Rio Grande Educational Collaborative
Before and After School Program Lesson Plan

TITLE OF LESSON: Steel Wool and Vinegar Reaction **DATE:**
SITE NAME: **CLASS SIZE:**
NAME(S) OF INSTRUCTOR: **DURATION OF LESSON:**
CREDIT (website used): https://www.sciencekids.co.nz/experiments/steelwoolvinegar.html
COMMON CORE STANDARDS: CCSS.ELA-Literacy.SL.4.1.c

LEARNING OBJECTIVES:

Students will understand the following:

- How to hypothesize (What is going to happen?)
- How an acid reacts with a material like steel wool

ACTIVITY:

Instructional Sequence:

(Step by step instructions, should another instructor pick up and teach the lesson successfully)

1. Place the steel wool in a glass.
2. Ask students what they think will happen before you pour vinegar into the glass with the steel wool. Pour vinegar on to the steel wool and allow it to soak in the vinegar for around one minute.
3. Remove the steel wool and drain any excess vinegar.
4. Wrap the steel wool around the base of the thermometer and place them both in the second glass.
5. Cover the beaker with paper or a lid to keep the heat in (make sure you can still read the temperature on the thermometer, having a small hole in the paper or lid for the thermometer to go through is a good idea).
6. Check the initial temperature and then monitor it for around five minutes.

Explanation: The temperature inside the beaker should gradually rise, you might even notice the beaker getting foggy. When you soak the steel wool in vinegar it removes the protective coating of the steel wool and allows the iron in the steel to rust. Rusting (or oxidation) is a chemical reaction between iron and oxygen, this chemical reaction creates heat energy which increases the temperature inside the beaker. This experiment is an example of an exothermic reaction, a chemical reaction that releases energy in the form of heat.

MATERIALS:

The following materials or equipment needed for this lesson:

(Include special equipment request)

- Steel Wool
- Vinegar
- Paper or lid (to cover the glass and keep the heat in)
- Glass containers
- Thermometer

SIGNATURE: _____ **DATE:** _____
SITE SUPERVISOR'S SIGNATURE: _____ **DATE:** _____

INSTRUCTOR'S REFLECTION:

Reflection on the lesson given:

1. How many students participated in the lesson given? _____
2. Name(s) of instructors participated. _____
3. How long did your lesson take? (Amount of time) _____
4. How did the students feel about the lesson? _____
5. Did the students like the lesson? _____
6. What part of the lesson did the students like? _____
   _____
   _____
7. What part of the lesson did the students not like? _____
   _____
   _____
8. Were the students interested in the topic of the lesson? _____
9. Was the content of the lesson difficult for the students? _____
10. What could you have changed to make the lesson interesting? _____
    _____
    _____
11. Did you have any trouble getting your lesson together? (Idea & Materials) _____
    _____
    _____
12. How do you rate your lesson? (1-10) Why? _____
    _____

SITE SUPERVISOR'S REFLECTION:

Reflection on the instructor's lesson:

1. How many students participated in lesson? _____
2. How many instructors participated in lesson? _____
3. Did the students enjoy the lesson? _____
4. What part did the students enjoy? _____
   _____
5. What part did the students NOT enjoy? _____
   _____
6. What could have been changed to make the lesson interesting? _____
   _____
   _____
7. Was the content of this lesson difficult for students to understand? Why? _____
   _____
8. What part of STEAM or literacy was used? (Science, Technology, Engineering, Art, Mathematics or Literacy)
   _____
   _____
9. Comments: _____
   _____
   _____