CELL RESPIRATION
PRE-LAB

Name: _____ Date: _____

Total Points: 35 Due Date: _____

1. Write the equation for the complete oxidation of glucose. Is this reaction endergonic or exergonic? (1 points)

2. Give the ratio moles O_2 consumed: CO_2 produced. What does this imply about the volume changes you would observe if you simply sealed the pea seeds in a flask? (2 points)

3. If this is the case, how will you be able to measure the amount of oxygen gas used? Write and equation as well as explain. (2 points)

4. What, specifically, is the purpose of the respirometers containing only glass beads? "Control" is not a specific answer! (2 points)

5. When comparing the predicted oxygen consumption of dry versus germinating seeds, what results do you expect and why? (2 points)

6. Room temperature is approximately 21 - 23°C. When comparing the predicted oxygen consumption in the room temperature bath with that of the cold-water bath, what results do you expect to get? Explain why. (2 points)

7. Sample data and calculations: following the instructions in the lab, complete the table below (12 points), graph the results (8 points), and calculate the rate of oxygen consumption for each line (4 points).

		Beads Alone	Beads Alone	Germinating Peas	Germinating Peas	Germinating Peas	Dry Peas and Beads	Dry Peas and Beads	Dry Peas and Beads
Temp (°C)	Time (Min)	Reading at time X	Diff.	Reading at time X	Diff.	Corr. Diff.	Reading at time X	Diff.	Corr. Diff.
25	0	0.93	-------	0.91	----------	----------	0.92	-------	-------
	0 – 5	0.91		0.84			0.89		
	0 – 10	0.90		0.77			0.87		
	0 – 15	0.90		0.71			0.87		
	0 – 20	0.90		0.64			0.85		
10	0	0.95	-------	0.92	----------	----------	0.91	--------	--------
	0 – 5	0.94		0.88			0.90		
	0 – 10	0.92		0.85			0.87		
	0 – 15	0.93		0.83			0.86		
	0 – 20	0.93		0.80			0.85		

Rates of oxygen consumption for each condition:

Room Temperature Germinating Peas: _____

10°C Germinating Peas: _____

Room Temperature Dry Peas: _____

10°C Dry Peas: _____

Calculations: