Making Gas: Reactants and Products

In this lab, you will repeat the experiments of some of the scientists we have been exploring recently. You and your team will create 3 gases and test their presence using flame tests.

Safety: Students must wear protective eyewear. Hair must be tied up and any hanging sleeves must be rolled up. Never leave a flame unattended. Anyone playing with fire or unnecessarily lighting up matches or splints will be asked to leave and receive a zero.

Materials. In your blue bin: 2 test tubes, 2 small flasks, test tube rack or container to hold used test tubes, wooden splints, test tube cleaning brush.

Materials at the front of the room: Candle, 3 liquids (HCl, vinegar, hydrogen peroxide), 3 solids (zinc pellet, manganese oxide, sodium bicarbonate).

I. HYDROGEN
1. Place a zinc pellet into a clean test tube. Mr. Gonzalez will pour in enough HCl acid to cover the zinc pellet. Quickly cover the top of the test tube with your thumb, walk back to your table and hold for 20-30 seconds.

2. Have someone light a wooden splint using the candle. After 20-30 seconds, place the lit flame in the test tube. Immediately cover the test tube opening with your thumb to capture more of your hydrogen! Repeat as many times as you like. Record your results. Note: You many have to blow out and relight your wooden splint between trials.

II. CARBON DIOXIDE
1. Grab the two flasks. One will remain empty. Bring one of the flasks up to the front and pour in the sodium bicarbonate powder (pre-measured). Next, pour in your vinegar.

2. Again, light a wooden splint using your candle. First, insert and remove the lit splint flame in the empty flask. Next, repeat with the filled flask. Relight the flame. Repeat. Record your results and repeat as often as needed.

3. To try. Light a wooden splint. Let it burn until the tip is black and blow it out so you have a glowing red ember. Place the glowing stick in the CO2. Note what happens. Try it in the empty flask to compare.

III. OXYGEN
1. Obtain a clean test tube. Pour in your manganese oxide (pre-measured). Then, pour in your hydrogen peroxide. Again, cover the top of the test tube with your thumb for 20-30 seconds.

2. Light a wooden splint and let it burn. Blow it out to create the red glowing ember. Remove your thumb and insert and quickly remove the glowing ember in the test tube. Place your thumb over again to make more gas. Repeat the glowing ember test. Try it in the empty flask.

For you lab report: 1. Header/Title 2. Purpose 3. Background: Research who and how the three gases above were discovered. Hypothesis: (NONE for this lab); Procedure (None: Instead, the test you perform will be described in a column of your data table) 3. Data table report the reactants (materials used), the products (gases made), the test used (procedure for the flame test), and your observations (what happened with the flame). 4. Conclusion/Analysis: Very briefly describe how the three gases act when exposed to flames or glowing embers.