

# General Rules for the AP Biology Lab Book

1. Reserve the first 2 pages for the Table of Contents.
2. Number all pages in the lab notebook consecutively in the outer top corner. Use BOTH sides of EACH page. Pages should never be torn out. (it indicates you are hiding something)
3. All lab protocols must be attached to the page via **glue stick** and signed and dated across the attached area and onto the page with blue or black pen. Annotate. -OR- the protocol is copied into the lab book using a blue or black pen.
4. All lab entries must be orderly, LEGIBLE, and written areas must be in permanent black or blue ink. (NO erasable pens)  
Only diagrams may be done in pencil; all diagrams should be colored for clarity.
5. Draw a diagonal line across any unused portion of the notebook. USE YOUR NOTEBOOK DURING THE LAB; do not wait and write your entries in later. (This is NOT graded on “prettiness” or “perfectness”...but because you could incorrectly restate data)
6. If you are using your lab book for your notes, please make sure to label them clearly as notes.

## Purpose of These Procedures

- The lab notebook provides a permanent record of your work in AP Biology and can be used as a reference in college courses.
- If you were working professionally in a lab it would provide LEGAL EVIDENCE of the conception of an idea and the date of that conception. It is also required in the provisions of many contractual arrangements where the products of your work may belong to the contracting agency.

## *AP Biology – Protocol Guidelines*

- Your completed “protocol” is your **ticket** into class on the day of the lab:
  - **NO PROTOCOL in lab book = NO LAB**, until you finish the protocol.
- You will complete your protocol in your lab notebook...**NO EXCEPTIONS!**
- **Protocol will ALWAYS consist of:**
  - **Purpose**
  - **Hypothesis (with justification)**
  - **Procedures (either attached or handwritten)**
  - **Data table (either attached or created).**

## *AP Biology – Prelab Guidelines*

- All 7 questions need to be answered for the lab.
- Prelab is to be **typed and uploaded to turnitin.com** before 11pm the day before the lab. (DO NOT write this in your lab book!)
- **Print out and bring** the prelab ?s to class to be stamped
- The prelab is always **attached to the final lab packet.**

1. **State the PURPOSE** – *What concepts are we trying to learn in this lab? Be specific.*

2. **State your HYPOTHESIS** – *What are the results of this lab going to be? Your hypothesis may be in the form of “If/Then” statements. Also, state **WHY** you chose that hypothesis, support with researched information.*

3. **Identify the EXPERIMENTAL VARIABLE** – *This is the one that will you change to see a difference in the dependent variable. (ex. Temperature, presence of CO<sub>2</sub>)*

4. **Identify the INDEPENDENT VARIABLE** – *This is the variable that will graphed on the X axis (ex. Time, concentration of enzyme)*

5. **Identify the DEPENDENT VARIABLE** – *This is the variable that will respond. (ex. Amount of bubbles produced, oxygen consumed)*

6. **Identify HOW THE DEPENDENT VARIABLE IS BEING MEASURED** – *What data are you collecting? In what units? (ex. CO<sub>2</sub> or O<sub>2</sub> consumption in ml, root growth in mm, etc.)*

7. **What TYPE OF GRAPH should be used to present your results?** *Think about what you want to show with the data.*

# **AP BIO LAB FORMAL REPORT FORMAT**

## **1. TITLE PAGE**

- AP Investigation #\_\_, Title of lab, names of group members (yours first), period, teacher, date submitted

## **2. INTRODUCTION & BACKGROUND**

- State the **PURPOSE**. What it is you are trying to accomplish/tell others.
- State the **OBJECTIVES** of the experiment (What it is you hope to learn)
- State your **HYPOTHESIS**, and **your JUSTIFICATION** for this hypothesis
- State your **Independent** and **Dependent Variables**

## **3. MATERIALS USED IN THE LAB**

- Use a bulleted list with the correct amounts.

## **4. PROCEDURE**

- Restate the procedures in a **CONDENSED, SUMMARIZED NUMBERED** list.
- At the end of the procedures, draw a Diagram/Image of Procedure Set Up or include a picture that you took of the lab set up.

## **5. DATA (PRESENT THE DATA)**

- Attach photocopies or pictures of the data collected in class
- Construct data tables & charts to present the data collected
  - Must include titles and labels for all tables and charts.

## **6. ANALYSIS (PROCESS THE DATA)**

- Construct any graphs needed to show results
  - Must include titles and labels for all graphs
  - Do not forget error bars.

## **7. DISCUSSION**

- Restate **ENTIRE HYPOTHESIS**.
- Discuss of **sources of error**
- **Evaluate the procedure**, making suggestions for improvement if needed. The discussion of the results tells the reader what the results meant, this is where you interpret your data, so remember to use data in your discussion.
  - For example:
    - were some results higher than you expected? Point out this surprise here, and try to explain why you think the results were high.
    - were some results contradictory? If so, make sure the reader sees the problem.

## 8. CONCLUSION

- In the **conclusion** section, you tell the reader what you decided about the hypothesis, about the problem that inspired the research, and about the way you handled the experiment. In other words, what did you conclude from all your work? Your conclusions must follow logically from interpretations of facts that you wrote in the discussion session.

## 9. STAMPED PRE-LAB ?s

- This is the Prelab ?s that were **typed and uploaded to turnitin.com**