

EXPERIMENTAL RESEARCH WORKBOOK

IQ: _____

(IQ= Investigative Question you are answering in your experiment – See “*Investigative Question*” in your guide for details.)

Researcher’s Name

- Remember that this is an outline. This means you don’t need to write in full sentences; you can use shorthand, abbreviations and bullet points.
- This assignment does NOT count as your lab report grade. It is here to help you plan for the final submission of your report.
- Use the guide, “*More than Meets the Eye: Lab Write up Guide for IB*” to help you along this template.

I. INTRODUCTION:

a. Hook (*One or two* sentences to draw the reader in):

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b. Your next few statements will be on the background research that brings out the SIGNIFICANCE (the value) of your investigation. *Ask yourself: Why is my topic important?* In bullet points, state 3 significant issues behind your experimental research.

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c. Give one specific case study as EVIDENCE of the importance of your research. Be sure to use key terms, as well as identify names, time, date and “what happened” if talking about a specific incident. *See “Background” of the guide to help you.*

Case Study #1:

Bibliography:
Summary brief methods:
Results of study:
Connection with my research experiment:

Case Study #2:

Bibliography:
Summary brief methods:
Results of study:
Connection with my research experiment:

Case Study #3:

Bibliography:
Summary brief methods:
Results of study:
Connection with my research experiment:

CONNECTION: Tie in the purpose of your experiment with the background research you have done. Address these questions (a) How is your experiment different from current research - How might it look at a different POINT OF VIEW, an ALTERNATIVE, at SOMETHING DEEPER? (b) How does your experiment apply to the real world? (and don't be fluffy about it!)

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II. HYPOTHESIS STATEMENT: This should contain – (1) both independent and dependent variables (2) Should contain the rationale behind your hypothesis (3) Must be a total of at least 3 statements. See “Hypothesis” of the guide to help you.

III. METHODS: Identify the following components of your design. These must be listed explicitly in your report:
Methods:

Identify the following components of your design. These must be listed explicitly in your report:

<p>Independent Variable: (what you are changing)</p> <p>Dependent Variable: (what you are measuring)</p>	<p>Define and describe your constants: (factors that need to be the same in each trial to assure a fair test)</p>
<p>Describe your control:</p> 	

Systematic Errors: (See guide)

IV. RESULTS: *RAW DATA*

- Complete title (The effect of _____ on _____)
- Figure #
- Systematic error(s)
- Units (*remember METRIC!*)

IV. RESULTS: Processing Data – **Displaying** the BIG STORY

On graph paper, construct 2 graphical representations of your data (Each telling a different “story”). Be sure that each graph has:

- A title that includes both the independent and dependent variables
- All labels and units on its axis
- A key if necessary
- Don't forget error bars!
- Systematic errors!

Statistical Analysis Calculations

- Provide standard deviation of your results. You don't need to show the calculations, just the figure.
- Provide t-test and/or chi-square analysis of your results. You would need to show your calculations here. Your final figures need to be mentioned somewhere on your graphs.
- Indicate any literature values that apply
- Don't forget systematic errors!

Use the space belong to sketch or paste whatever might belong in your results

(11). What are some real world applications or examples that we can connect these results to? Provide at least 2 examples (you must do outside research for this);

(12). Are there further experiments that can be performed or did the data suggest other avenues to explore? (Repeat and elaborate on your idea in #9, and add on 1 more idea)

Note: do not say “Measurements could have been more accurate...” or “there was error in measurement.” Or “we could have worked harder/paid more attention.” Those are not valid evaluation statements and you are just wasting paper.

VI. BIBLIOGRAPHY: List your resources accordingly in the blank space below. Use the format provided. Remember, you must come up with at least 2 more resources OTHER than the ones that Ms. Chien provided on her website. USE APA format!

Use Citation Machine or Noodle tools to make your life a tad bit better ☺

Don't forget to make a cover page for your lab report: It should include:

- (1) Investigative Question
- (2) Your name
- (3) Course title
- (4) Date of submission
- (5) Instructor's Name

Don't forget to attach at the back of your lab:

- (1) Your raw data
- (2) All your drafts (to show how hard you worked!)

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