**Pathway of Air Flow**

Mouth: entry point of air into the body that leads to the nasal passage

Nostrils: entry point of air into the body that leads to the cilia (small hairs) and mucous lined nasal passage

**cilia are tiny hairs that trap dust, dirt, and potential bad guys in the nose and nasal passage***

Pharynx: the throat (the back of the mouth) that directs air from the nasal passage to the trachea

Larynx: the voice box (makes sounds when air passes over the vocal cords)

Epiglottis: the flap of connective tissue that covers over the esophagus during breathing

Trachea: (wind pipe) the cilia and mucous lined tube of cartilage rings that connects the pharynx to the lungs
Bronchi: the cilia and mucous lined tube of cartilage rings that branches off of the trachea and extends into the lungs

Bronchial Tubes: the cilia lined tubes of cartilage that branch off of the bronchi. They appear to look like branches of a tree

Bronchioles: the tiny tubes that extend off of the bronchial tubes. Bronchioles do not have cartilage rings

Alveoli: a cluster of air sacs that are found at the foot (end) of the bronchioles. Gas exchange in the lungs takes place here
Human Gas Exchange

Diaphragm: a muscle that divides the thoracic (top) from the abdominal (middle) of the body

Ribs: the set of bones attached to the spine that protect the heart sac (pericardium) and the lung sac (pleura)

Breathing: the movement of air into and out of the lungs

Inhalation: the process by which air is drawn into the lungs
  a) The diaphragm is pulled down (contracts)
  b) The ribcage is pulled up
  c) The ribcage is pushed out
  d) The lungs inflate with air (like blowing up a latex balloon)
Exhalation: the process by which air is pushed out of the lungs
a) The lungs deflate (removing the air from a balloon)
b) The ribcage is pulled in
c) The ribcage is pulled down (like a window shade)
d) The diaphragm is pushed up (relaxes)

External Respiration: the exchange of oxygen and carbon dioxide between the air and the blood in the lungs

Internal Respiration: the exchange of oxygen and carbon dioxide between the blood in the capillaries and the body cells

Human Respiratory Disorders

Asthma: an allergy that causes wheezing, coughing, and breathing difficulties.
***During an asthma attack the bronchioles go into spasm causing air passages to get squeezed

Bronchitis: an inflammation of the bronchi and bronchial tubes of the lungs that may result in clogging by mucous. May be bacterial, viral, or chronic (caused by smoking)

Emphysema: loss of lung elasticity caused by smoking, exposure to smoke, or exposure to toxins that have the same effect as smoke.
**Emphysema causes a shortness of breath because the lungs are not capable of inflating with air during the breathing process***

Pneumonia: an inhibition of gas exchange in the lungs because of excessive fluid levels in the alveoli

Lung Cancer: the development of tumors (massive cell growth) on the lung tissue that is triggered by uncontrolled or irregular cell growth. Is heavily influenced by the causes of emphysema