

What Is Breathing?

Breathing is something you do all day long, every day, from the moment you are born until you reach the end of your life. You breathe without really thinking about it. It is an involuntary action. Let's take a close look at what is going on inside your body when you breathe.

Inspiration

The first part of the process of breathing is called **inspiration**. It involves the taking in of oxygen through the parts of the respiratory system. Why does air move from your environment into your lungs? Let's take a look.

First, the diaphragm contracts. Remember, when this large sheet of muscle contracts, it moves down. At the same time, the muscles in the chest contract. These muscles pull the ribs up and out. The **sternum**, or breast bone, is also raised. As a result of the movement of the diaphragm, chest muscles, ribs, and sternum, the chest cavity becomes larger. When the size of the chest cavity changes, the air pressure in the chest changes also. There is more room in the chest for the air that is there, so there is less air pressure.

Air naturally moves from an area with higher air pressure, to an area with lower air pressure. When the chest cavity has lower air pressure, air from outside the body moves in, trying to equalize the pressure. This is when you inhale.

Expiration

The second part of the process of breathing is called **expiration**. This involves the removal of waste gases from the respiratory system. Why does air move out of your lungs back into the environment? Let's take a look at this part of the process now.

First, the diaphragm relaxes. This means the large sheet of muscle will move back up to its starting position under the ribs. At the same time, the chest muscles relax, letting the ribs fall back down and in. The sternum also falls back to its original position. This time when the diaphragm, chest muscles, ribs, and sternum all move, the cavity becomes smaller. The air pressure inside the chest cavity changes again. This time there is less room for the air that there is, so the air pressure increases.

Once again, air moves from an area with higher pressure to an area with lower pressure. When the chest cavity has a higher air pressure, some of the air moves out of the body. A new pressure balance is attained when you exhale.

The Air You Breathe

When you take a deep breath, you inhale air into your body. Just what does that air consist of? When you let out a deep breath, you exhale air out of your body. Just what does that air consist of? Take a good look at the following charts.

Inhaled Air

20.9% Oxygen
79.0% Nitrogen
0.07% Carbon Dioxide
0.03% Other Gases

Exhaled Air

16.3% Oxygen
79.0% Nitrogen
4.50% Carbon Dioxide
0.20% Other Gases

Name: _____ Date: _____

Questions

1. What is inspiration?

2. What is expiration?

3. Which body parts are responsible for making the chest cavity larger when you inhale?

4. Which body parts are responsible for making the chest cavity smaller when you exhale?

5. What happens to the air pressure in your chest cavity when your diaphragm contracts?

6. What happens to the air pressure in your chest cavity when your diaphragm relaxes?

7. Why does air move in or out of your respiratory system?

8. How much oxygen do you inhale? Exhale?

9. Why does the amount of oxygen change?

10. Why is the percentage of nitrogen inhaled and exhaled the same?
