Lab reports guide

The idea of this guide is to let you know in advance what we are expecting from the lab reports. A lab report doesn't have to be very long; from 1 to 3 pages with times new roman, 12-point font, and normal spacing will be more than enough. The content is more important than the length.

What you must include in the Report will be:

1. Description of the experiment

- Here, explain the tools and any math that you used to get your results. The goal is to write a description such that another scientist can recreate your experiment from your description.

2. Results of the experiment

- Results include any data taken from the experiments, presented in the form of tables, graphs, etc.
- Show calculations, including equations and math methods needed, for each part of the experiment.

3. Summary/Conclusion

- Write down a conclusion or a with any important fact that you get from the experiment. Use explanations of any physics relations and include any relevant math or equations to paint the clearest picture of what you learned from the lab. The goal is to summarize the purpose of the lab, and explain any new information gained by carrying out the experiment.

Here an example of a Report:

Texas Tech University

Physics of Sound & Music

Dr. Joe Romano

T.A Connor Aronoff

<u>Lab Report 1, Force, Mass, and Acceleration.</u>

By (your name here)

Experiment 1: Force

1. Description of the experiment

The goal of the following experiment is to determine the relationship between the force on an object, the object's mass, and resulting acceleration of said object. The set up for the experiment (figure 1) is made using a cart on a track which is attached to a hanging mass by a string and pully system. The

hanging mass provides the force on the cart, and the car's acceleration is recorded using a motion sensor. To test how the force on the object effects acceleration, we run 5 trials, increasing the force on the object by taking 50g from the cart and moving it to the hanging mass in order to keep the total mass constant. The force applied and the resulting acceleration is recorded in a table. Acceleration is plotted vs the applied force to find the relationship between them.

2. Results section

Table 1:

Hanging Mass	Force	Acceleration
50g	.49 N	1.61 m/s^2
100g	.98 N	3.30 m/s^2
150g	1.47 N	4.88 m/s^2
200g	1.96 N	6.53 m/s^2
250g	2.45 N	8.22 m/s^2

Force of the Hanging mass

$F = M * a$

Total Mass of the system *M* is the hanging mass plus the mass of cart. *M* was kept at a constant 300g for this experiment.

Force vs acceleration plot

{insert plot here}

3. Conclusions

Conclusions

From our force vs acceleration plot, we can see that force has a linear relationship to the acceleration of the cart. This fits the expected relationship stated by Newton's second law F=ma. As the applied force was increased by increasing the hanging mass, we see a linear increase in the acceleration of our system.

Part 2. Lab Questions

Second part of your lab write-up is simply answering a selection of questions from each of the labs. You can simply put the number of each question, and then write you answer. Remember the number of questions may vary week to week.

Example

1.

{your answer here}

5.

{your answer here}

11.

{your answer here}

I will grade each lab out of 100 points. The break down of the parts is as follows

Experiment write up: 50 pts.

Lab questions: 45 pts.

In person lab quiz: 5 pts.

I hope you enjoy experimenting and composing your reports.

I wish you the best!

Sincerely,

Connor.