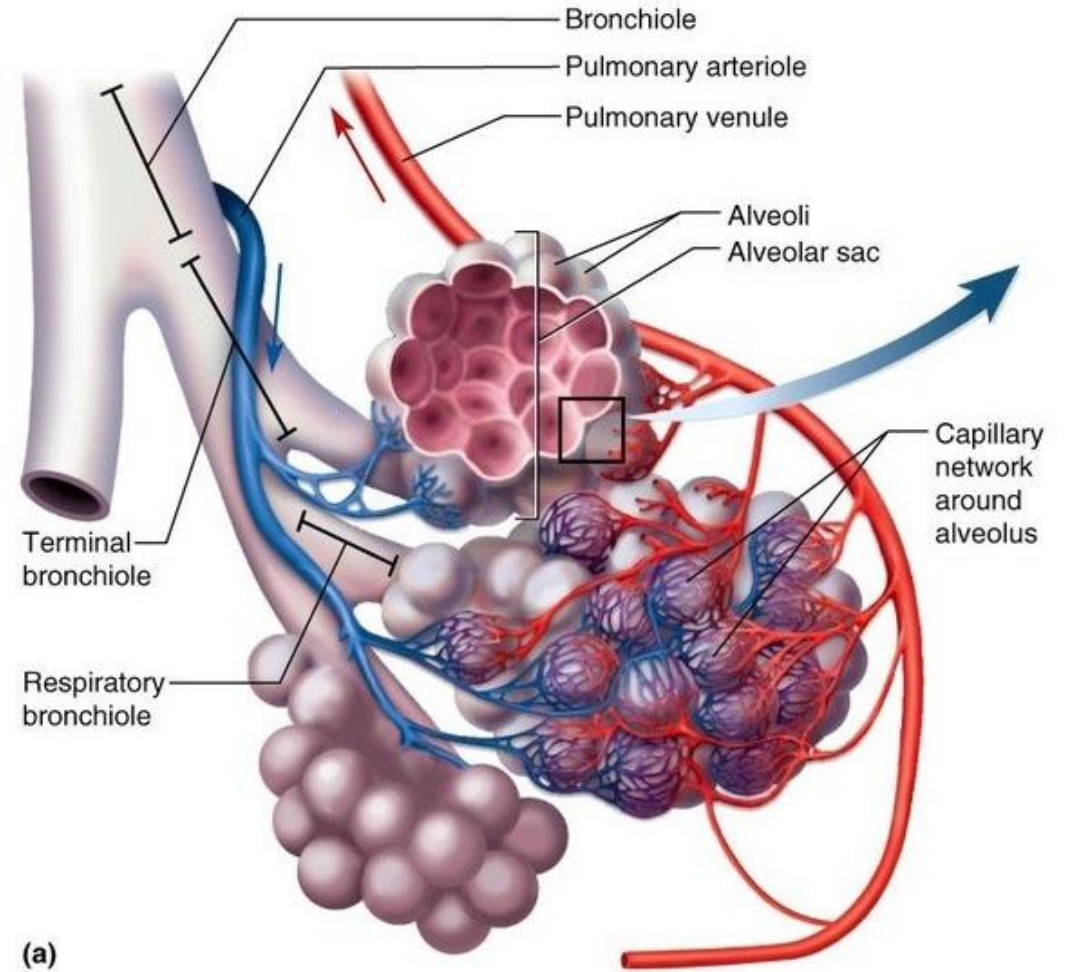
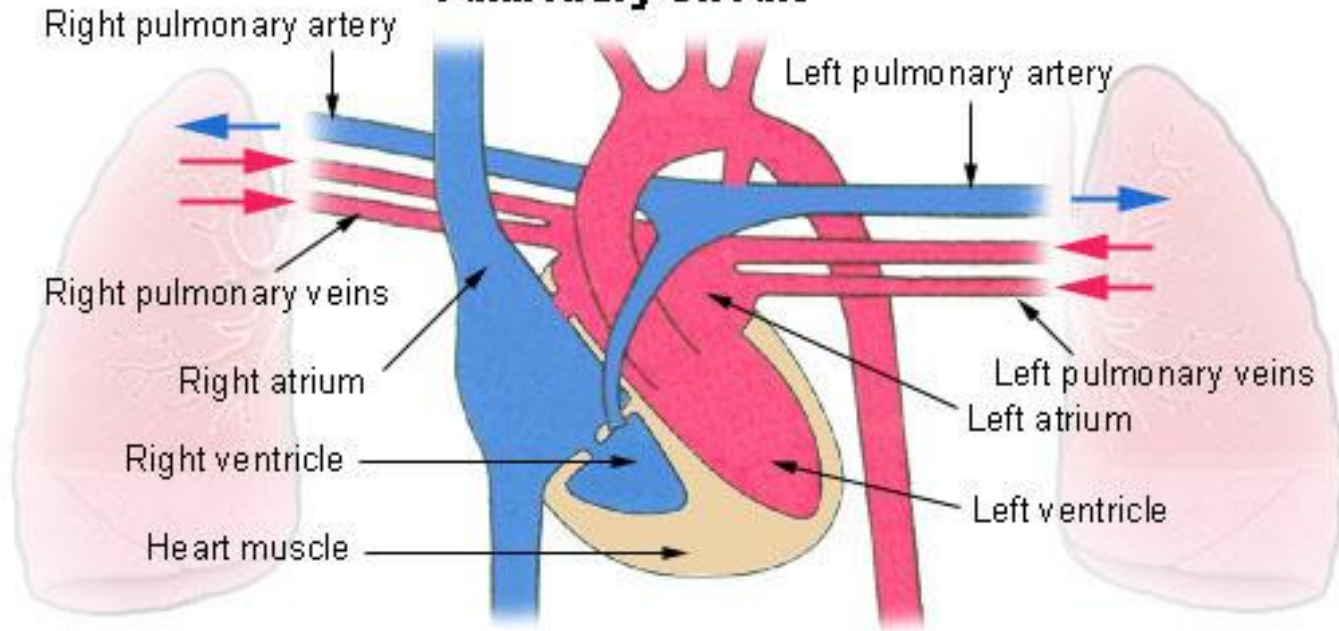
# Gas Exchange in the Alveoli

- There are millions of **alveoli** at the ends of the **bronchioles**
- Each alveolus is surrounded by **capillaries**
  - Where respiratory structures and circulatory structures interact
- **Deoxygenated blood** coming from the capillaries surround the alveoli
  - Carbon dioxide diffuses out of the capillaries and into the alveoli
- Oxygen diffuses out of the alveoli and into the capillaries
  - Oxygen binds with the red blood cells
  - **Oxygenated blood** returns to the heart to be pumped to the rest of the body

This whole process is called **GAS EXCHANGE**



## Pulmonary Circuit



# Recall

- What is the difference between bronchi and bronchioles?
- Name the gases exchanged between alveoli and capillaries
- What structures from the respiratory and circulatory systems are involved in gas exchange?