

# ***AP Biology- Cellular Respiration Pre-Lab***

## **Purpose:**

- To determine the how the rate of respiration differs in germinating and non-germinating seeds.

**Background:** Answer the following questions. They are to be included in your lab report in paragraph form. Do not forget to include your "Works Cited."

What is cellular respiration? Where does it occur in aerobic organisms (what organelle)? What are the reactants and products of aerobic cellular respiration?

Also include:

There are three ways cellular respiration could be measured. The consumption of O<sub>2</sub> (how many moles of O<sub>2</sub> are consumed in cellular respiration). Production of CO<sub>2</sub> (how many moles of CO<sub>2</sub> are produced in cellular respiration?) and the release of energy during cellular respiration. In this lab, the volume of O<sub>2</sub> consumed by germinating and non-germinating peas will be measured.

PV=nRT is the inert gas law. P is the pressure of the gas. V is the volume of the gas. n is the number of molecules of gas. R is the gas constant. T is the temperature of the gas in degrees K. This law tells us several important things about gases. If temperature and pressure are kept constant then the volume of the gas is directly proportional to the number of molecules of the gas. If the temperature and volume remain constant, then the pressure of the gas changes in direct proportion to the number of molecules of gas. If the number of gas molecules and the temperature remain constant, then the pressure is inversely proportional to the volume. IF the temperature changes and the number of gas molecules is kept constant, then either pressure or volume or both will change in direct proportion to the temperature.

In this lab, CO<sub>2</sub> , made during cellular respiration will be removed by potassium hydroxide (KOH) and will make potassium carbonate (K<sub>2</sub>CO<sub>3</sub>). Carbon dioxide is removed so the change in the volume of gas in the respirometer will be directly proportional to the amount of oxygen that is consumed. In the experiment, water will move toward the region of lower pressure. During respiration, oxygen will be consumed and its volume will be reduced to a solid. The result is a decrease in gas volume within the tube, and a related decrease in pressure in the tube. The respirometer with just the non-germinating peas will allow changes in volume due to changes in atmospheric pressure or temperature changes.

## **Hypothesis:**

Comparison of the rate of respiration in the germinating peas verses the non-germinating peas.

# Ap Cellular Respiration Lab Answers

**Mark Anestis, Kellie Ploeger Cox**



## Ap Cellular Respiration Lab Answers:

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