

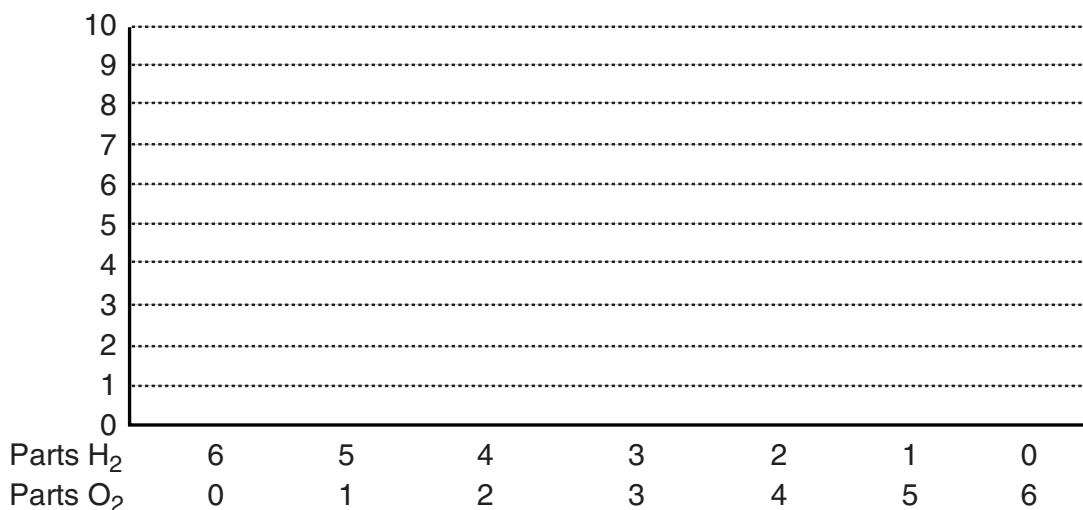
Micro Mole Rockets

Data Table

“Pop-test” Properties of H ₂ Gas	
“Pop-test” Properties of O ₂ Gas	
Pop-test Properties of O₂:H₂ Gas Mixtures	
Oxygen:Hydrogen Mole Ratio	Relative Loudness
1:5	
2:4	
3:3	
4:2	
5:1	

Post-Lab Questions

1. Draw a bar graph to illustrate the relative loudness produced by pop-testing various oxygen/hydrogen gas mixtures.



2. Explain the relative loudness of pure oxygen and pure hydrogen in the pop-test.

3. Write a balanced chemical equation for the combustion reaction of hydrogen and oxygen to give water.

4. Complete the following sentence to describe the number of moles of each reactant involved in the combustion of hydrogen: _____ moles of hydrogen react with _____ moles of oxygen to give _____ moles of water.

When the reactants in a mixture are present in the exact mole ratio given by the balanced chemical equation, all of the reactants should be used up when the reaction is over. There will be no “leftover” reactants. However, if one of the reactants is present in an amount greater than its mole ratio, then that reactant cannot react completely, and some of it will be left over at the end of the reaction.

5. Use the mole ratio of hydrogen to oxygen from Question #4 to determine what happens when various hydrogen/oxygen gas mixtures are allowed to burn. Complete the following table to indicate which reactant (H_2 or O_2) is present in excess, and how much of it will be left over after the combustion reaction is complete. *Note:* The second mixture has been completed as an example.

Parts H_2	6	5	4	3	2	1	0
Parts O_2	0	1	2	3	4	5	6
Which reactant is present in excess?		H_2					
How much of that reactant is left over?		3					

6. Which oxygen/hydrogen gas mixture produced the most explosive mixture? Explain why this mixture was most explosive.

7. Why do the hydrogen and oxygen gas mixtures in the collection bulb not react as soon as they are collected? *Note:* Consider the role of the match and the properties of gas molecules at room temperature.