Boyle’s Law

**Introduction:** In this activity, you will examine the effect of changing pressure on a trapped volume of air

**Procedure:**

1. Pick up one kit per group
2. Take 5 of the same Chemistry books.
3. Set up the apparatus as described below.

* Put 30 mL of air in the syringe.
* Push syringe into block as deep as possible and cap syringe from underneath.
* Have block flat on stand platform.
* **Position clamp near top of syringe**.
* Put other block on top so it will be the text platform.

NOTE: The platform may be shaky so use your hands to lightly support the books.

1. Vary the number of books on the syringe to see the effect of pressure on a trapped volume of air.
2. Record results in a data table.



**Analysis:**

1. Describe the effect that pressure has on the volume of the gas at a constant temperature. Explain this effect, Boyle’s Law, using the KMT.
2. Why must this activity be conducted when the room temperature is constant?
3. Would your results differ if you used a different gas in the syringe? Explain using the KMT.
4. (a) Plot a graph of volume, V, against pressure, P (number of books).
5. Plot a graph of 1/V against P.
6. Use your graphs to develop a mathematical equation relating volume and pressure.
7. Use your graphs to predict the volume if the following number of books was placed on the syringe. (i) 10 books (ii) 3.5 books