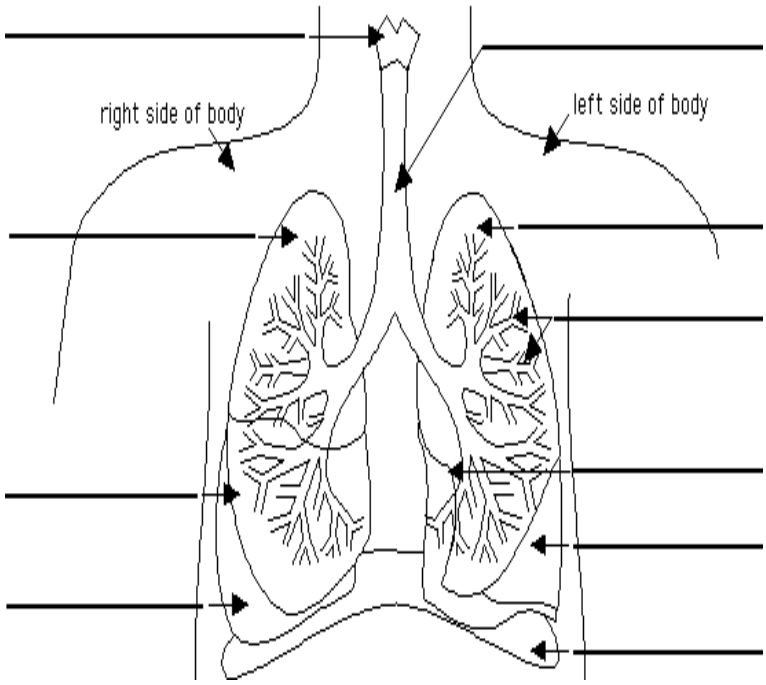
Name: _____ Date: _____
Understanding the Respiratory System: Model of A Lung Activity

Your challenge is to construct a working model of the lung using any/all of the following materials:

- plastic bottle
- 2-3 balloons
- plastic straw(s)
- rubber band(s)
- tape
- scissors
- plastic wrap
- or anything else you can find!

Draw a sketch of your model or paste a photograph next to the picture of the lung below.



- Label each of the anatomy of the lung and draw a line to the corresponding part of your model (when possible).
    - Diaphragm
    - Esophagus
    - chest cavity
    - trachea
    - bronchi
    - lungs
    - bronchiole
    - alveolar sacs

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Please read this historical info concerning the respiratory system:

In the early and mid-1900s, many people were infected with the poliovirus. "Polio" attacked the central nervous system and could cause paralysis. In some cases, people's diaphragms were paralyzed, so they couldn't breathe.

An iron lung was a machine that helped people with paralyzed diaphragms to breathe. This involved a person lying flat on their back with their body inside a chamber and their head lying on a stand outside of the chamber. Their neck was surrounded by a rubber collar that provided a seal to maintain a fully-pressurized environment inside the chamber. A pump was used to change the air pressure inside the chamber. As the air pressure inside the chamber changed, so too did the air pressure inside the person's lungs. When the air pressure of the lungs was less than that of the outside air, air flowed into the person's lungs via the person's nose and mouth. When the air pressure of the lungs was more than that of the outside air, air flowed out of the person's lungs and through the person's nose and mouth.

Please read some scientific info about the respiratory system.

The respiratory system is vital for survival. It works closely with the circulatory system to bring oxygen into the body and to remove carbon dioxide from the body. During inhalation, air containing oxygen moves into the lungs. The oxygen moves from the alveoli of the lungs into the capillaries of the circulatory system and the circulatory system transports the oxygen to the body's cells.

The cells use oxygen to undergo cellular respiration, a process that converts chemical energy in nutrients to adenosine triphosphate (ATP). ATP can be used to power the cells' activities. Cellular respiration creates carbon dioxide as a waste product. When carbon dioxide mixes with water it creates carbonic acid. Because cells don't function well in an acidic environment, it's important to remove the carbon dioxide. The carbon dioxide moves from the cells into the capillaries and travels via the circulatory system to the lungs. At the lungs, the carbon dioxide moves from the capillaries and into the alveoli of the lungs. During exhalation, this carbon dioxide is emitted from the body.

Check out the Pig's Lung

What do you notice about this organ? Write observations below.

How did this lab/activity help your understanding of the respiratory system?