Name: _____ Group: _____ Date: _____

LAB 10
TECHNIQUE

MEASURING THE DENSITY OF A GAS

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Goal

Measure the density of a gas.

Materials

- 140-mL syringe with perforated plunger and stopper
- 4-in nail
- balance (accurate to 0.01 g)
- cylinder of gas (e.g. oxygen, carbon dioxide, nitrogen)

Procedure

1. Empty the syringe.
- *a)* Push the plunger down fully into the syringe.
- *b)* Stopper the syringe.
- *c)* Pull the plunger to the mark of 140 mL.
- *d)* Insert the nail into the hole of the plunger.

2. Weigh the syringe (with plunger, stopper and nail). Record the result.

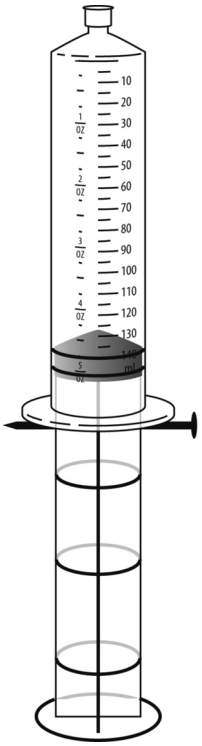
3. Fill the syringe with gas.
- *a)* Remove the stopper and the nail from the syringe.
- *b)* Push the plunger down fully into the syringe.
- *c)* Connect the rubber tip of the gas cylinder to the tip of the syringe.
- *d)* Carefully open the valve of the gas cylinder.
- *e)* Quickly close the valve of the gas cylinder when the plunger reaches the mark of 140 mL.
- *f)* Disconnect and quickly close the syringe.
- *g)* Insert the nail into the hole of the plunger.

4. Note the density of gas contained in the syringe as exactly as possible.

5. Weigh the syringe (with gas). Record the result.

6. Calculate the density of the gas.

7. Clean up and put away materials.



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Results

Record your results in the table below. Give the table a title.

Title:

Gas	Mass of empty syringe (g)	Mass of syringe and gas (g)	Density (g/mL)

Calculations

Write down your calculations below.
Calculation of gas mass

Calculation of gas density

Reflecting on the lab technique

1. What is the density of each gas chosen for this lab?

2. Compare the density obtained with data provided in tables of characteristic properties. Are they similar? If not, explain why.