

**PRE LAB NOTES****you will:**

Observe a Synthesis reaction as you burn steel wool in the oxygen in the classroom.  
Write a balanced chemical equation describing the Synthesis reaction.

There are **Four steps** to writing a chemical equation:

1. Determine the Reactants and Products. This often requires you to use your background knowledge about bonding including Ionization, Bond Types, and Electronegativity. (often use a flow chart )
2. Write the formulas for all Reactants and Products in equation form. This requires you to use the Oxidation Numbers for elements, transition metals and polyatomic ions. You use subscripts to do this step.
3. Balance the equation so that there are the same number of atoms on the right side of your equation as there are on the left side. You use Coefficients to do this step.
4. Use the symbols (s) for solid, (g) for gas, (l) for liquid and (aq) for dissolved or ionized to label the state of each Reactant and Product.

**You are going to use:**

Aluminum Foil

Goggles

Steel Wool ... (Fe)

Triple Beam Balance

Tongs

Lighter/Matches

**1. SET UP FOR THE SYNTHESIS REACTION BETWEEN IRON AND OXYGEN.**

- piece of aluminum foil and a wad of steel wool (iron).
- aluminum foil on the triple beam balance, and record its mass. **(sketch this)**
- Fluff the steel wool up so that there is plenty of air around each fiber in the steel wool. The steel wool should roughly quadruple in size.
- Place the steel wool in the center of the piece of aluminum foil. Record the mass of the aluminum foil and the steel wool.
- Record the appearance of the steel wool. (color, texture, etc.)

**2. IGNITE THE STEEL WOOL AND OBSERVE THE REACTION.**

- Ask your teacher (or you can if you feel comfortable) to light your steel wool using a lighter/matches
- The reaction should be obvious. This is called an “**Exothermic**” reaction because lots of heat and light are given off.
- Record your observations of the reaction.

Watch this video: <https://www.youtube.com/watch?v=YzXYTW1zITo>