Ideal Gas Law Inquiry Lab

Design an experiment to explain the IDEAL GAS LAW (as this law does combine all the laws). A complete lab includes multiple trials, and a complete lab write up, analyzing the results.

Lab Report will be marked according to the rubric
- All parts are required!

Student are asked to make a video of their lab, in order to explain their materials and procedure, as well as demonstrate their results of the lab. Think of this video as your abstract for the lab.

Inquiry Lab Requirements
- Individual lab report (all parts of lab required)
  - This will be marked on the lab rubric
  - Additional marks will be awarded based on appropriateness and effectiveness of the lab
- Abstract video (should be recorded while performing the lab) and summarize all parts of the lab in a simple descriptive video!
  - This will be marked as an abstract as well on video production (does it accurately demonstrate the lab)

Summary Video Rubric

	4	3	2	1
Abstract Explanation	Experimental design is a well conducted test of the stated hypothesis, including a summary of the variables, procedure, results and errors.	Experimental design is adequate to test the hypothesis, but leaves unanswered questions.	Experimental design is relevant to the hypothesis, but is not a complete test.	Experimental design is not relevant to the hypothesis or is an inappropriate explanation of the lab.
Video Summary	The video provides evidence of the purpose, hypothesis, all materials, amounts, procedures, results and group members taking part in the lab	This video provides evidence of the purpose, hypothesis, all materials, amounts, procedures, results however does not include all members taking part.	This video includes all members taking part in the lab, however is missing ONE of the following: purpose, hypothesis, all materials, amounts, procedures, results however does not include all members taking part.	This video includes all members taking part in the lab, however is missing TWO of the following: purpose, hypothesis, all materials, amounts, procedures, results however does not include all members taking part OR this video does not include all members and is missing ONE part of the lab.
Video Production	This video production is professional and summarizes the lab in an effective way.	This video production is appropriate and summarizes the lab in an effective way.	This video production is professional, however parts of the summary are missing and so the lab seems disjointed.	This video production is appropriate, however parts of the summary are missing and so the lab seems disjointed.

Appropriate and Effective Lab Rubric

	4	3	2	1
Lab Decisions (worth 2x)	This lab procedure is completely appropriate and successfully demonstrated The IDEAL GAS LAW in a summative manner.	This lab procedure is appropriate however required input and assistance to develop and demonstrate the IDEAL GAS LAW in a summative manner.	This lab procedure is completely appropriate and however was unsuccessful in demonstrating The IDEAL GAS LAW in a summative manner.	This lab procedure is appropriate however required input and assistance to develop and unsuccessfully demonstrate the IDEAL GAS LAW in a summative manner.

Ideal Gas Lab Guidelines:

Reminder: ALL PARTS OF THE LAB ARE REQUIRED FOR THIS LAB WRITE UP

Background Information

- Discuss the differences between real and ideal gases
- Discuss the Kinetic Molecular Theory and relate it to each law below, providing a simple explanation and 1 real life example where the law applies.
    - Boyle's Law
    - Charles' Law
    - Lussac's Law

Diagrams

- Please include only 1 diagram in your lab – I don't need to see 19 different diagrams because you slightly changed something.

Data

- Remember you should have minimum 3 trials in your lab for each situation and it should be presented in a professional looking table

Analysis of Results

- Relate your results specifically to the Ideal gas law, specifically relating it to either Boyle's, Charles', Lussac's or Avogadro's and the Kinetic Molecular Theory.
- Include relevant graphs in your explanation and discuss the trends of the graph. Relate these trends to your results.

For your lab, you are able to hand in 1 video per group. The sections that are allowed to be the same as your group's are:

- Purpose
- Variables
- Materials
- Procedure
- Data

All other parts of the lab must be completed individually and should not be the same as your group members'