

Research Question: What happens in the combustion of a metal?

### Introduction

A metal will undergo combustion when heated. In this lab, I will carry out a carefully controlled combustion reaction using a small amount of iron filling.

### Procedures

Place aluminum foil under oil lamp. Fill oil lamp with ethanol and light with match. (Teacher should do this). Then, shake oil fillings from container into flame, being careful to not dump and to not peer over or into flame. Use phone if desired to take pictures during experiment. (Little sparks will occur so students should not be over the flame or try to use hands to capture sparks because they will get burned.) Once done, place metal top over flame to snuff out the flame.

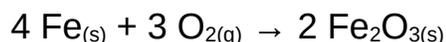
### Results:

(students can take before, during, after photos with phone). They should also write down their observations. They can then examine the fillings that have fallen onto the aluminum foil and onto the top of the oil lamp (around the wick) with the magnifying glass. Some of the fillings are dull/discolored in appearance and they should note this as part of their observation.

### Conclusions

The combustion of a metal is a chemical reaction. In this case, the new substance formed was iron oxide (rust). Therefore, some of the iron fillings appeared darker, or duller and discolored, in appearance.

The chemical equation for this reaction is:



Combustion reactions need the presence of oxygen because fire requires oxygen to burn. Oxygen is the "fuel" of fire.

The combustion of metals results in a new substance, a metal oxide, being formed.

Vocabulary to define:

- Combustion reaction
- Metal
- Homonuclear diatomic