

Cell Respiration: Virtual Lab

Name: _____

http://www.phschool.com/science/biology_place/labbench/lab5/intro.html

Questions:

How can we measure respiration rate of an organism?

When measuring cellular respiration in a lab, what gas do we want to control so it doesn't hurt our results?

How do we use the formula for calculating rate of respiration? What variables do we need to calculate it?

Key vocabulary to know before you start:

Respire – to breathe, or take in oxygen.

Respirometer – a device used to measure the amount of oxygen consumed during cellular respiration.

Oxygen consumption – the amount of oxygen taken in by an organism. Used to calculate respiration rate.

Respiration rate – calculated by taking the amount of oxygen consumed by an organism divided by the time.

Expressed in mL or cm³/minute.

1. In this lab activity,

a) You will observe _____.

b) You will investigate _____.

2. Write the equation for cellular respiration: _____

3. What are three ways you can measure the rate of cellular respiration? *Circle the way you will measure the rate of cellular respiration in this lab.*

4. Sketch a respirometer and label its important features. What does a respirometer measure?

5. As the organism inside the respirometer consumes oxygen, what happens to the water?

6. What happens to the CO₂ that the organism produces?

7. Experimental Setup (View the graphic.)

a) Complete the table:

	Vial 1	Vial 2	Vial 3	Vial 4	Vial 5	Vial 6
Contents						
Temperature						

b) How do you ensure that each vial has an equal volume?

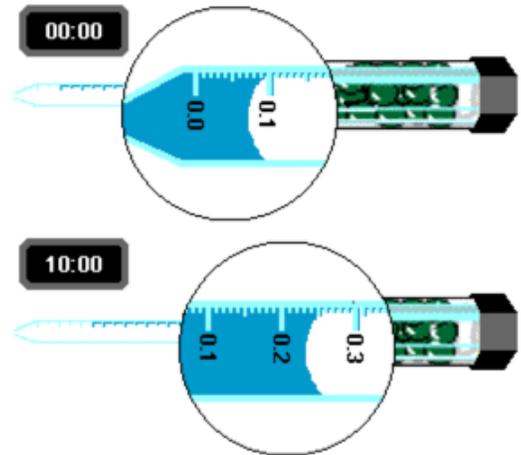
c) What is the purpose of the vial with only glass beads?

8. Analyzing Results

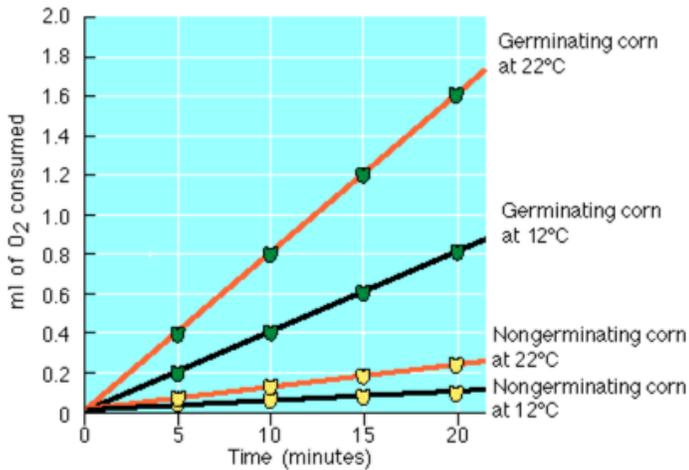
a) What is the equation to determine the rate of respiration? _____

b) What is X? _____ What is Y? _____

9. Read the respirometers and determine the rate of respiration. (Show calculations.)



10. Analysis – Lab Quiz



a) Describe the relationship between temperature and consumption of oxygen. *Key term: germinating is when a seed starts to use cellular respiration and grow (aka sprout).*

b) Calculate the rate of oxygen consumption for germinating corn at 12 degrees. (Show calculations.)

c) Based on the graph, would you conclude that non-germinating seeds respire? **Justify** your answer. If you'd like to research this answer and include outside information, great!
