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**Getting to Know: Respiratory**

If you like to run, chances are that you are either a sprinter or a jogger. Both types of runners need oxygen to produce energy, but you may have noticed that they don’t need the same amount. A jogger keeps a steady pace and maintains an even breathing rate. On the other hand, a sprinter runs very quickly for a short distance and often ends up breathing very heavily.

1.How does the amount of breathing differ based on the type of running you do?

2.How are we able to get energy to run or to live?

To produce the energy our bodies, need for running, we take in oxygen through the respiratory system. The *respiratory system* is a system of the body that takes in oxygen and releases carbon dioxide. Intense activities like sprinting require the respiratory system to work very hard because they demand a high amount of energy in a short period of time. Joggers use energy at a slower rate, so the respiratory system does not need to work as hard to sustain them when they run.

3.What is the main job or function of the respiratory system?

Runners are not the only people who need energy. Respiration is the key to getting the energy we need for everything we do.

***What is the function of the respiratory system?***

4.Explain how the lungs are important to the functioning of the respiratory system.

The *lungs* are the main organs of the respiratory system, and they are closely linked with the circulatory system. During inhalation, the lungs take in oxygen from the air and move it into the bloodstream. The circulatory system carries oxygen-rich blood throughout our bodies so that our cells can use it, along with glucose obtained through the digestive process, to produce energy. When energy is produced, carbon dioxide wastes are also created. During exhalation, the lungs collect carbon dioxide wastes from the blood and release them from the body.

5.What are the two things needed for your body to make energy and how does your body get these things in your body and to your cells?

***How do the lungs work?***

The human body has two lungs. Each time you breathe in, air flows through the *trachea* and into each lung through the *bronchial tube*. Each bronchial tube branches into many small extensions called *bronchioles*. At the end of each branch, tiny sacs called *alveoli* are used for gas exchange.

6.Trace the flow of air as it flows from the atmosphere around you to your blood.

A very strong muscle called the *diaphragm* is beneath the lungs. The diaphragm is responsible for controlling the motion of inhaling and exhaling.

***How does gas exchange work?***

Gas exchange in the body is based on the principle that gases tend to move from areas of higher concentration to areas of lower concentration. There are two types of gas exchange that take place in the body during respiration.

7.Explain how gasses move as they are exchanged in the body.

Gas exchange during breathing takes place in the alveoli, where carbon dioxide from blood cells diffuses into the lungs to be exhaled. This allows the same blood cells to pick up oxygen, which is then carried to every cell in the body.

8.Using the text around the word “diffuses” what does the word mean?

A second process of gas exchange takes place between the bloodstream and the body cells. Cells will release carbon dioxide into the blood as a waste product. At the same time, oxygen in the blood will diffuse through the cell walls and into the cells. The cells will then use the oxygen to produce the energy that we need to live.

9.Explain what happens when there is a gas exchange with the body cells.