The Respiratory System

Respiration, the body taking in oxygen and removing carbon dioxide, involves breathing in (**inspiration**), and breathing out (**expiration**). The lungs accomplish this.

The respiratory system has two functions:

1. It brings oxygen into the body.

2. It eliminates carbon dioxide produced as the body uses oxygen.

As the lungs inhale, the air is pulled in through the nose and into the pharynx, a tubular passageway for both food and air. From the pharynx, air passes into the larynx, or voice box. The larynx is located at the beginning of the trachea, or windpipe. The trachea divides into two branches at its lower portion, the right bronchus and the left bronchus, or bronchi. Each bronchus leads into each lung and then subdivides into bronchioles. These smaller airways subdivide further. They end in alveoli, tiny, one-cell sacs that appear in grapelike clusters. Blood is supplied to the alveoli by capillaries. Oxygen and carbon dioxide are exchanged between the alveoli and capillaries.

Oxygen-saturated blood then circulates through the capillaries and venules (small veins) of the lung, into the pulmonary vein and left side of the heart. The carbon dioxide is exhaled through the alveoli into the bronchioles and bronchi of the lungs, the trachea, through the larynx, the pharynx, and out the nose and mouth.

Each lung is covered by the pleura, a membrane with two layers. One is attached to the chest wall. One is attached to the surface of the lung. The space between the layers is filled with a thin fluid that lubricates the layers, preventing them from rubbing together during breathing.