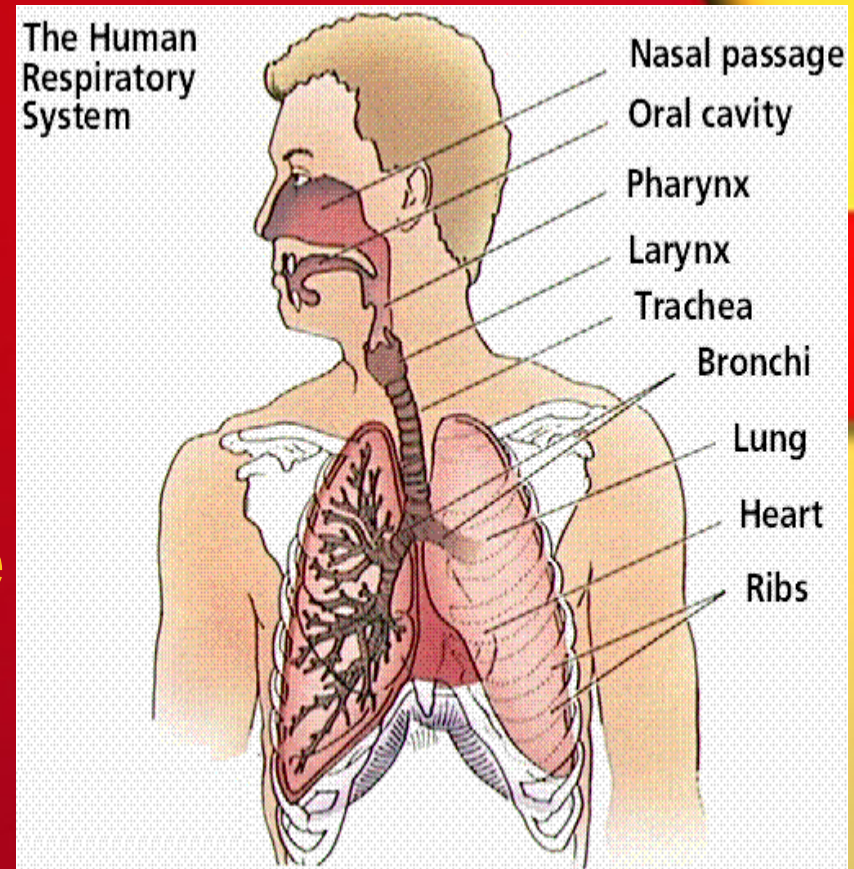


Respiratory &  
Excretory  
Systems

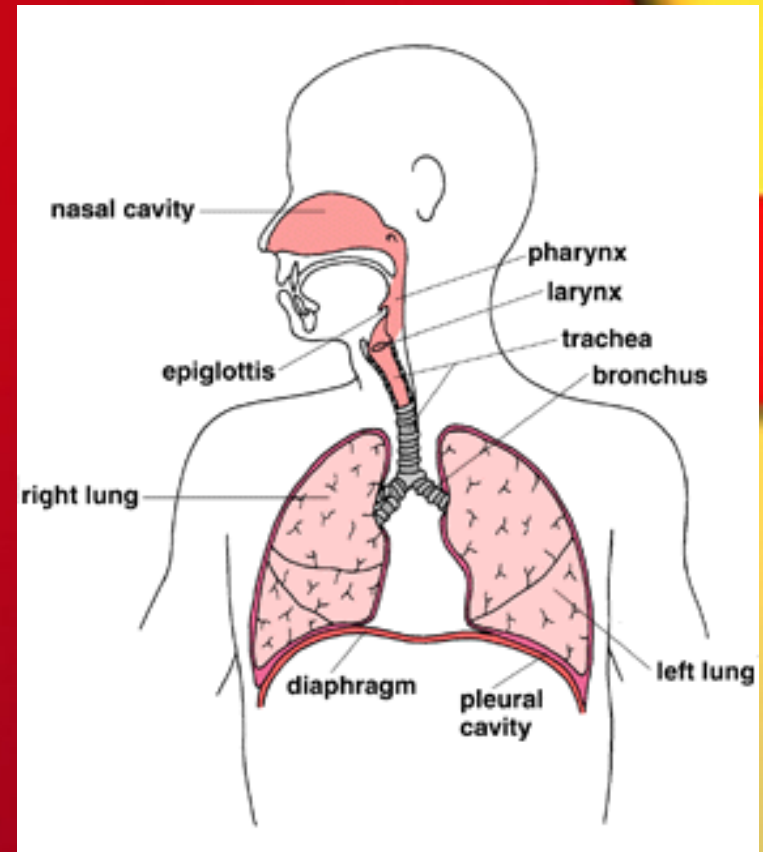
# Part 1: Respiratory System

- Provides cells with oxygen needed for cellular respiration.
- Eliminates carbon dioxide.
- This system is made up of:
  - The Lungs
  - Airways

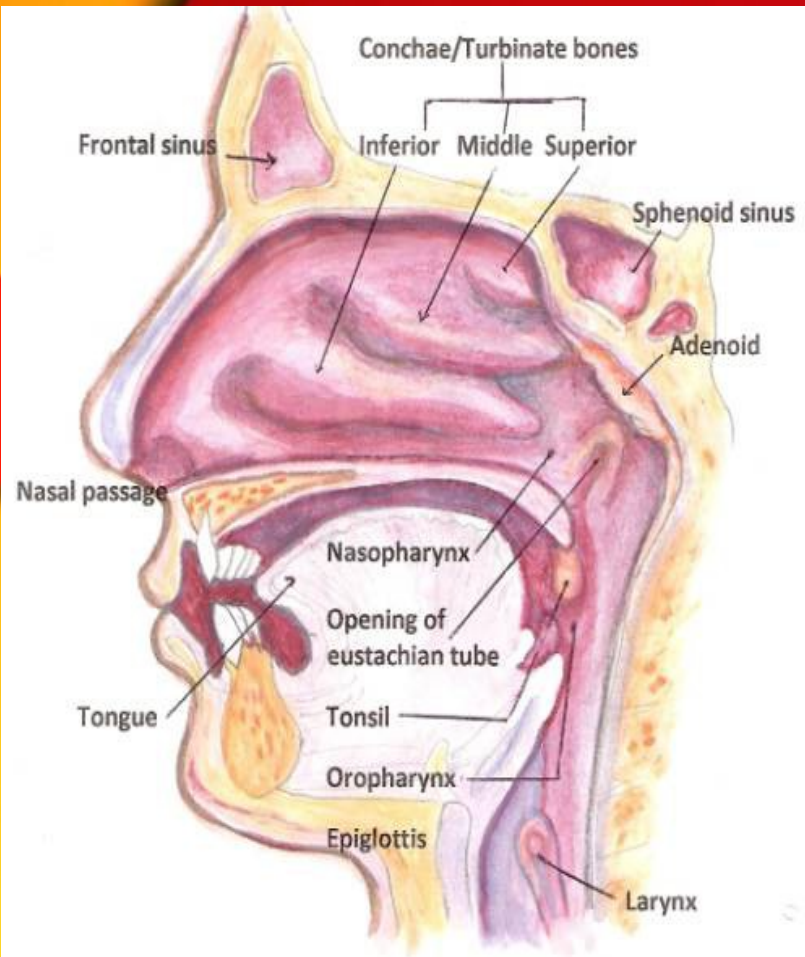


# Airways

- The respiratory system consists of a series of airways.
  - Nasal Cavity
  - Pharynx
  - Larynx
  - Trachea
  - Bronchi and Bronchioles

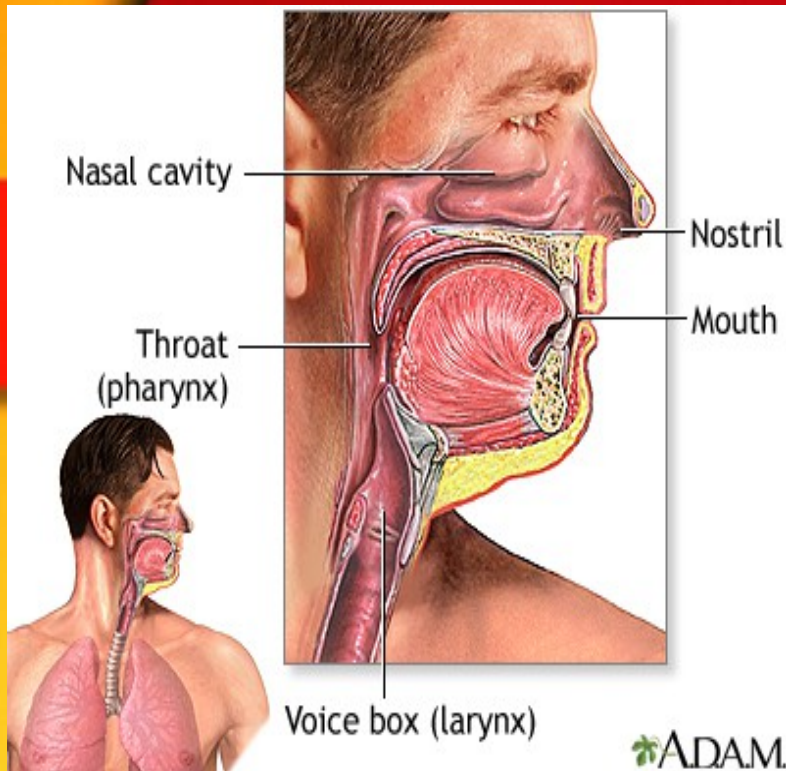


# Nasal Cavity



- This is where air enters the respiratory system.
- Within the nasal cavity is an internal wall full of capillaries.
  1. The blood inside capillaries warms up the air.
  2. The mucous membranes purify and moisten the air.

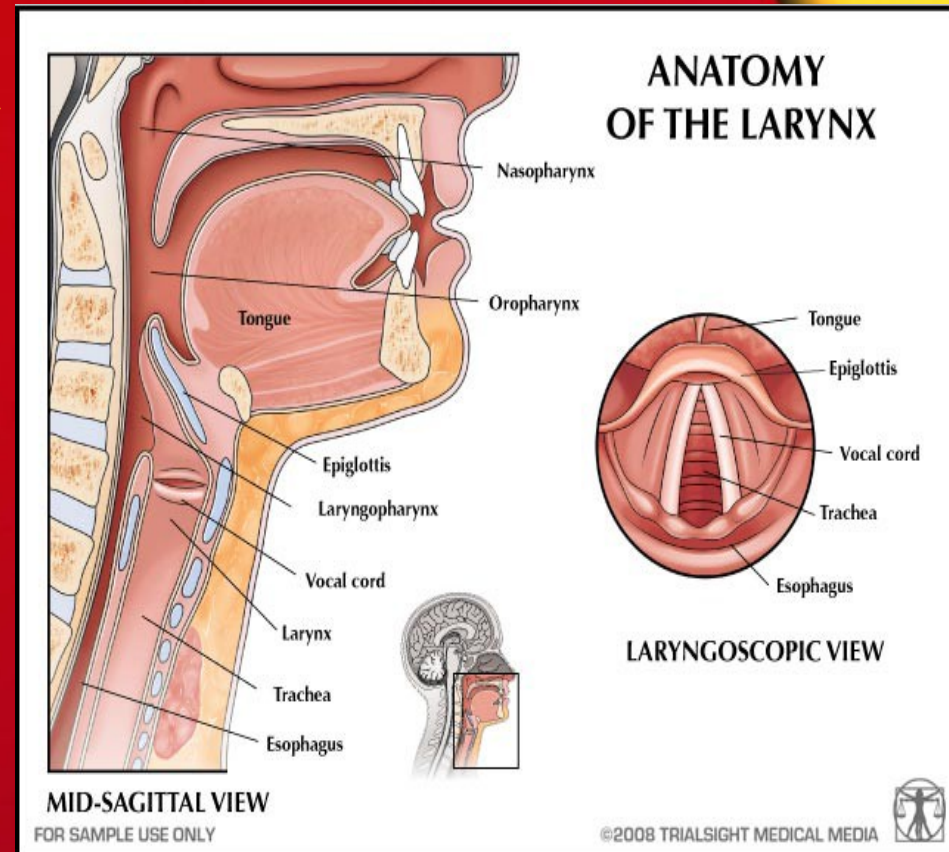
# Pharynx



- After the Nasal Cavity comes the Pharynx.
- This tract is shared by the digestive and respiratory systems.

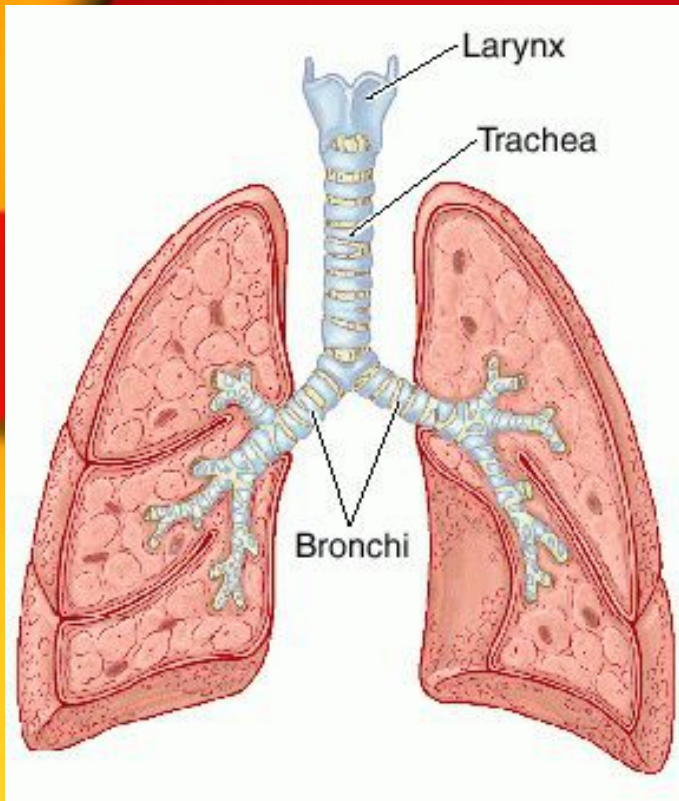
# Larynx

- The entrance to the Larynx is controlled by the epiglottis.
- Epiglottis: fibrous structure which closes when there is food in the larynx.
- This prevents food from entering the airways while swallowing.



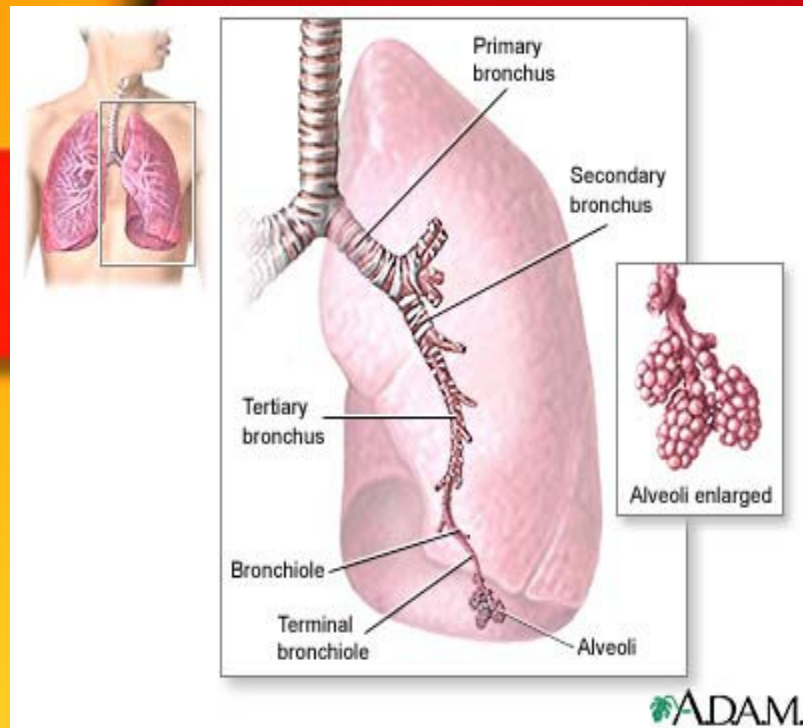
# Trachea

- The trachea is a tube with c-shaped rings of cartilage around the back.
- Inside the trachea there are moving hair-like projections called cilia.
- Mucus in the trachea traps any foreign particles in the air.



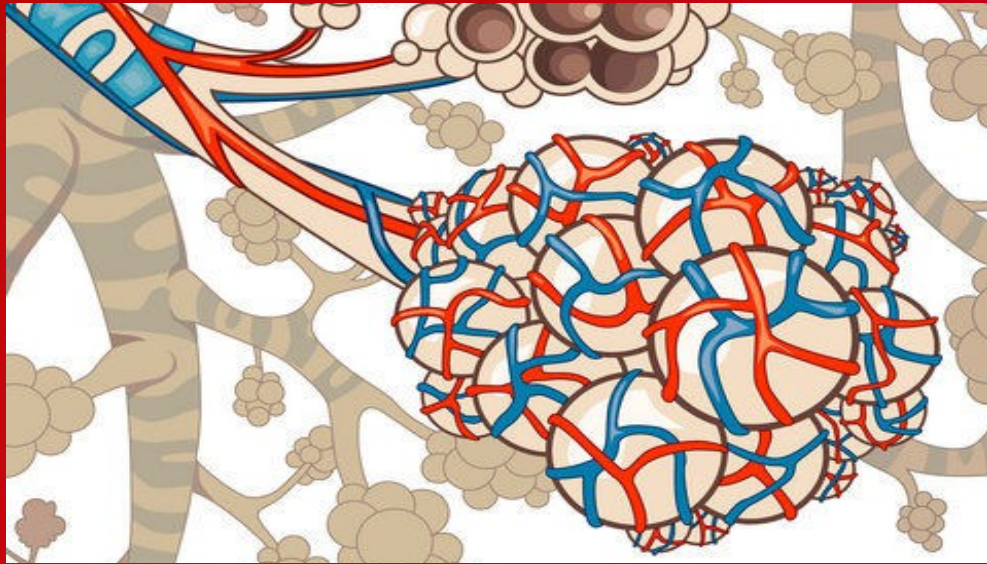
# Bronchi & Bronchioles



- The trachea divides into two bronchi, with each one leading to a lung.
- Within the lungs bronchi split into smaller tubes called bronchioles.
- The bronchioles then lead to tiny sacs, called pulmonary alveoli.





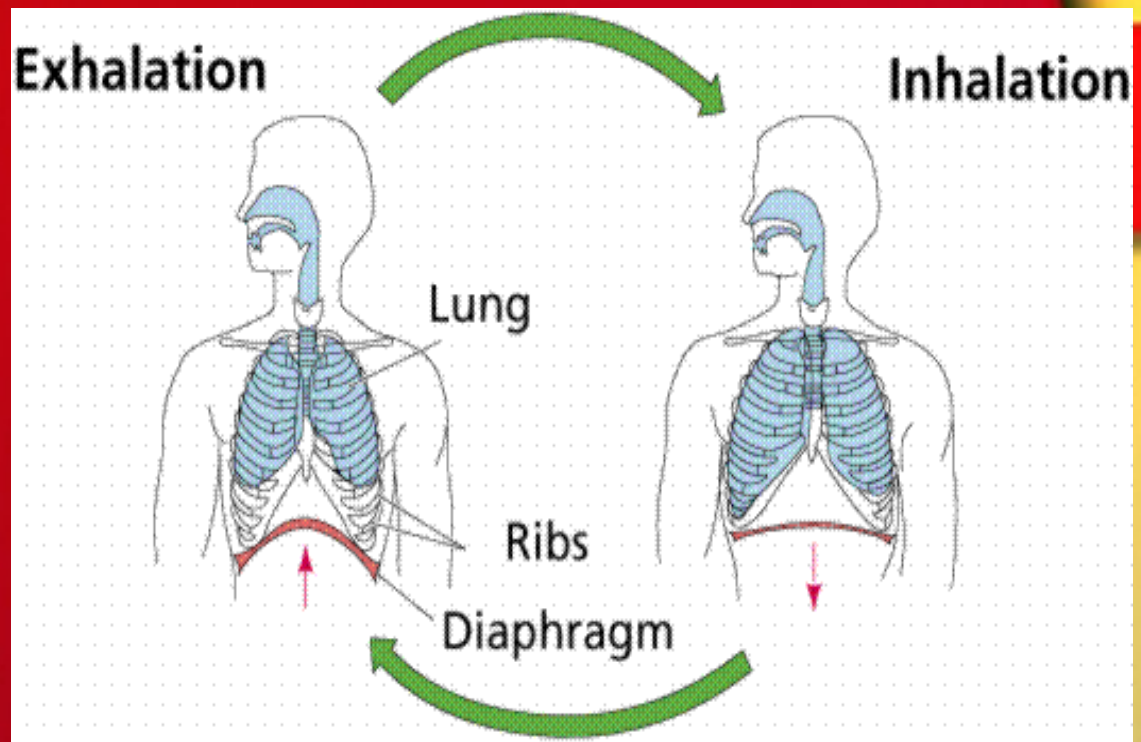
# Gas Exchange



- Gas is exchanged between the air and the blood in the capillaries that surround the pulmonary alveoli.
- Oxygen: air  blood
- Carbon dioxide: blood  air

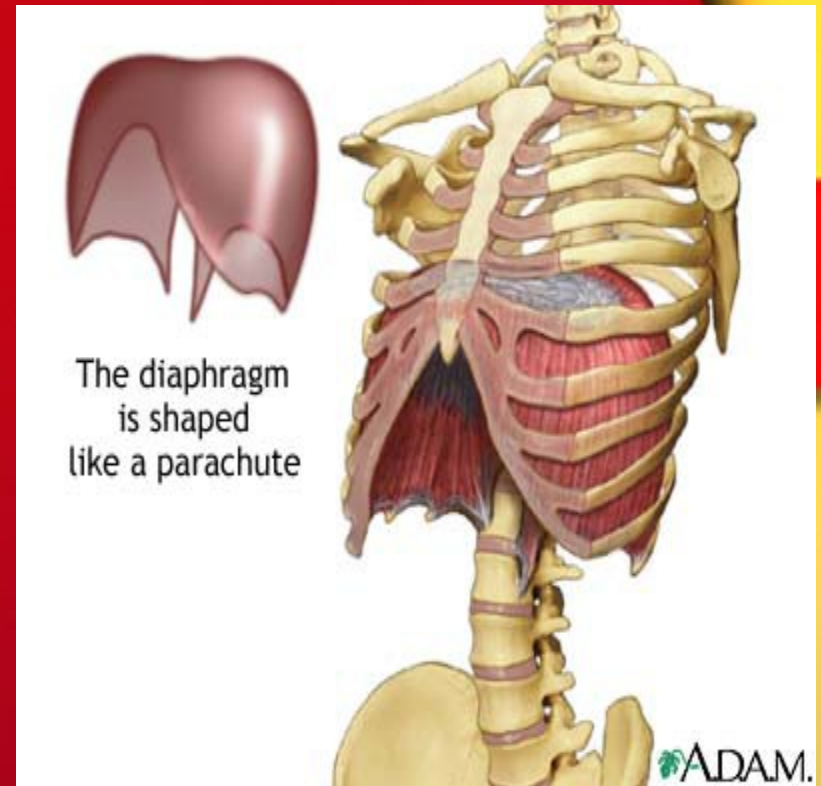
# Pulmonary Ventilation

- Also known as *breathing*.
- Two steps:
  - Inspiration
  - Expiration

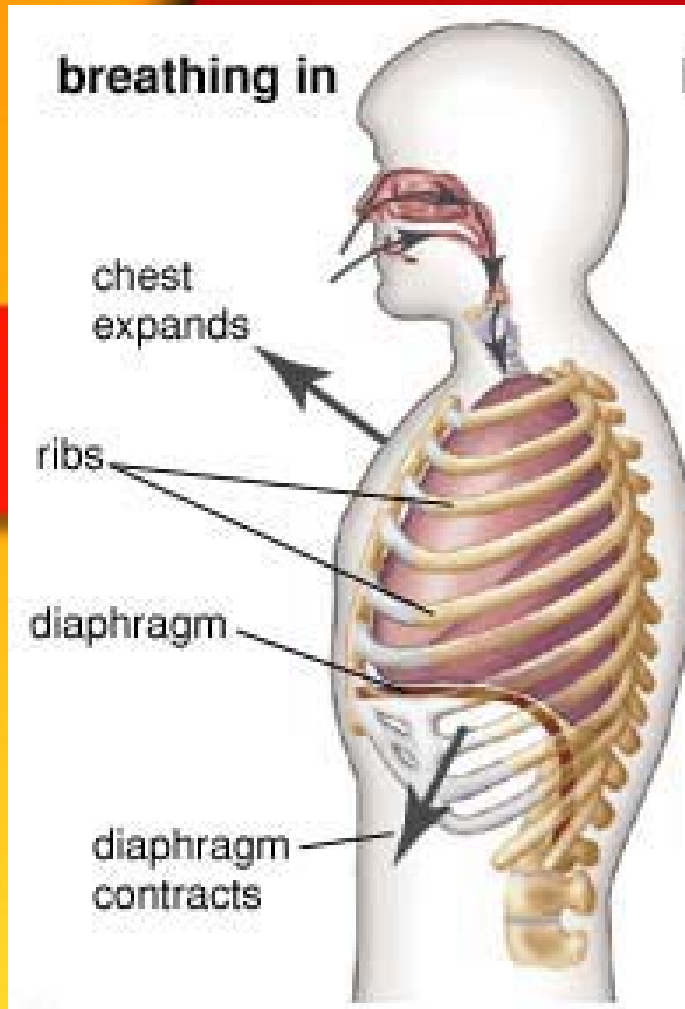


# Breathing Anatomy

- Diaphragm: sheet of muscle shaped like a dome that moves up and down when we breathe.
- Thoracic cavity: Protective structure which houses major cardiovascular and respiratory organs.

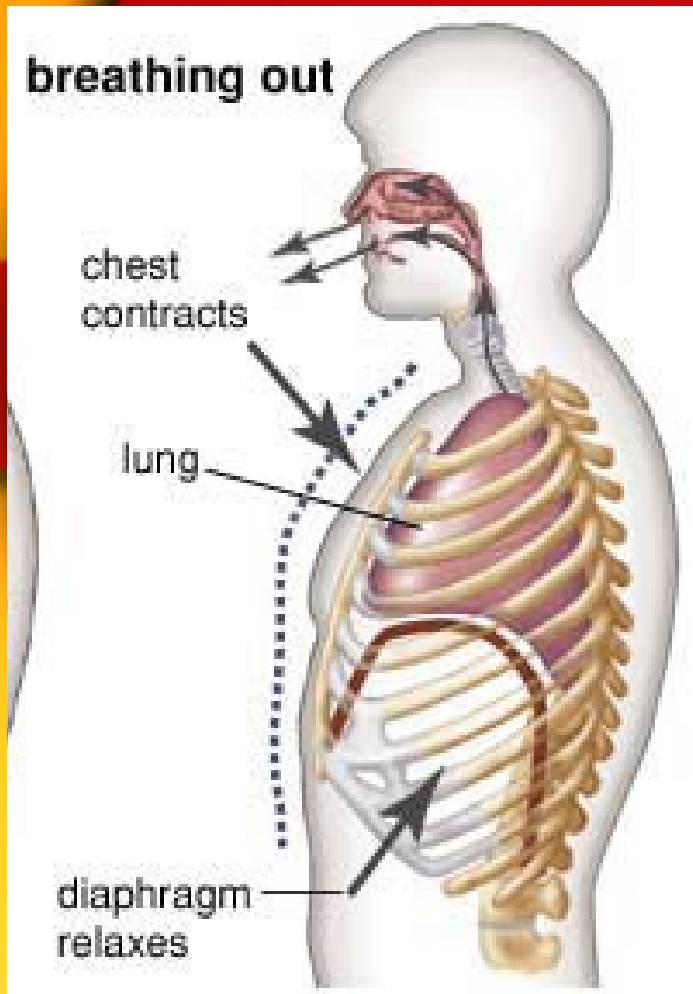


# Inspiration



- Air enters the lungs from the outside.
  1. Diaphragm moves down
  2. Ribs move up and out
  3. Thoracic cavity expands
  4. Air pressure in thoracic cavity drops
  5. Air flows into the lungs

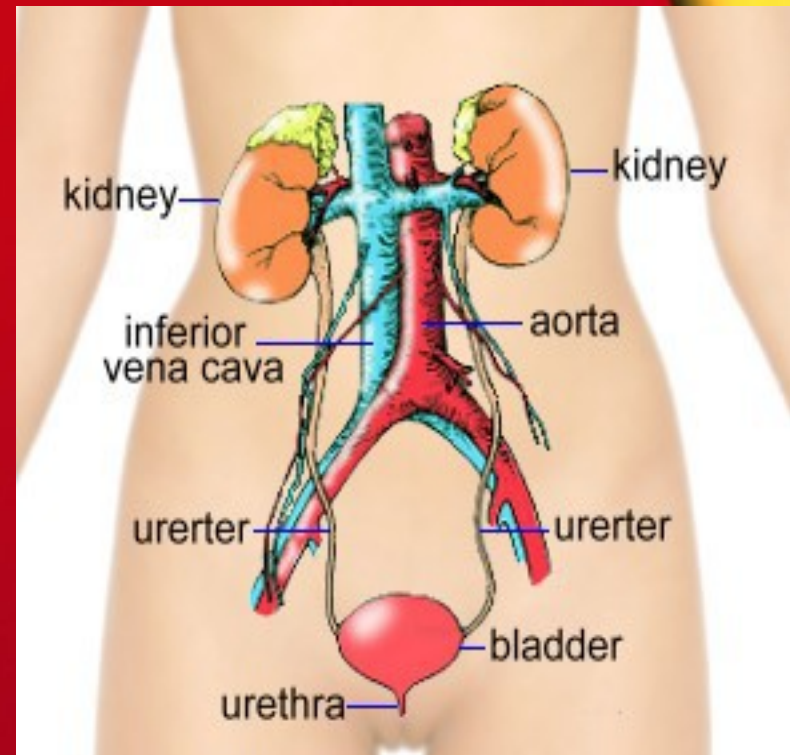
# Expiration



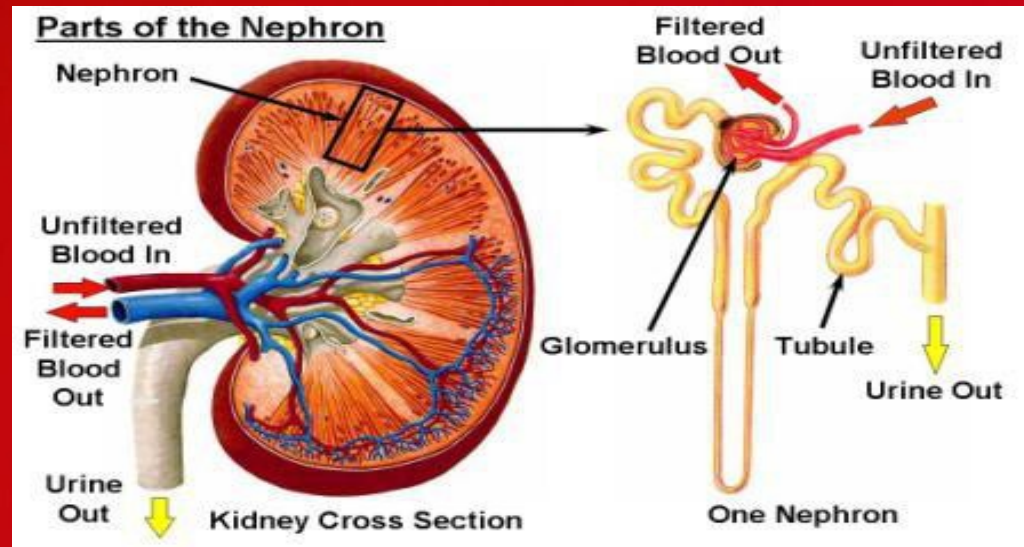
- Air is expelled from the lungs after gas exchange takes place.
  1. Diaphragm relaxes, and moves up
  2. Ribs move down
  3. Thoracic cavity gets smaller
  4. Air pressure increases
  5. Air is forced out of the lungs

# Part 2: Excretory System

- The Excretory system is responsible for the removal of waste in the body, specifically liquid waste.
- Consists of:
  - Kidneys
  - Urinary tracts



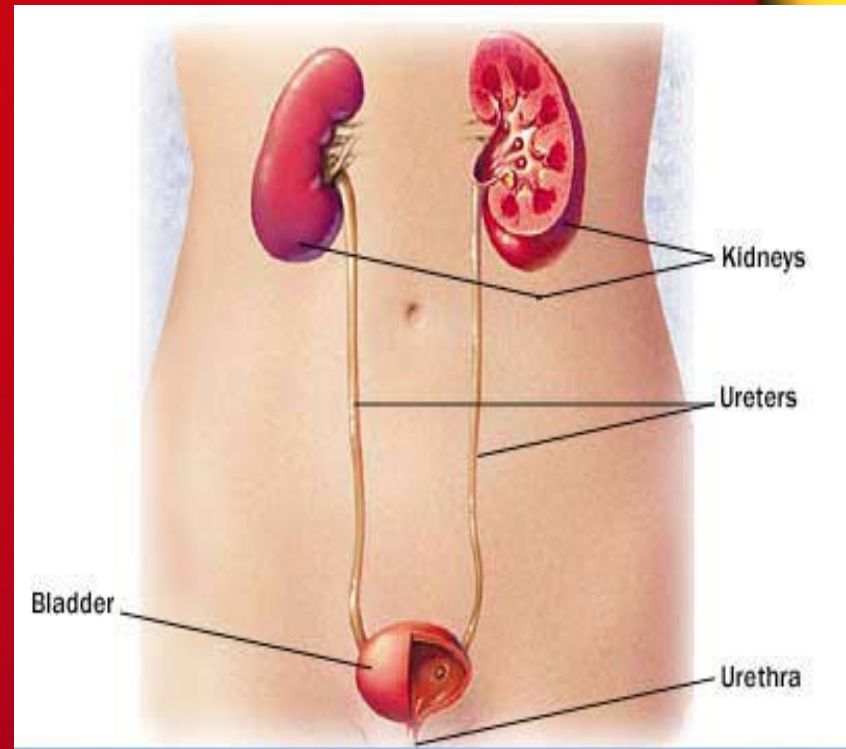
# Kidneys



- The parts of the kidneys that process urine are called nephrons.
- Nephrons are a series of small tubules surrounded by capillaries.
- These then lead to a series of ducts, collecting ducts, which drain into the renal pelvis.

# Urinary Tract

- This system consists of:
  - Ureters- tubes that take the urine to the bladder
  - Bladder- organ that collects urine
  - Urethra- duct that takes urine outside the body





# Excretory Steps

1. Blood is filtered in the kidneys
2. Waste is processed and turned into urine
3. Urine travels through the ureters to the bladder
4. Urine leaves the body through the urethra

