Pipette Rockets

Each lab table will create 2 gas generators. One side will create a hydrogen generator, the other side will create an oxygen generator. Discuss with the group on the other side of your lab station as to which side will create which generator.

Prepare at least two pipettes per person in the group.

1. Put a pipette under water in one of the water baths in the room.

2. Squeeze the pipette under water, and release so it becomes completely full of water.

3. You may need to do this several time to get **all** air bubbles out

4. Place the pipettes in the test tube rack, open end facing down

Hydrogen generator (your group will either make this or the oxygen generator, not both)

1. Add 50 mL of 1 M HCl to an Erlenmeyer flask.

2. Add a piece of mossy zinc to the HCl.

3. Place a stopper with a Luer lock plastic adapter on the flask.

Oxygen generator (your group will either make this or the hydrogen generator, not both)

1. Add 50 mL of 1.5% hydrogen peroxide to an Erlenmeyer flask.

2. Add one scoop of manganese dioxide to the flask.

3. Place a stopper with a Luer lock plastic adapter on the flask.

Filling a pipette

1. Insert the pipette into the Luer lock adapter (open plastic hole in stopper). Make sure you have a good seal. Make sure the valve on the other adapter if present is closed.

2. Allow pressure to build for a few seconds. Gently squeeze the pipette to allow some water to drip into the flask and suction some of the gas into the bulb of the pipette.

3. Attempt to fill the bulb approximately 2/3 full with hydrogen, and 1/3 full with oxygen.

4. KEEP a small amount of water at the bottom of the bulb.   Keep the bulb up and open end facing down!

Bring your pipettes to the launching/snapping station

Complete the following with the combined gas law

If a sample of carbon dioxide occupies 34.5 mL at 123 kPa and 22° C, what volume will it occupy at 102 kPa and 78° C?

Complete the following with the ideal gas law

If a sample of 4.3 g of CH_4 gas is at 1.21 atm and 298 K, what volume will it occupy?

Balance the equation $Sc_2(CO_3)_3$ + H_2SO_4 → H_2O + $Sc_2(SO_4)_3$ + CO_2

You may use either law for this problem

What volume of carbon dioxide will be produced from 14.3 g of scandium carbonate at 745 torr, and 295 K?