



Name:

Worksheet / Reactions of metals

Date:

Grade 7CS all sections

Objectives:

- To be able to write word equations for the reactions of metals.
- To be able to compare the reactivity of metals.

Activity one:

Pieces of metals were added in turn to 5ml cold water and to 5ml of 0.5 mol/L hydrochloric acid solution in test tubes. Each test tube was carefully observed to see whether any bubbles of colorless gas formed. Results are tabulated below. A tick means that a gas was formed and a cross means no gas appeared.

	Ca	Cu	Fe	Zn	Ag
With water	√	×	×	×	×
With HCl	√	×	√	√	×

1. What is the name of the colorless gas being produced?

.....

2. Use the results in the table to arrange the metals into three groups: highly reactive, moderately reactive, not reactive.

• *Highly reactive:*

• *Moderately reactive:*

• *Not reactive:*

Activity two:

Complete the word equations below:

1. Lithium + sulfuric acid →+ hydrogen
2. Beryllium + → Beryllium hydroxide +
3. Magnesium + chlorine →
4. + → zinc oxide
5. Magnesium + → magnesium chloride +
6. Sodium + bromine →
7. Potassium + water → +

Activity three:

Most metals react with acids to form hydrogen gas. The speed at which the reactions occur varies depending on the reactivity of the metal.

Complete the following table.

Metal	Location in the periodic table	Reaction with diluted acid (slow/ fast)	Reaction with concentrated acid (slow/ fast)
Sodium			
calcium			
magnesium			
copper			
zinc			
iron			

Activity one:

1. What is the name of the colorless gas being produced?

.....**Hydrogen**.....

2. Use the results in the table to arrange the metals into three groups: highly reactive, moderately reactive, not reactive.

- *Highly reactive:***Calcium**.....
- *Moderately reactive:***zinc, iron**.....
- *Not reactive:***copper, silver**.....

Activity two:

Complete the word equations below:

1. Lithium + sulfuric acid →**lithium sulfate**.....+ hydrogen
2. Beryllium +**water**..... → Beryllium hydroxide +**hydrogen**....
3. Magnesium + chlorine →**magnesium chloride**...
4. ...**zinc**.... + ...**oxygen**.. → zinc oxide
5. Magnesium + ...**hydrochloric acid**.... → magnesium chloride + ...**hydrogen**....
6. Sodium + bromine → ...**sodium bromide**.
7. Potassium + water → ...**potassium hydroxide**.. + ...**hydrogen**..

Activity three:

Metal	Location in the periodic table	Reaction with diluted acid (slow/ fast)	Reaction with concentrated acid (slow/ fast)
Sodium	G1	fast
calcium	G2	fast
magnesium	G2	slow	fast
copper	T.M	No reaction	No reaction
zinc	T.M	slow	Fast (slower than Mg)
iron	T.M	No reaction	slow