



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION

MOPANI WEST DISTRICT

PHYSICAL SCIENCES

PRESCRIBED EXPERIMENT 02

GRADE 11 TERM 3

TITLE: BOYLE'S LAW

LEARNER'S NAME	
NAME OF SCHOOL	
DATE	

Mark : 35

LEARNER'S MARKS

25

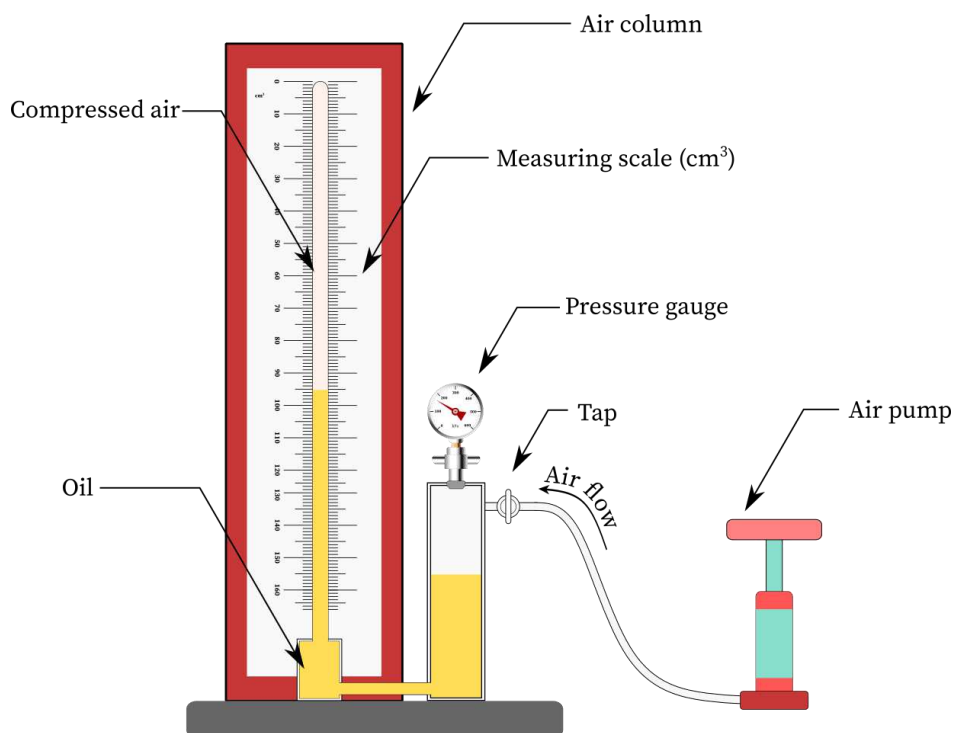
1. **Aim** : Investigate the relationship between pressure and volume of a fixed mass of gas at constant temperature
2. Write the Investigative question of the experiment.

(2)

3. **Apparatus** :Boyles law apparatus , bicycle pump , graph paper

4. **Method**

4.1 Set up the apparatus as shown in the diagram below :



- 4.2 Push the piston of a bicycle piston to compress the air inside the glass tube until the pressure is 250kPa. Record the pressure and volume of air.
- 4.3 Open the valve to reduce the pressure to 200kPa and record the volume of air
- 4.4 Repeat step 3 for THREE pressure readings of 150kPa, 100kPa, and 50kPa

4.5 Record the readings in the table below :

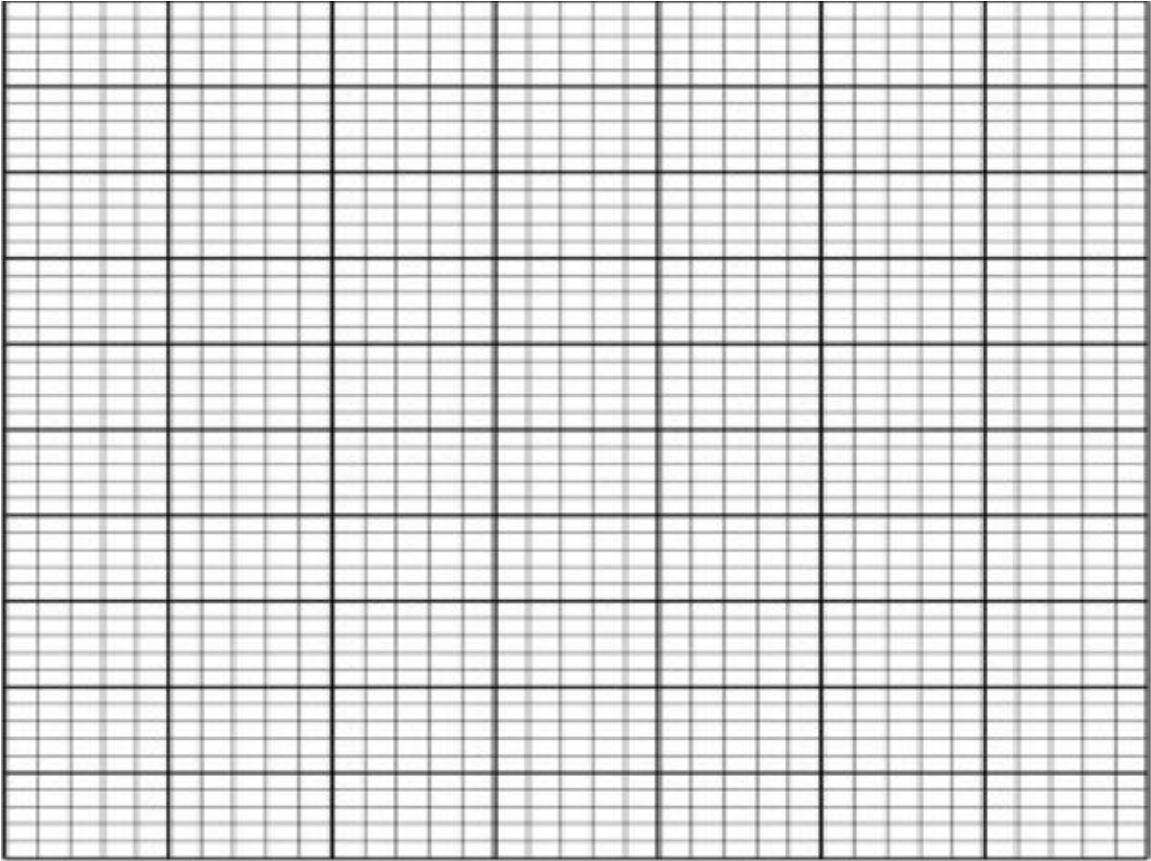
Pressure (kPa)	Volume (cm ³)	1/p(kpa×10 ⁻³)	pV(1×10 ⁻³)

(5)

5. Analysis of results

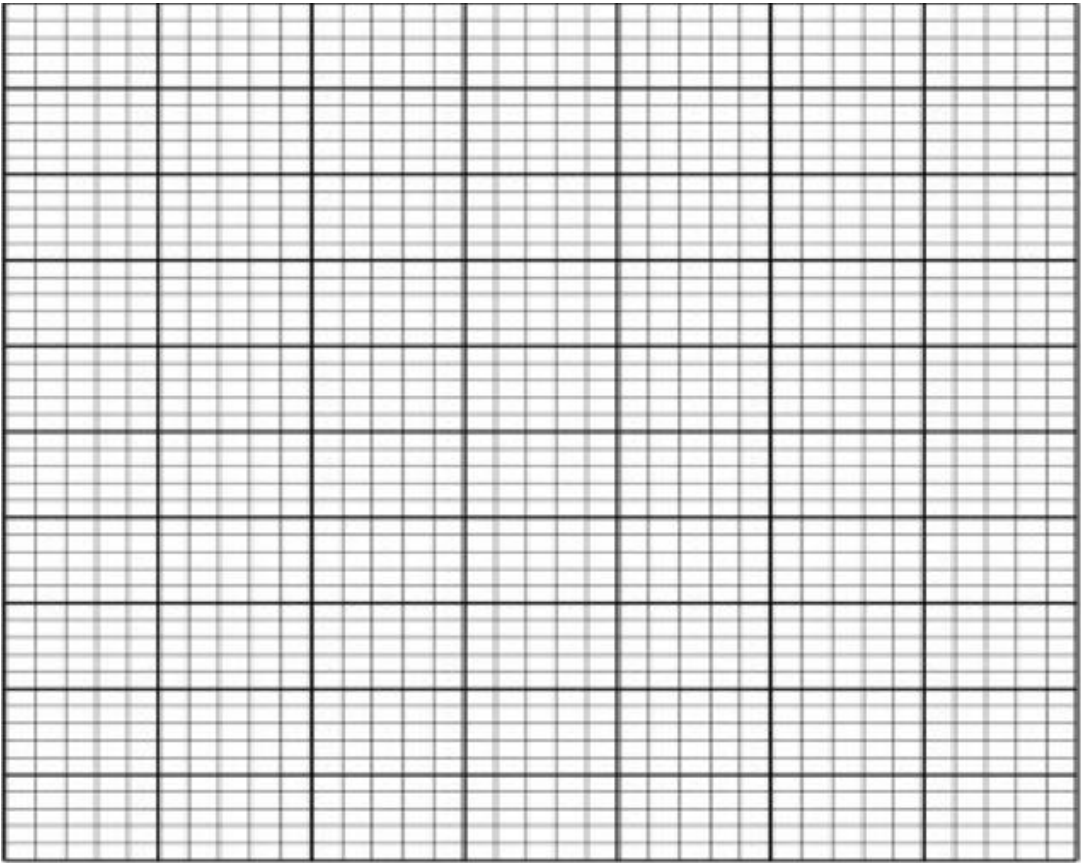
- 5.1 Use the results to of plot the graphs of
A: Volume (cm³) v/s Pressure (kPa)
B: Volume (cm³) v/s 1/p(kpa×10⁻³)

Graph A



(3)

GRAPH B



(3)

6 Comment on the shape of each graph

6.1 Graph_A

(2)

GRAPH B

(2)

6.2 List two sources of experimental error in this investigation

(2)

6.3 Identify the following variables:

6.3.1 Dependant variable _____

(1)

6.3.2 Independent variable _____

(1)

6.3.3 Two constant variables _____

(2)

7 Write the conclusion of the experiment

(2)

8 Hand in *your own* complete scientific report containing the following: (check the rubric for mark allocation)

(10)

- ✦ Heading
- ✦ Aim;
- ✦ Experiment set up diagram;
- ✦ A clear method;
- ✦ Safety precautions;
- ✦ Results (tabular & graphic if appropriate);
- ✦ Interpretation;
- ✦ Conclusion.

Total =25
Report = 10
Grand total = 35 Marks

[35]