

GAS LAWS

Experiment 2 – Charles' Law

Experimental Procedure

1. The experimental setup includes a closed cylinder with a moveable piston containing a sample of gas (air) and a pressure gauge to measure the pressure of the gas (in torr), a water bath in which to immerse the cylinder, a hot plate with which to heat the bath, a thermometer to measure the temperature (in °C), and a ruler to measure the height of the piston (in cm) in the cylinder.
2. Open the worksheet for Experiment 2. Enter the data within the Excel table so that the graph can be created. After completing the experiment, print out the results or copy to your report sheet.
3. Click anywhere on the apparatus to start the lab. (If you are using Internet Explorer, you will have to click once to activate the control, then click again to start the lab.)
4. The system is initially at room temperature. Click on the pressure gauge to see a close-up of the measuring devices. Record the pressure, temperature, and height of the piston in the appropriate cells in the worksheet. Excel will calculate the volume as you enter each height value and will also calculate the Kelvin temperature as you enter each Celsius value.
5. Click the right arrow on the hot plate dial to increase the heat.
6. Wait until the temperature and piston height have stabilized, then record the values in the next row of the worksheet.
7. Repeat steps 5 and 6 to record the pressure, temperature, and height of the piston at each of the remaining hot plate settings. (You may click on the left or right arrows on the hot plate to decrease or increase the heat setting.)

