

12B – BOYLE'S LAW

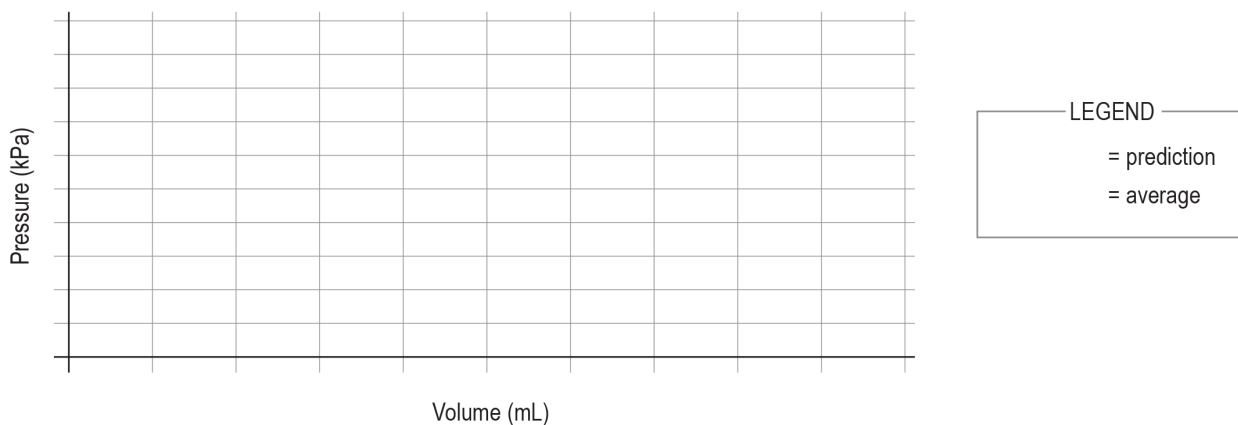
Analysis

1. Calculate and record the average pressure for each volume in Table 1.
2. Sketch the average pressure for each volume in Graph 1. Add numbers to the x- and y-axes at appropriate intervals and complete the legend to distinguish the prediction from the average.

Table 1 – Pressure and volume

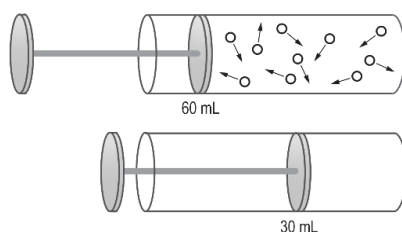
Volume (mL)	Run 1 Pressure (kPa)	Run 2 Pressure (kPa)	Run 3 Pressure (kPa)	Average Pressure (kPa)
60				
55				
50				
45				
40				
35				
30				
25				
20				
15				

Graph 1 – Pressure and volume



Questions

- ❓ 1. How do the pressure and volume data compare to your prediction?
- ❓ 2. What gas properties should be held constant to study the relationship between pressure and volume of a gas?
- ❓ 3. Which type of relationship exists between the pressure of a gas and its volume: direct or inverse? Explain your reasoning.
- ❓ 4. Boyle's Law is the relationship between the volume of a gas at constant temperature and the pressure upon it. Write a mathematic expression for Boyle's Law.
- ❓ 5. If the volume of a gas is cut in half, what would you expect to happen to the pressure? Assume other gas properties are constant.
- ❓ 6. The picture below represents gas particles in the syringe at 60 mL. Draw a picture of the gas particles in the syringe at 30 mL.



- ❓ 7. Use the two pictures to explain how the pressure of a gas will change when the volume decreases.