Team Lab Notebook (TLN)
What's Alive? (Lab #2)

Team Name:

By: (Enter the full names, and team roles of the team members who are present at today's lab)

Date:

Make sure that you read the Lab #2 Student Instructions for this lab as you work on each activity in this TLN!!

A reminder! Surfing the internet during lab is prohibited. Internet use is restricted to lab research purposes!

Activity 1. What's Alive? (3 pts)

Our team decided the following about whether or not each of the "things" should be considered alive or not.

Alive!	Not Alive	Unsure???

Of the things above one thing we believe is definitely alive is _____. We believe this because…

Of the things above one thing we believe is definitely NOT alive is _____. We believe this because…

Activity 3. Practice using the CO_2 probes (5 pts)

Record your team's data in the table below. Be sure to indicate the sign of the measurement (+ or -) and indicate the units of measurement!

Team Data Table - Crickets

Change in concentration of CO_2	Rate of change of CO_2 concentration (calculated)	Rate of change of CO_2 concentration (using regression tool)	Rate of change of CO_2 concentration divided by cricket mass
		r = r^2 =	

Which of the calculations of the rate of change of CO_2 concentration (the one you calculated vs. using the one using the LoggerPro regression tool) do you think more accurately summarizes how CO_2 concentrations changed over time in the chamber? Justify your answer.

When we divided the rate of change of [CO_2] by the <u>mass of our 5 crickets</u>, our unit of measurement changed from_____ to _____.

Write a brief explanation of what this change in the unit of measurement means, conceptually.

Activity 4. What property of life in crickets are we measuring? (2 pts)

Our team concluded that the property or characteristic of life we are measuring is

Our justification for this is
(*Discuss <u>specifically</u> biological process is causing the CO_2 to be released or taken up by the cricket. You can use your textbook to help you with this!)*

Activity 5. Testing for signs of life

The “thing” that we, along with the team we paired with, decided to study is:

Activity 6. Developing a control group, hypothesis, and experimental prediction

Developing a negative control (3 pts)

We decided that the negative control for this experiment should be:

The purpose of this negative control is to determine if something we may not have considered is affecting CO_2 concentration in the bottle beside the “thing” we put in it. What are some other possible reasons (whose effects we could negate through a negative control) the CO_2 concentration in the bottle may change?

Our procedures for collecting data on the negative control are:

Developing a hypothesis and experimental prediction (3 pts)
In the space below, write your team's experimental hypothesis and prediction. Be sure to read the guidelines for Activities 3 and 4 in the Student Instructions, before you do this.

If _____
(general hypothesis)
_____

then_____
(specific experimental prediction)
_____

_____

Activity 7. Testing your hypotheses and predictions (8 pts).

1. Why is it important that we do more than one trial for both the experimental and control groups?

2. Why is it important that we use a different sample of "things" in each trial? (*Hint: Imagine you wanted to know about the effectiveness and safety of a cancer-fighting drug. Would you want it to be given to many people once, or to one person many times before you took it? Why?)*

3. Why is it important that the same procedures are followed by both of the teams conducting the experiment?

4. Why did we divide the rate of change of CO_2 by the mass of the sample "thing"?

Activity 8. Recording and summarizing the class data (5 pts).

Record both team's data in the table in into an MS Excel spreadsheet on your computer, and determine the mean (and standard deviation) rate of change in CO_2 for both team's data for the "thing" you examined. Summarize your data graphically in MS Excel. Review Appendix C on graphing to help you decide the type of graph you should use. Place the graph below your data table in the MS Excel file.

Save your MS Excel spreadsheet to your section's folder on the desktop. STAPLE a printout of this spreadsheet, which includes your data table, graphical summary, and the results of your statistical test to your TLN. Be sure your team name and lab section are at the top of the printout.

EVERYONE ON YOUR TEAM…PLEASE READ BEFORE PRINTING!! – SAVE A TREE!!!

Please follow these instructions when printing from MS Excel!

1. Make sure your Team Name, and Lab Section are at the top of your spreadsheet.
2. Use the mouse to highlight the area on the spreadsheet you wish to print. This should include anything you want to appear on the page, including graphs.
3. Choose "File", then "Print Area", then "Set Print Area" from the MS Excel menu bar.
4. Choose "File", then "Page Setup". Then set the scaling to "Fit to 1 Page". Choose "Print Preview" to make sure the page looks good before you print it. If all looks good, choose "Print" at the top of this print preview page.
5. STAPLE the printout to your TLN.

Activity 9. Other Characteristics of Life?

After examining/researching more about our specimen, we identified that it possesses the following other characteristics that are indicative of life:

Individual Activity 10. Drawing Conclusions (10 pts)

Each member of the team should write this section individually. You may discuss your conclusions with your team members, but EACH member of the team should use their own words when writing this section. There is a separate page in Lab 3 Student Instructions of your lab manual with questions to consider when drawing conclusions about this lab.

Homework Activity – Be sure to complete the homework activity in your lab manual in preparation for next week's lab.

Complete the cleanup checklist BEFORE you leave lab

- Our work area is clean.
- Our gas sensor equipment is put back in the rack on the center tables, cords are untangled, and coiled neatly, but NOT wrapped around the probe.
- Our lab table and stools are wiped down.
- Trash is discarded.
- Gas sensor chambers (bottles) and glassware is washed with soap, rinsed, dried and returned to the center table.
- Class common work area is clean and materials/instruments/specimens are returned to their proper place.
- Any computer files you saved are in your section's folder on the desktop.
- All applications (LoggerPro, Excel, Word etc…) on the computer are closed.
- The computer should remain on.
- The settings on the computer are as they were when you entered the lab (background, toolbar setup etc..).

_____Your lab instructor must initial here, indicating that your work area is clean before you may leave the lab.

Failure to clean up, or leave lab without your instructor's initials, will result in 10 points deducted from this week's TLN grade.

Please do not forget to complete the Peer Evaluation form, and turn it in to your lab instructor before you leave.