

Gas Law Demonstration #4-64161

Warning:

- **Not a toy; use only in a laboratory or educational setting.**

- **California Proposition 65**

Warning: This product can expose you to chemicals including lead, which are known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Introduction

Gas Pressure is a measurement of the amount of force the moving gas particles cause on a unit of area. Several factors can affect the pressure of a gas.

Increasing the temperature of a gas causes the particles to move faster. Faster moving particles can each exert a larger force when they collide with a surface. Increasing the temperature of a gas tends to increase its pressure.

Confining a number of particles to a smaller volume causes them to move faster, which in turn increases the pressure they exert. Decreasing a gas's volume, then tends to increase its pressure.

The Combined Gas Law relates these three quantities in a way that is useful for solving and testing problems involving gases. If the amount of gas (number of particles) in a container is held constant, its pressure, volume and temperature are related as follows:

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

Experiment:

1. Detach the plunger from the cylinder.
2. Place the rubber plug over the hole at the bottom of the bottom block.
3. Insert the plunger back into the cylinder and press down.
4. If air leave the cylinder while the plunger is pressed, rub some wax around the rubber end on the plunger. This will create a tighter seal around the plunger and cylinder.

