

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

Use this skill sheet to help you write a lab report. You can think of a lab report as a document that tells a story about an experiment you performed. The story itself is the experiment. There is always a beginning to the story (called the Introduction) and an ending (called the Conclusions). The details you provide about this "story" help others learn from what you did. As a way to share scientific knowledge, lab reports are great contributions to our progress in understanding of how the world works.

## 1. What is a lab report?

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A lab report is an explanation of your findings from an investigation. If your lab report is written clearly, anyone who reads your lab report will be able to understand what you were trying to learn. They will see why and how you performed your experiment.

When you tell a reader how to repeat your experiment, you are giving another person the tools to evaluate your work. If they can get data that is similar to yours and come to similar conclusions, then you have support for your ideas.

Because Sir Isaac Newton's findings from his experiments were repeatable, what started out as ideas are now scientific laws! For example, Newton's thoughts about a falling apple led to the law of universal gravitation. This law is an equation that explains why the moon and each of us experiment gravitational attraction to the Earth. Wow!

## 2. What are the parts of a lab report?

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On a cover sheet or at the top of your report include your name, the title of the lab, the date of completion, and your lab partners' names.

The main parts of the lab report are listed below along with a description of each part.

- **Research question:** What are you trying to find out through this experiment?
- **Introduction:** This paragraph describes the topic you are studying and how it relates to your experiment. State your hypothesis at the end of the introduction.
- **Procedure:** This paragraph is a description of the experiment you performed to test your hypothesis. You may wish to include a sketch of the apparatus you used. Be sure to name the experimental variable and list the variables that you controlled in the experiment.
- **Results:** In this paragraph, you describe your data. Often you will include a graph. Write a short description of the data, but do not draw any conclusions in this paragraph.
- **Conclusions:** Your conclusions about your experiment are described in this part of the lab report. The conclusions paragraph describes what happened in your experiment, and whether or not your hypothesis was correct.

### 3. A sample lab report

Use this sample lab report as a guide for writing your own lab reports. Keep in mind that you are telling a story about something you did. Write clearly so that others can easily understand what you accomplished.

#### Lab B-2: Pressure and speed

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#### Research Question:

How does pressure affect the speed of the air rocket?

#### Introduction:

Air pressure is a term used to describe how tightly air molecules are packed into a certain space. When air pressure increases, more air molecules are packed into the same amount of space. These molecules are moving around and colliding with each other and the walls of the container. As the number of molecules in the container increases, the number of molecular collisions in the container increases. A pressure gauge measures the force of these molecules as they strike a surface.

In this investigation, we will measure the speed of the CPO air rocket when it is launched with different amounts of initial air pressure inside the plastic bottle. We want to determine if a greater amount of initial air pressure will cause the air rocket to travel at a greater speed. My hypothesis is that when I increase the pressure of the air rocket, the speed will increase.

#### Procedure:

The air rocket is attached to an arm so that it travels in a circular path. After it travels about 330°, the air rocket hits a stopper and its flight ends. We will measure the speed at two places in the rocket's orbit.

We will test the air rocket's speed at three different initial pressures. The pressures that work effectively with this equipment range from 15 psi to 95 psi. We will test the rocket at 20 psi, 50 psi, and 80 psi. We will do three trials at each pressure and average the speed measurements.

We will measure the speed when the rocket has traveled 10° and again at 90°.

The experimental variable is the initial air pressure applied to the rocket.

The variables we will need to control are the placement of the photogates used to measure the speed, the technique used to launch the rocket, and the mass of the rocket itself.

#### Results:

My graph shows that the plots of the data for both photogates A and B are linear. As the values for pressure increased, the speed we measured increased also.

#### Conclusion:

The data shows that pressure does have an effect on speed. The graph shows that my hypothesis is correct: As the initial pressure of the rocket increased, the speed of the rocket increased as well. There is a direct relationship between pressure and speed of the rocket.

