Lab: Metal Reactivity

Purpose: To determine whether being members of the same group (same number of valence electrons) or being members of the same period (same number of electron energy levels) causes elements to have similar properties.

Safety: Goggles should be worn by everyone at all times. Some "surprising" things may happen!

PreLab:

1. When metals react, what do they do with their electrons?

2. Draw the Lewis Dot diagram of a calcium atom.

3. Draw the Lewis Dot diagram of a calcium ion.

4. Metals react with water. When calcium comes into contact with water, a single replacement reaction occurs. Complete the following reaction, then balance it:

   _____$Ca_{(s)}$ + _____ $H(OH)_{(l)}$ → _____ + _____

5. What evidence do we look for in a lab to determine if a gas is being produced?

6. What might happen if enough hydrogen gas is produced? Why? (*hint*: think of the *Hindenburg*)

Procedure:

1. Due to safety considerations, this lab will be conducted as a demonstration.
2. Watch your teacher add each metal to the water.
3. Record your observations in the table on the following page.
4. Complete the rest of the table.
5. Complete and submit your lab credit sheet.

Observations:

Complete the data chart thru line 7 based on observations.
Complete lines 8-10 based on your amazing chemistry skills.

Property	Al	Ca	K	Li	Mg	Na
1.Reaction with Air (Fast, slow or not observed?)						
2.Density compared to Water (Sink or Float in water?)						
3.Reaction with Water (Fast, Slow or not at all)						
4.IF reaction occurs with water, is it exothermic or endothermic, and how do you know?						
5.Production of gas in Water (yes or no?)						
6.If gas produced, is it produced vigorously or slowly?						
7.Effect of reaction on phenolphthalein indicator						
8.Electron Configuration						
9. Lewis Dot Diagram of the atom						
10. Lewis Dot Diagram of the ion formed						