KEY CONCEPT
The respiratory system exchanges oxygen and carbon dioxide.
Gas exchange occurs in the alveoli of the lungs.

- Oxygen and carbon dioxide are carried by the blood to and from the alveoli.
  - Oxygen diffuses from alveoli into capillary
  - Oxygen binds to hemoglobin in red blood cells
  - Carbon dioxide diffuses from capillary into alveoli
Gas exchange occurs in the alveoli of the lungs.

- Breathing is regulated by the brain stem.
Respiratory diseases interfere with gas exchange.

- Lung diseases reduce airflow and oxygen absorption.
  - Emphysema destroys alveoli.
  - Asthma constricts airways.
  - Cystic fibrosis produces sticky mucus.
30.2 Respiration and Gas Exchange

- Smoking is the leading cause of lung diseases.