

Name _____
AP Physics
Period _____

Date _____
Lab #3
Mrs. Nadworny

Partners:

Due Date _____

Pressure & Volume of a Gas

Lab Write-Up Required
use template from website

Purpose

To determine the number of moles present in an air chamber.

Research Question

(1)

What is the relationship between the pressure on a gas and its volume?

Variables

(5)

- Independent Variable –
- Dependent Variable –
- Control Variable(s) –

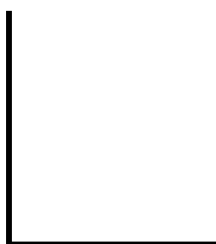
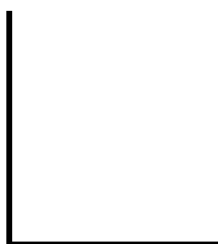
Derivation of Mathematical Model

(10)

Expected Graph

Straightened Graph *(if needed)*

(5)



Significance of Slope:

Expected y-intercept:

Hypothesis

(3)

Experimental Procedure

- **Materials**

- Gas pressure sensor
-
-
-
-

- **Labeled Diagram**

(2& 3)

- **Method**

(5)

Discuss with your lab partners an appropriate method for collecting sufficient data and for keeping the control variables constant.

1. Set the syringe to 10.0 mL mark. Connect it to the sensor by gently twisting it on the valve.
2. Connect the sensor to the interface cable and attach the cable to the USB port of the computer.
3. Open LoggerPro. The sensor should automatically be detected and the pressure value be displayed in a box in the lower left hand corner of the screen.
4. Gently push/pull on the syringe plunger to see how the pressure changes.

(In the space below record all other procedural steps taken. In your lab write-up put all steps in the correct chronological order.)

Data Collection

(15)

Make a clearly labeled table using a RULER and PENCIL for organizing the raw and processed data that you expect you will collect.

Data Processing

(25)

In space below, include an analysis of the data collected above, including sample calculations of processing the data, graphs of your data, calculations for determining the experimental relationship, and comparisons to the math model.

Attach your graphs to the lab BEFORE your conclusion.

Conclusion

(10)

TYPE a conclusion using the general format provided on the *LAB HANDOUT*.

Evaluation

(5)

Discuss some relevant sources of uncertainty.

Improvement

(5)

For each source of uncertainty listed above, state a practical way to reduce it in a future investigation.

(4)
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