

Name: _____

Date: _____

Comparing the Reactivity of Metals

(refer to Investigation 6-B, pp. 201-202)

Purpose: To compare the reactivity of metals in acid and water.

Materials and Methods: **SAFETY GLASSES, HAIR TIED BACK, DO NOT ADD CALCIUM TO ACID**

Part A - Metals in Acid

1. Place 5 mL of dilute **hydrochloric acid (HCl)** in each of 4 clean test tubes in a test tube rack.
2. Label the test tubes **Fe (iron)**, **Mg (magnesium)**, **Cu (copper)**, and **Zn (zinc)**.
3. Light a Bunsen burner and prepare a small yellow flame.
4. Add a small amount of the 4 metals to their proper test tubes. Quickly cover the test tube with **Mg (magnesium)** using a rubber stopper. Record observations and rank the metals in terms of their reactivity (ie. heat, bubbling) with acid on a scale of 1 to 4 (1=most reactive, 4=least reactive).
5. Perform the burning splint test on the test tube of **Mg (magnesium)** in acid. Record observations in the table.
6. Dispose of the contents of the test tubes where indicated by teacher and thoroughly wash and dry each tube.

Part B - Metals in Water

1. Place 5 mL of **H₂O (water)** in each of 2 clean test tubes in a test tube rack.
2. Label the test tubes **Ca (calcium)** and **Fe (iron)**.
3. Simultaneously, add a small amount of each of the 2 metals to their proper test tubes. Record observations and rank the metals in terms of their reactivity with water on a scale of 1 to 2 (1=most reactive, 2=least reactive).
4. Dispose of the contents of the test tubes where indicated by teacher and thoroughly wash and dry each tube.

Observations:

Part A - Metals in Acid		
Name	Observations	Rank Reactivity (1 to 4)
Fe		
Mg		
Cu		
Zn		

Part A - Burning Splint Test	
Name	Observations
Mg	

Write the word equation for the reaction of magnesium with hydrochloric acid:

What gas is being tested for with the burning splint?

From which compound did this gas come from?

Part B - Metals in Water		
Name	Observations	Rank Reactivity (1 to 2)
Ca		
Fe		

Based on how these metals reacted with water, which metal would be more reactive with acid?

Why can a diet too high in protein (which is acidic) from meat and milk lead to osteoporosis?

Analyze: #1-2, pg. 202

Conclude and Apply: #3-6, pg. 202