



## Concept:

Here is a straightforward demonstration of the inverse relationship between pressure (P) and volume (V) as dictated by the ideal gas law with temperature held constant in a closed system. As the volume of a syringe is increased, the audience can clearly see the pressure gauge values decrease. These values are recorded and a quick plot of P versus 1/V will reveal the predicted relation.

## Equipment:

1. Boyle's Law Apparatus
2. Transparency Marker
3. Overhead Projector or Document Camera (not pictured)

## Procedure:

1. Place the Boyle's Law Apparatus on the overhead projector or document camera.
2. Notice that the hand-written volume markings should be used for all the measurements (see Notes).
3. Begin with the end of the plunger at the 20 cc mark and the pressure gauge at about 15 lbs/in<sup>2</sup> (atmospheric pressure).
4. Push the plunger to the 10 cc mark and record the corresponding pressure reading on the Plexiglas board using the provided marker.
5. Continue recording pressure readings for the 15, 20, 25 and 30 cc marks.

## Notes and Extras:

- The 5 cc addition to the printed volume markings on the syringe account for the additional volume of gas in the small connecting tube, valves and fittings.