Respiratory System
Respiration

- Breathing (Ventilation)
  - The movement of air into and out of the lungs

- External Respiration
  - The exchange of gases between inhaled air and blood

- Internal Respiration
  - The exchange of gases between the blood and tissue fluids

- Cellular Respiration
  - The process of using oxygen to produce ATP within cells. Cellular respiration generates carbon dioxide as a waste product
Respiratory Tracts

Upper and Lower Respiratory Tracts

Upper Respiratory Tract

Lower Respiratory Tract
Upper Respiratory Tract

- Filters
- Warms
- Humidifies
Lower Respiratory Tract

- Exchanges gases
Breathing

- Inspiration brings in air
- Expiration expels it
Lung Volumes and Vital Capacity

- Tidal volume
  - 500 ml
- Vital Capacity
  - 4,800 ml
- Inspiratory Reserve Volume
  - 3,100 ml
- Expiratory Reserve Volume
  - 1,200 ml
- Residual Volume
  - 1,200 ml
Gas Exchange

- Gases diffuse according to their partial pressures
- Hemoglobin transports most oxygen molecules
- Most Carbon Dioxide is transported in plasma as bicarbonate
- External Respiration: The exchange of gases between air and blood
- Internal Respiration: The exchange of gases with tissue fluids.
The Nervous System

- Regulates breathing
Disorders

- Asthma
  - Spasmodic contraction of bronchi
- Emphysema
  - Alveoli become permanently impaired
- Bronchitis
  - Inflammation of the bronchi
- Cystic Fibrosis
  - Inherited condition – thick mucus
- Respiratory Tract Infections
  - Cold and Flu
- Pneumonia
  - Infection from virus or bacteria
- Tuberculosis
  - Bacterial infection scars the lungs
- Botulism
  - Poisoning by the bacterial toxin
- Cancer