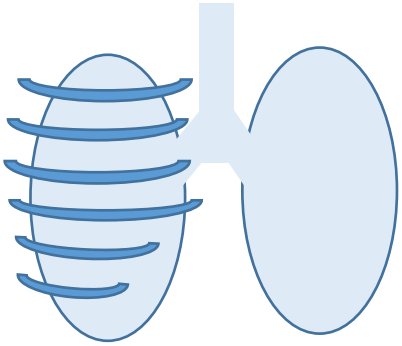
Gas Exchange

1. The purpose of _____ exchange is, for example, to get rid of the waste gas from cellular _____, _____ _____, to replace it with _____, which is required for aerobic _____.
2. _____ is require to maintain _____ gradients in the _____. This is what you think of as breathing ____ and _____.

This is a rough schematic of the respiratory system. Label what you can.



1. Air is carried through the _____ first, which divides into two _____.
2. These two tubes further divide into _____.
3. In clusters at the end of the _____ there are _____. This is where _____ exchange occurs.

4. It is required to be able to draw the _____ along with an associated blood vessel, called a _____. Use the space below to make your diagram.

5. It is necessary to label the _____ ____ _____, which are _____ cells directly responsible for _____ exchange. It is also require to label the _____ ___ _____ which produce a fluid containing _____. It _____ this liquid to reduce _____ _____ caused between _____ molecules, due to their _____ properties. This prevents opposite sides of the _____ from _____ to each other.

6. Gas _____ must occur between the _____ and the _____. Specifically, add an arrow to represent the direction of the movement of _____ gas, which our cells require, and _____ _____ which is being _____ as waste.

7. _____ occurs due to the _____ of _____ muscles in our _____.

8. Fill in the table for INHALATION. This is when air moves _____ the _____.

	Contract or relax?	Volume of thorax?	Pressure change in thorax?
External _____ muscles	contract	increases	
Internal _____ muscles			
Diaphragm			
_____ muscles			

9. Fill in the table for EXHALATION

	Contract or relax?	Volume of thorax	Pressure change in thorax
External _____ muscles			
Internal _____ muscles			
Diaphragm			
_____ muscles			

To emphasize, the _____ and _____ _____ muscles form one _____ pair, and the _____ and _____ muscles form a second. They are _____ because they have an "opposite" impact on the _____ of the _____.

10. Disease of the lungs can occur. For example, uncontrolled cell division can form _____ tumours. A few causes include _____, _____, or exposure to toxic chemicals such as _____. Symptoms would include issues such as _____ of your voice, or a lingering _____. Surgical _____ of a tumour or _____ is a possible treatment, and also _____.

There is also a lung condition called _____. This can also be caused by _____, inhaling _____ or certain _____ factors. A major symptom is _____ of breath. The _____ break down, so the _____ area of the lungs _____, so less _____ exchange can take place. Treatment can include medications or using supplemental _____ at home.

11. Experiments into the ventilation _____ can be fun and easy to carry out. One can simply observe the number of _____ an individual takes in a given _____ of time, and then carry out the calculation. A _____ with a data logger can also be used, or a _____ belt that can detect changes in _____.

    It is particularly interesting to monitor the rate before and _____ vigorous _____. Usually, the ventilation rate _____ during exercise, because muscles are carrying out _____ respiration, which requires _____ and produces _____ _____ as waste. If muscle contractions have been _____ during the exercise, then _____ respiration will have occurred as well. This process will also ultimately produce _____ _____ gas as a waste product too, and _____ is required as well, because _____ is broken down _____ once the exercise has ended.

    It is interesting to measure the _____ volume, which is the _____ of gas that is exchanged with each normal breath.

