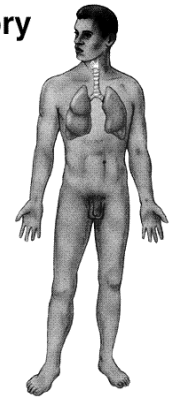
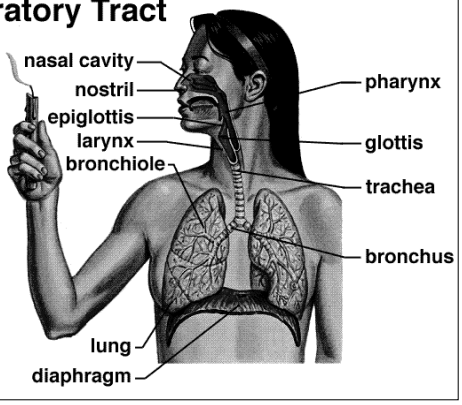
Respiratory System



Respiratory Tract

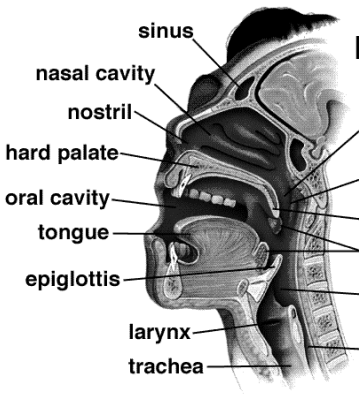


Mucosa

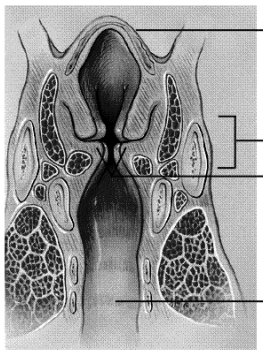
Functions:

- **Warms**
- **Filters**
- **Moistens incoming air**

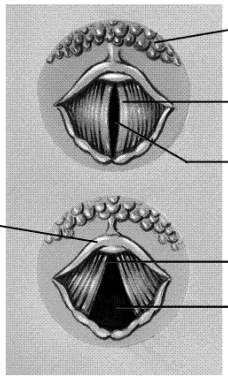
Upper Respiratory Tract



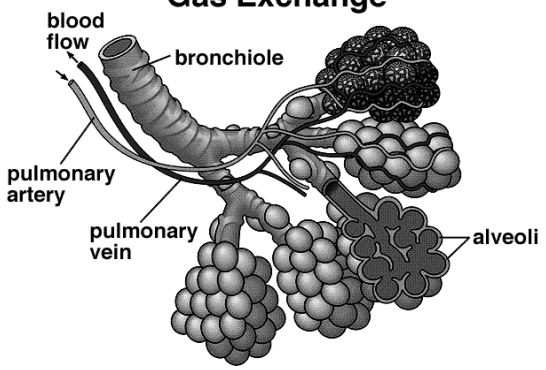
Section of Larynx



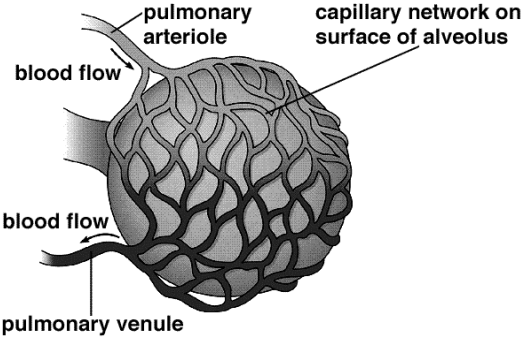
Glottis Function



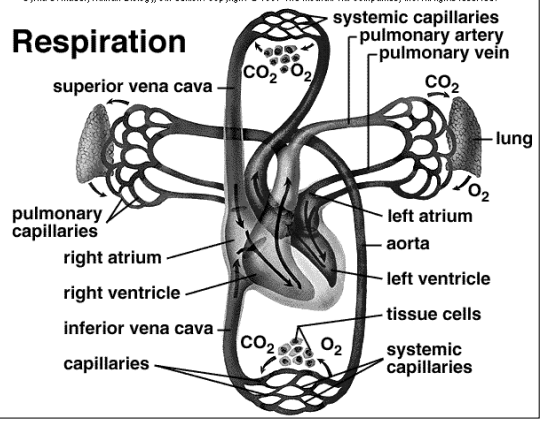
Gas Exchange



Alveolar Capillary Network



Respiration



Respiration

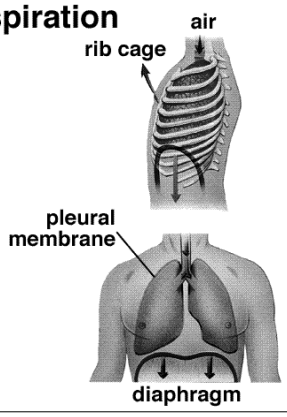
- Pulmonary ventilation (breathing)
  - Inspiration (inhale)
  - Expiration (exhale)
- External respiration
- Internal respiration
- Cellular respiration

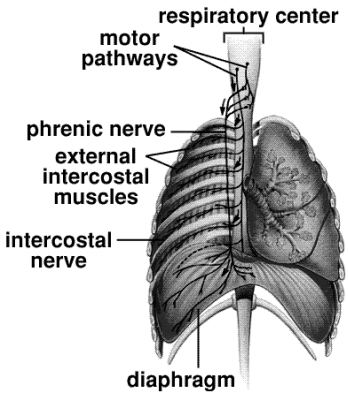
Inspiration

Rib cage moves up and out.

Diaphragm contracts and moves down.

Pressure in lungs decreases, and air comes rushing in.





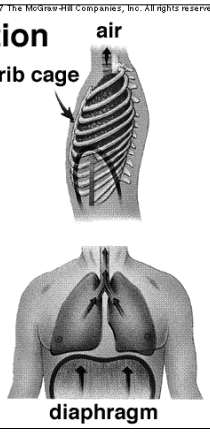
Structures Associated with Inspiration

Expiration

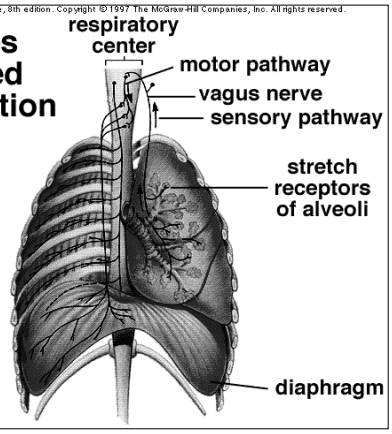
Rib cage moves down and in.

Diaphragm relaxes and moves up.

Pressure in lungs increases, and air is pushed out.



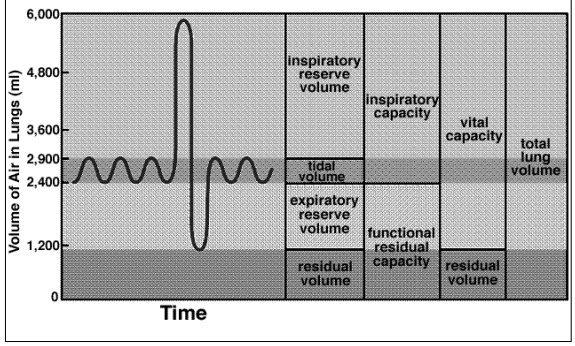
Structures Associated with Expiration



Respiratory Volumes

- Tidal volume (TV)
- Inspiratory reserve volume (IRV)
- Expiratory reserve volume (ERV)
- Vital capacity (VC)
- Residual volume

Measuring Vital Capacity



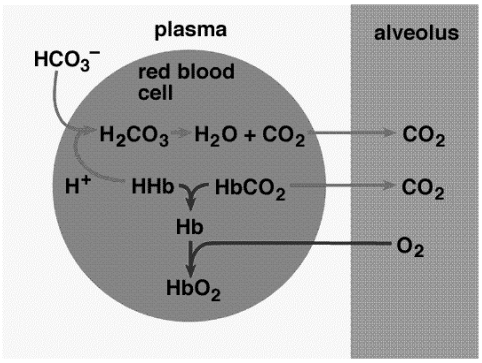
Gas Transportation

- Oxygen - transported bound to hemoglobin (oxyhemoglobin) inside RBC's
- Carbon dioxide - transported as bicarbonate ion in plasma

External Respiration

Exchange of gases (oxygen and carbon dioxide) between the lungs and the blood.

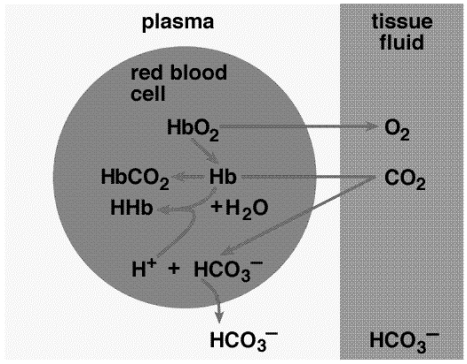
External Respiration



Internal Respiration

Exchange of gases (oxygen and carbon dioxide) between the blood and the tissue.

Internal Respiration



Cellular Respiration

- Occurs inside cells in the mitochondria
- Glucose is broken down
- Oxygen is used to make ATP
- Carbon dioxide is produced as a waste

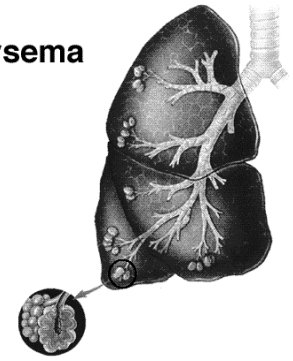
Control of Respiration

- Nervous control - medulla and pons
- Physical factors - increased body temperature, exercise, speech
- Conscious control
- Emotional factors -fear, anger, excitement
- Chemical factors - carbon dioxide level

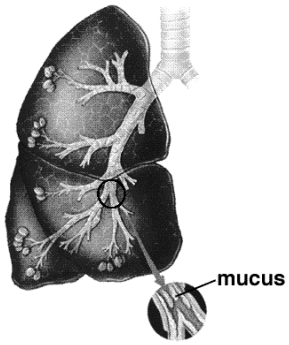
Respiratory Disorders

- Emphysema - permanent enlargement and destruction of alveoli
- Chronic bronchitis - excessive mucus production > chronic hypoxia
- Lung cancer - aggressive and metastasizes rapidly

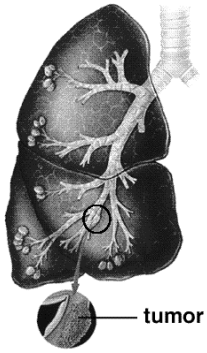
Emphysema



Bronchitis



Lung Cancer



The End