

**PRELIMINARY ACTIVITY FOR  
Cell Respiration**

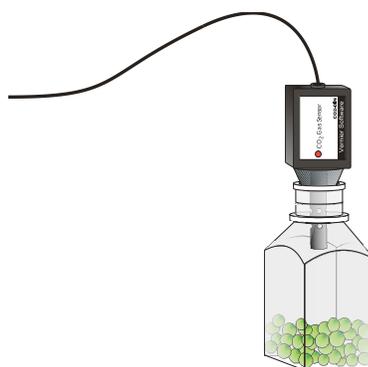
Cell respiration refers to the process of converting the chemical energy of organic molecules into a form immediately usable by organisms. Glucose may be oxidized completely if sufficient oxygen is available by the following equation:



All organisms, including plants and animals, oxidize glucose for energy. Often, this energy is used to convert ADP and phosphate into ATP. It is known that peas undergo cell respiration during germination.

**PROCEDURE**

1. If CO<sub>2</sub> Gas Sensor your sensor has a switch, set it to the low range setting. Connect the sensor to the data-collection interface.
2. Place 10–15 germinating peas in the respiration chamber that ships with the CO<sub>2</sub> Gas Sensor. Insert the CO<sub>2</sub> Gas Sensor in the neck of the respiration chamber. Start the data-collection program. Wait 90 seconds for the sensor to warm up and begin collecting data.
3. After data are collected, use the linear regression function to determine the rate of respiration.



After completing the Preliminary Activity, you will first use reference sources to find out more about germination and cell respiration before you choose and investigate a researchable question. Some topics to consider in your reference search are:

- germination
- cell respiration
- carbohydrates
- glucose

**QUESTIONS**

1. Do the results of this experiment verify that germinating peas respire? How do you know?
2. What do you expect would happen to the rate of respiration if you repeated this experiment with non-germinating peas?

### ***Experiment 14***

---

3. Why do germinating peas undergo cell respiration?
4. Use a concept map or other organizing tool to list your prior knowledge of cell respiration.
5. List at least one researchable question for this experiment.