IB Cellular Respiration Pre Lab Questions

Read the Respiration Lab and answer the following questions

1. Write the equation for the complete oxidation of glucose. Is this reaction exergonic or endergonic? Include the value of ΔG, in kcal/mole.

2. How many moles of oxygen gas are required to oxidize 1.0 moles of glucose?_____

   How many moles of carbon dioxide are produced per mole of glucose?_____

   What does this imply about the volume change you would observe if you simply sealed the pea seeds in a flask?

   What is the purpose of KOH? (Give an equation and explain.)

3. What purpose do the glass beads serve in the experiment? ("control" is not a sufficient answer)

4. When comparing the predicted oxygen consumption of dry vs. germinating seeds, what results do you expect to get? Explain why.

5. How do you think the temperature in the room will affect the overall rate of respiration?

6. Use the following sample data to complete the data table. Then make a graph of the sample data. Use three different colors to represent each set of data.

Temp (^{0}C)	Time (min)	Beads Alone		Geminating Peas			Dry Peas and Beads		
		Reading at time X	Difference	Reading at time X	Difference	Corrected Difference	Reading at time X	Difference	Corrected Difference
10 ^{0}C	0	0.95		0.92			0.91		
	5	0.94		0.88			0.90		
	10	0.92		0.85			0.87		
	15	0.93		0.83			0.86		
	20	0.93		0.80			0.85