PHYS 263

Pressure and Temperature

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Goals:

1) Determine the relationship between the pressure and temperature of a gas

Pre-lab:

1) If not yet done, install phyphox on your mobile phone.
2) Review the ideal gas and Gay-Lussac's laws:
   a) Write down their mathematical expressions and interpret them in words.
   b) What does each of them say about the relationship between pressure and temperature within a fixed volume?
   c) How does the pressure vary inside a small fixed volume at a given temperature?
   d) Submit your responses to a), b), and c)
3) Review and resubmit your responses to the previous lab's (Characterizing the Atmosphere) pre-lab question 3) – 6), correcting any mistakes or misunderstandings.
4) Review fitting data in the Measurement and Uncertainty note, pages 17 – 22; complete and submit responses to problems 16 – 18.

Equipment:

- Lab notebook
- Smartphone
- Mason Jar
- Thermometer
- Refrigerator

Tasks:

1) Design an experiment to measure how gas pressure changes as a function of temperature
2) Present the experimental designs to the instructor for approval
3) Make and record measurements
4) Produce tables and/or graphs of the data and present these to the instructor for further guidance
5) Analyze the data to determine how gas pressure changes as a function of temperature
6) Write a report and create a presentation that document the experiment and its result