

Science and Technology
Lab 1.1: The Generation of Oxygen Gas

Name _____

Purpose: The purpose of the lab is to devise a procedure for collecting oxygen gas, to carry out the experiment and verify if oxygen gas was indeed produced *by placing a glowing splint in the test tube of gas.*

Chemicals allowed: MnO₂ (two full spatula tips). MnO₂ is a chemical that speeds up the breakdown of H₂O₂
20.0 mL of H₂O₂, 3% mass/volume
tap water to place inside the metal tank or large beaker

Materials allowed: 50 ml graduated cylinder
1 large test tube
18 to 20 inches of rubber tubing
1 holed rubber stopper for large test tube
metal tank to serve as water reservoir
3 small test tubes
wood splint
matches
spatula
clamp and stand

Report: (use loose leaf)

- (1) Write the **procedure** in numbered steps, and
- (2) ...draw your experimental setup.
- (3) In the **data** section record all your *observations* in a table.
- (4) In the **analysis**, write a balanced equation for the reaction you carried out. The reactant was H₂O₂. The two products were H₂O and O₂.
- (5) Use drawings to represent the balanced equation. Hydrogen atom = $\textcircled{\text{H}}$
Oxygen atom = $\textcircled{\text{O}}$
- (6) Write a balanced equation to represent one of the reactions involved in the wood splint test (O₂ reacts with C₁₀H₁₃O₃ to produce CO₂ and H₂O)
- (7) In the **conclusion**, briefly summarize how oxygen gas was generated and whether it was actually produced. Mention how you concluded that oxygen was actually in the test tubes.