

## The Heart/Lung Team

**Y**our heart is a muscle that pumps blood all over your body, through blood vessels (tiny little pipes). Your two lungs take in air and push it back out again. These two activities would be a complete waste of time if your heart and lungs didn't work together as a team.

The goal of the heart/lung team is to get oxygen to every cell in your body. Why? Because every cell needs oxygen to stay alive. Your skin cells need oxygen. Your muscle cells need oxygen. Your bone cells need oxygen. Even your heart and lung cells need oxygen! Without it, your cells—and you—would die.

## So How Does It Happen?

**H**ere's how it works. Your blood looks red because it's filled with tiny red blood cells. They look like little round red pillows, and their job is to grab molecules of oxygen and carry them to your cells.

When your heart beats, it pumps blood through a big blood vessel (1) over to your lungs. The blood vessel branches off into smaller and smaller blood vessels (2). Soon, the blood vessels are so tiny, they make a fine net. This net of tiny blood vessels covers the inside surfaces of your lungs.

When you inhale, you take air that has lots of oxygen into your lungs. There, the little blood cells that are inside the blood vessels grab the oxygen molecules.

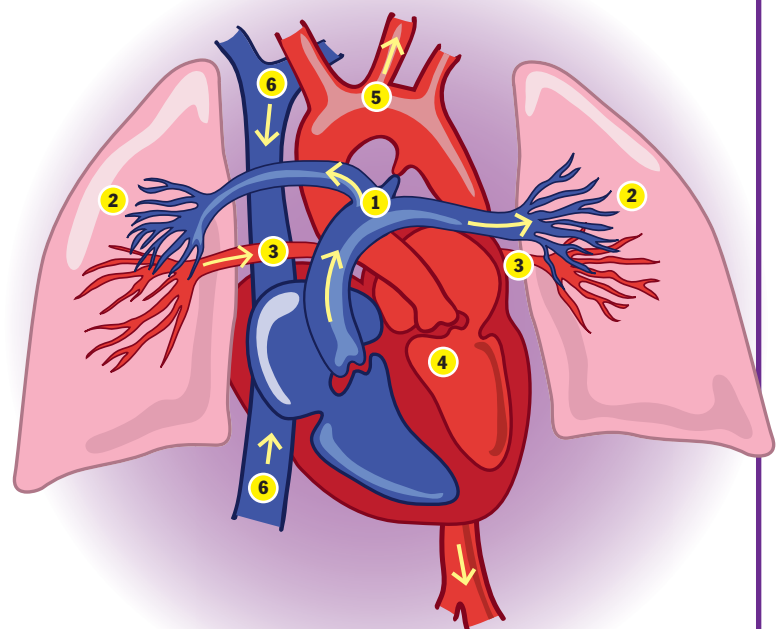
Then the blood, with these oxygen-rich blood cells, moves back through bigger and bigger blood vessels (3) to the left side of your heart (4).

Then your heart thumps again, pushing the blood through miles and miles of blood vessels all over your body (5). At least a little blood has to reach every cell.

The cells use the oxygen to burn food. That gives them the energy they need.

When the cells burn food, they produce a waste gas called carbon dioxide. The blood gathers it up and carries it back to the heart (6). The heart pumps the blood with the carbon dioxide back to the lungs (1), and the lungs get rid of it, exhaling it into the air.

Then the lungs inhale again, bringing in oxygen-rich fresh air. The blood cells grab new oxygen molecules and the whole cycle starts again!



# Activity Instructions



## Before You Start

How do you think oxygen gets from the air into the parts of your body that need it? How many steps do you think it takes? In Respiration Relay, you'll trace the path oxygen takes from breathing to running, jumping, lifting, or anything else you need to do!

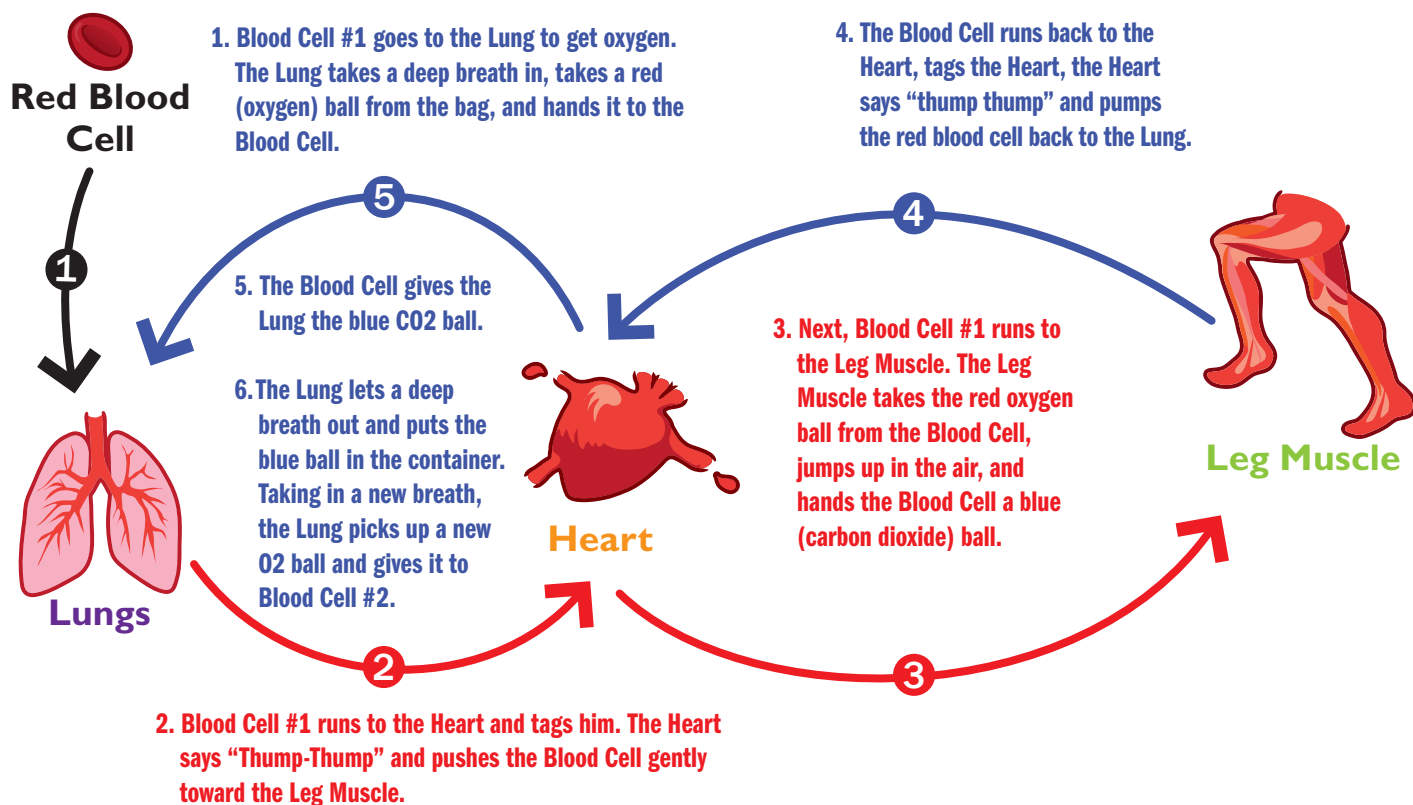
## What You'll Need

- 9 Red foam balls to represent oxygen (O<sub>2</sub>)
- 9 Blue foam balls to represent carbon dioxide (CO<sub>2</sub>)
- 1 heart sign
- 1 lung sign
- 1 leg muscle sign
- 1 or more red blood cell signs

## Getting Ready

1. Warm up and stretch your muscles with your teacher or other adult group leader
2. Choose one kid to be the Lung, another to be the Heart, a third to be a Leg Muscle, and between one and nine more to be Red Blood Cells.
3. Arrange yourselves according to the diagram on this sheet. You can be as far apart as space will allow, but always have the heart and lung somewhat near each other and the leg muscle further away.
4. Put 9 red Oxygen balls into the pop-open container and place near the lung
5. Put 9 blue Carbon Dioxide balls into the other pop-open container and place near the leg muscle.

## How to Play



Once you've got the hang of it, use the stopwatch to see how fast you can make the Leg do nine jumps. If you have nine Blood Cells on a team, each one runs the route once. If you're playing against other teams, see which team can do it the fastest without making any mistakes.

## What did you learn?

What did you find out about the way oxygen travels through your body?

Why are the lungs important? How about the heart? The red blood cells? What would happen to your energy level if you weren't getting enough oxygen?