

## **Lab Skills Elective Course**

Mr. Washburn

2010-2011

### **Course Description**

This course enhances a student's lab skills by employing their inquiry and problem solving skills to their fullest potential. Students will also further develop their skills of writing, analysis, and presentation through written and oral lab reports. The scientific method will be used to solve problems and complete tests of everyday products and situations in the areas of earth, physical, and life sciences.

### **Course Objectives**

#### **Students will:**

1. Gain a greater appreciation of the complex world God created. (ESLR Sp.3)
2. Improve inquiry and problem solving skills (ESLR A.1, A.3)
3. Present scientific findings through written and oral lab reports (ESLR So.3)
4. Learn cooperative and group dynamic skills through lab group projects (ESLR Sp.2, So.1, So.2)

### **Supplies:**

Students will need a notebook, folder, and pencils.

<http://www.apostlessj.org/web/class/LabSkills.html>

### **Course Content**

The course will be broken into several lab activities:

- Mystery Powder Analysis:
- Water and Soil Testing
- Shampoo Analysis
- Design and Present a Lab
- Blood Typing (no real blood will be used)
- Crime Scene Investigation model
- Dissection
- Others

### **Content Evaluation**

The students will be assessed on their lab performance, lab reports, and group skills.

#### **Lab Performance:**

How well the student followed procedures, demonstrated lab skill, and achieved the desired result.

#### **Lab Reports:**

How well the student documented and presented the data and results.

## Lab Report Rubric

### Lab Report :

Teacher Name: **Mr. Washburn**

Student Name: \_\_\_\_\_

<b>CATEGORY</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Objective</b>	All required elements are present and additional elements that add to the report (e.g., thoughtful comments, graphics) have been added.	All required elements are present.	One required element is missing, but additional elements that add to the report (e.g., thoughtful comments, graphics) have been added.	Several required elements are missing.
<b>Appearance Organization</b>	Lab report is typed and uses headings and subheadings to visually organize the material.	Lab report is neatly handwritten and uses headings and subheadings to visually organize the material.	Lab report is neatly written or typed, but formatting does not help visually organize the material.	Lab report is handwritten and looks sloppy with cross-outs, multiple erasures and/or tears and creases.
<b>Spelling, Punctuation and Grammar</b>	One or fewer errors in spelling, punctuation and grammar in the report.	Two or three errors in spelling, punctuation and grammar in the report.	Four errors in spelling, punctuation and grammar in the report.	More than 4 errors in spelling, punctuation and grammar in the report.
<b>Participation</b>	Used time well in lab and focused attention on the experiment.	Used time pretty well. Stayed focused on the experiment most of the time.	Did the lab but did not appear very interested. Focus was lost on several occasions.	Participation was minimal OR student was hostile about participating.
<b>Question/Purpose</b>	The purpose of the lab or the question to be answered during the lab is clearly identified and stated.	The purpose of the lab or the question to be answered during the lab is identified, but is stated in a somewhat unclear manner.	The purpose of the lab or the question to be answered during the lab is partially identified, and is stated in a somewhat unclear manner.	The purpose of the lab or the question to be answered during the lab is erroneous or irrelevant.
<b>Experimental Hypothesis</b>	Hypothesized relationship between the variables and the predicted results is clear and reasonable based on what has been studied.	Hypothesized relationship between the variables and the predicted results is reasonable based on general knowledge and observations.	Hypothesized relationship between the variables and the predicted results has been stated, but appears to be based on flawed logic.	No hypothesis has been stated.

<b>Materials</b>	All materials and setup used in the experiment are clearly and accurately described.	Almost all materials and the setup used in the experiment are clearly and accurately described.	Most of the materials and the setup used in the experiment are accurately described.	Many materials are described inaccurately OR are not described at all.
<b>Procedures</b>	Procedures are listed in clear steps. Each step is numbered and is a complete sentence.	Procedures are listed in a logical order, but steps are not numbered and/or are not in complete sentences.	Procedures are listed but are not in a logical order or are difficult to follow.	Procedures do not accurately list the steps of the experiment.
<b>Data</b>	Professional looking and accurate representation of the data in tables and/or graphs. Graphs and tables are labeled and titled.	Accurate representation of the data in tables and/or graphs. Graphs and tables are labeled and titled.	Accurate representation of the data in written form, but no graphs or tables are presented.	Data are not shown OR are inaccurate.
<b>Analysis</b>	The relationship between the variables is discussed and trends/patterns logically analyzed. Predictions are made about what might happen if part of the lab were changed or how the experimental design could be changed.	The relationship between the variables is discussed and trends/patterns logically analyzed.	The relationship between the variables is discussed but no patterns, trends or predictions are made based on the data.	The relationship between the variables is not discussed.
<b>Conclusion</b>	Conclusion includes whether the findings supported the hypothesis, possible sources of error, and what was learned from the experiment.	Conclusion includes whether the findings supported the hypothesis and what was learned from the experiment.	Conclusion includes what was learned from the experiment.	No conclusion was included in the report OR shows little effort and reflection.