

## **Unit 9: Thermodynamics**

### **LAB: Behavior of Ideal Gases**

#### Objectives:

- Learning Objective 7.A.3.1: The student is able to extrapolate from pressure and temperature or volume and temperature data to make the prediction that there is a temperature at which the pressure or volume extrapolates to zero.
- Learning Objective 7.A.3.2: The student is able to design a plan for collecting data to determine the relationships between pressure, volume, and temperature, and amount of an ideal gas, *and to refine a scientific question concerning a proposed incorrect relationship between the variables.*<sup>1</sup>
- Learning Objective 7.A.3.3: The student is able to analyze graphical representations of macroscopic variables<sup>2</sup> for an ideal gas to determine the relationships between these variables and to ultimately determine the ideal gas law.

#### Equipment:

- PASCO Ideal Gas Law Syringe

Procedure: Design and implement an experiment to test an aspect of the ideal gas law. You must meet all curriculum requirements stated above.

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<sup>1</sup> We'll discuss the italicized, grayed-out portion in class. Don't worry about it in your experiment.

<sup>2</sup> What do you think the macroscopic variables are?