

# Chapter 33

## Respiration

# 33.1 Why Exchange Gases?

- The act of breathing is called **respiration**
  - The process of cellular respiration, which converts the energy in nutrients into the ATP used by cells, requires a steady supply of oxygen and generates carbon dioxide as a waste product
  - The circulatory system gets oxygen from your lungs, carries it to each cell, and then picks up CO<sub>2</sub> to be expelled from your body by the lungs

## 33.2 What Are Some Evolutionary Adaptations for Gas Exchange?

- Gas exchange in all organisms ultimately relies on diffusion
  - Cellular respiration increases  $\text{CO}_2$  levels, creating a concentration gradient that favors the diffusion of  $\text{CO}_2$  out of cells and the diffusion of  $\text{O}_2$  into them