

# Quick View

Experiment with different air pressures to test the effects on apogee.

# Materials

- Completed bottle rocket
- Water
- Launcher
- 250-milliliter graduated cylinder or measuring cup
- Pencil
- "Fuel Pressures I Data Sheet"
- Altimeter
- "Lab Report Template" (optional)



# Procedure

1 Write a hypothesis stating how you think changes in the air pressure in the rocket's fuel will affect the rocket's apogee.

2 Use the graduated cylinder to measure 100 ml of water.

3 Place the water in the rocket.

4 Attach the rocket to the launcher.

5 Pump up the launcher to 30 psi.

6 Launch the rocket.

7 Using an altimeter, find the apogee of the rocket's flight.

8 Record the rocket's apogee.

9 Repeat Steps 2-8 using 40 psi, 50 psi, and 60 psi.

10 Analyze the data generated from your tests and write a conclusion explaining how different fuel pressures affected the rocket's apogee.

# Fuel Pressures I Data Sheet

Record your hypothesis in the space provided below.

**Hypothesis** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Record the data from each test using the fuel pressures listed. Complete any additional testing you think might improve your understanding of the effect of fuel pressures on apogee. Never place more than 75 psi of pressure in the rocket.

Test Number	Amount of Water (ml)	Amount of Pressure (psi)	Rocket's Apogee (meters)
1	100	30	
2	100	30	
3	100	40	
4	100	40	
5	100	50	
6	100	50	
7	100	60	
8	100	60	

Record your conclusion in the space provided below.

**Conclusion** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Lab Report Template

## Title

### Abstract

The abstract is a short paragraph that summarizes your experiment. Include applicable information about your experimental subjects, materials and methods, results, and conclusions. The abstract is the part of the report that others will read to see if they are interested in the topic.

### Introduction

The introduction should give background information on the experiment. It should include an explanation of the general problem or area being investigated. The introduction should outline what information is already known about the problem. In building this part of your report, you might want to consult references or, at the very least, reread the text. Be sure to keep track of the information and list all references used.

The introduction should also present the question you are trying to answer or the hypothesis you are testing. Include what outcome you expect and how it would help support or disclaim your hypothesis or answer your question. Distinguish between the hypothesis and the experiment you will do to test the hypothesis.

### Materials and Methods

This section should include a concise, step-by-step numbered description of the material, procedures, and equipment used. Clearly describe the experimental situation, the control situation(s), and the type of observations you made. This should be detailed so that someone else could repeat your work. Do not include the rationale for your work in this section. Be sure to write this report as a past event, not as a set of instructions for the reader.

### Results

This section should describe what happened. Include your raw data sheets or refer to the reference section of the report where they can be found. Present your findings in a logical order, not a chronological order. Give the results that you found, not what you think you should have found. Do not explain your results in this section. Results can be reported in the form of graphs, tables, or drawings. Be sure that the data recorded are single readings or averages.

## Lab Report Template continued

### Conclusion/Discussion

Give your interpretations of the data and relate them to the questions posed in the introduction. Avoid making this section a repetition of the introduction. If you have data to explain or a new hypothesis of why the results were unexpected, list that here.

Draw some conclusions, supporting them with your data. Did the results answer your question? Did they support or disprove your hypothesis? What is the significance of your results? Should further experiments be performed to clear up discrepancies or ambiguities in your results?

### References

In this section, list the data that was concluded during the experiment. This could include graphs, charts, drawings, or data tables. In the "Results" section you explained what happened; in this section, provide quantitative proof that your results are accurate.