

## Lungs

Put your hand on your chest. Breath in and out. Your chest rises and falls because of the work of your lungs which fill up like balloons as you breath in. As a balloon deflating when pushing air out, your lungs release air when you breath out. Each person has 2 lungs. The right lung is larger than the left. The left lung is smaller so that there is enough room in the chest for the heart, which is also on the left-hand side of the body.

### Beginner Question

What do lungs do? How many do we have? (

**Answer:** Lungs help the body to breath and move into and out of the body. We have 2 lungs.)

### Intermediate Question

Explain the function of the lungs. What might you compare lungs to?

**Answer:** Lungs serve to take air into and push it out of the body. They help put oxygen into blood. Lungs might be compared to balloons.

### Advanced Question

What function to lungs perform? How are the two lungs different than one another?

**Answer:** Lungs bring air into and push it out of the body. The lungs oxygenate blood. The left lung is smaller than the right lung because it is close to the heart, which needs space in the body.

## The Respiratory System

Powered by the lungs, the respiratory system also includes the nose, mouth and trachea or windpipe. The nose and mouth pull air in and out of the body. The trachea leads to long thin tubes called bronchi which branch out in the lungs. The lungs are full of tiny sacs called alveoli. Within the alveoli, blood flows to get rid of carbon dioxide and get charged with oxygen. The blood then leaves the lungs to take oxygen all over the body.

### Beginner Question

Name 3 parts of the respiratory system.

**Answer:** Three parts of the respiratory system include the lungs, mouth and nose.

### Intermediate Question

What are the bronchi lined with and why?

**Answer:** They are lined with mucus and hairs in order to catch dust and germs and stop them from going into the lungs.

### Advanced Question

Name the parts of the respiratory system. How do they work together?

**Answer:** The mouth and nose pull in and push out air. The air goes down the trachea and into the bronchi which lead to the lungs. There, the air travels to the alveoli where the blood is waiting to drop off carbon dioxide and pick up oxygen.

## Air Exchange

The lungs work with the heart to make sure our bodies have enough oxygen. The heart pumps blood that doesn't have enough oxygen into the lungs, where it reaches the alveoli. There, the blood leaves carbon dioxide and picks up oxygen. Then, the blood is returned to the heart where it is pumped out to the rest of the body.

## Beginner Question

How do the heart and lungs work together?

**Answer:** The heart pumps blood into the lungs where the blood gets oxygen, and then returns to the heart. The heart pumps this blood all over the body.

## Intermediate Question

Explain how blood gets to the lungs and what happens there. Name at least 2 important parts of lungs.

**Answer:** The heart pumps blood into the lungs through capillaries to the alveoli. There, the alveoli fill up with air and oxygenate the blood.

## Advanced Question

How does the circulatory system interact with the respiratory system?

**Answer:** The heart, which is part of the circulatory system, pumps blood from veins into the lungs where the blood receives oxygen. Then, the lungs return the oxygenated blood to the heart, which pumps the blood through arteries to the rest of the body.

## The Trachea

The trachea, also known as windpipe, is 1 inch wide and 4-6 inches long. It connects the mouth and nose to the lungs so that air may flow through. It is made of cartilage, which is the same material on the end of your nose. At the top end of the trachea is the larynx which also helps with breathing and speaking. The epiglottis is a small flap of tissue that covers the trachea when swallowing so food doesn't accidentally go into this tube.

## Beginner Question

Where does the trachea begin and where does it lead to?

**Answer:** The trachea begins below the larynx and leads to the lungs. It connects the mouth and nose to the lungs.

## Intermediate Question

Describe the trachea in detail including how long it is and what it is made of.

**Answer:** The trachea is 1 inch wide and 4-6 inches long. It is made of cartilage. It is smooth on the inside and has muscles which can contract.

## Advanced Question

What is the epiglottis and what does it do?

**Answer:** The epiglottis is a piece of flesh that covers up the trachea when swallowing so that food doesn't go down into the trachea.

## Inside the lungs

The lungs are full of intricately connected bronchioles and alveoli. Branching throughout the lungs by the thousands, the alveoli make the lungs spongy and soft. When breathing in, each alveolus puffs out like a balloon, causing the whole lung to grow in size.

## Beginner Question

Describe what the inside of a lung looks like.

**Answer:** The inside of a lung looks like tree branches reaching all over the place, ending in tiny little balloons.

## Intermediate Question

What are alveoli?

**Answer:** Alveoli are tiny little balloons in the lungs that fill up with air. Blood travels to the alveoli to receive oxygen there.

## Advanced Question

Describe in detail what alveoli look like and what they do.

**Answer:** Alveoli are balloon-like structures in the lungs. They inflate with air when we breathe. On the outer wall, capillaries carry blood. The blood cells in the capillaries pick up oxygen from the air in the alveoli. Then, the blood travels back up to the heart.

## Smoking and Your Lungs

Smoking cigarettes or inhaling smoke of any kind is very bad for the lungs. Many functions that the lungs perform are harmed by smoking. For example, the bronchi produce more mucus in smokers to catch all of the dust being inhaled, and so smokers often have bad coughs. Lung tissue, or the cells that make up the lungs die due to smoking. Cancer in the lungs may also be caused by smoking.

## Beginner Question

What does smoking do to the lungs?

**Answer:** Smoking makes the lungs turn black. It keeps them from functioning well. It can cause cancer and kill lung cells.

## **Intermediate Question**

Why does smoking turn the lungs black?

**Answer:** The lungs filter out dust and chemicals from entering our bodies. So, the chemicals stay in the lungs and make them black.

## **Advanced Question**

List and explain 3 effects of smoking on the lungs.

**Answer:** Three effects smoking has on the lungs are: it turns them black, it kills lung tissue and it may cause cancer. Because lungs filter out dust from entering the body, the chemicals from smoking stay in the lungs and make them black. These same chemicals kill lung tissue and may cause cancer.