Name: _____

Title: Enzyme Lab

Directions: *Most parts of this lab report are to be written neatly on this sheet. Each part will be checked for completion and stamped the day it is due on this sheet of paper! You will earn full credit for completing each section by the appropriate due date.* ***At the end you will use this to help you write out your final lab report and then this paper will be turned in for a grade separate from your lab report grade.***

PART A. Testable Question: How does different temperature affect enzyme activity?

Identify keywords & conditions that are necessary to test this question (i.e. variables)

_____ _____ _____

_____ _____ _____

PART B. Developing Background Questions:

Directions: *Using the key words you listed in Part A develop some background questions related to the testable question above. Record your questions in the chart below.*

Question Word	**Possible Question**
Why	*EX. Why do enzymes react differently?* Why _____?
How	*EX. How do enzymes react?* How does one measure _____?
What	*EX: What causes enzymes to react?* What cause _____ to increase/decrease? What are characteristics of _____?

Stamp:

PART C: Researching Answers to Your Questions

Directions: *Circle your best questions from part B that are most relevant to the testable question. While you read and annotate the attached background information be sure to look for and record the answers to these questions. Record your questions and answer in the chart below.*

Questions	Answers
1._____ _____ _____ _____ _____ _____ _____ _____ _____ _____	1._____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Stamp:

PART D: Writing Your Essay (Review of Literature)

Directions: Use the outline below to write your brief paragraph draft essay . Use the space provided below!

A. **Background Question #1 (i.e. why, how, what, when, where)**
A. Main Idea (introduce and answer to question)
B. Evidence (answer found through research; paraphrased or directly quoted)
C. Link (elaborate or make sure it is clearly explained)
D. Conclusion (Summarize answer to question and transition to next question)

Things to Remember:

1. ***3rd person only (no I, me, you, we, us, our, etc)***
2. ***Direct quotes and paraphrased information must be cited. (i.e. According to...; _____ states...; etc)***

PART E: Hypothesis
Directions: Use the testable question to write your hypothesis.

1. Class testable question:
_____
_____

Independent variable (s):_____

Dependent variable:_____

2. Hypothesis: **If**_____
(what you are doing; IV)
_____

Then _____
(what you expect to see; DV)
_____

Because
_____
_____

Stamp:

PART F: Materials and Procedure
1. *Directions: Using the list of materials provided by the teacher write your material list here*

2. *Directions: Copy down the actual procedure provided by your teacher*

Procedure:

Stamp:

PART G: Results

1. *Data Table: Directions: Copy the data chart on **separate sheet of paper** as directed in class. Then complete data table using the data provided in the experiment*

2. *Graph: Directions: Create graph using the space below*

3. *Data Analysis: Directions: Answer the following questions in complete sentences.*

*a. What is the title of the graph?*_____

*b. What is your minimum and maximum values on your graph?*_____

_____

*c. Do you see a pattern or trend on your graph? If so, describe it.*_____

_____

PART H: Conclusion

Directions: *Write your conclusion using the following outline* Recall that MEL-Con format is used to write scientific conclusions.

I. Main Idea (State your hypothesis and whether it was supported or not supported by your experiment
II. Evidence (Provide numerical evidence. Be sure to compare different data from different variables)
III. Link (Make a connection between what you found in your evidence and what you found in your background research)
IV. Conclusion (Summarize your findings)

Directions: Your conclusion should answer the bolded question below. Each of the numbered questions represents the information that should be in your final version of your enzyme lab conclusion. ***Answer each question in complete sentences.***

What is the effect of temperature on enzyme activity?

1. Main Idea: Restate your hypothesis AND whether it was supported or not supported by the class average data.

   _____

   _____

2. Evidence:
   a. Summarize what was done in the experiment.

      _____

      _____

   b. What was the purpose of using jello and pineapples?

      _____

      _____

   c. How was change in height determined?

      _____

      _____

   d. State the change in height of jello, based on class averages for ALL temperatures.

      _____

      _____

3. Link:
   a. What temperature caused the greatest change in jello height?

      _____

      _____

   b. How much more of a change in height did this temperature cause compared to the temperature that caused the smallest change in height?

      _____

      _____

   c. Was your class data similar to your group data? Explain.

      _____

      _____

   d. What is the difference between active and denatured enzymes?

      _____

e. What can be concluded about enzyme activity at each temperature based on change in height of jello? Use terms such as "active enzyme" and "denatured enzyme".

_____

_____

4. Concluding Statement: Fill in the blanks.
   a. Therefore, the enzyme bromelain denatures around _____ ^{o}C based on the results of _____ of jello after pineapple juice of _____ were added to it.

Stamp:

*Directions: Rewrite all the answers from questions 1 – 4 into a paragraph below. This will be your **ROUGH DRAFT** of your conclusion. **Be sure to proofread your work, making sure there are no pronouns and all questions are answered***

_____

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Stamp:

PART I: Final draft

Directions: Using all of the things you have completed from this worksheet write (or type) your final draft neatly in the following order. (Refer to teacher Example) Remember you will turn in your Draft packet and Final Lab write up! It is **2 Separate grades***!!!!*

1. **Title:** (from top of worksheet)
2. **Purpose**: (Insert Testable Question from Part A:)
3. **Hypothesis**: (from Part E)
4. **Background Information:** (Essay from Part D)
5. **Materials and Procedure**: (from Part F)
6. **Results**: (Insert data table, graph, and data summary from Part G)
7. **Conclusion:** (from Part H)

8.