

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

## Lab 402: Periodic Properties of the Elements

### Purpose

To study the variations in chemical and physical properties of elements in the same families.

### Procedure

#### *Physical Properties*

1. List the physical properties of the following elements in the table below

### Observations

	Ca	Na	K	Mg
<b>Hard / Soft</b>				
<b>Color of element</b>				
<b>Color of Oxide</b>				
<b>Physical State</b>				
<b>Metal or Nonmetal</b>				
<b>Density compared to H<sub>2</sub>O</b>				

## ***Chemical Properties***

1. Study the chemical properties of each element. Repeat the following procedure for each.
  - a. To about 25 mL of deionized water in a 250 mL beaker, add 1 drop of phenolphthalein. (Phenolphthalein turns pink in bases, alkali solutions).
  - b. Drop a small amount of the element into the beaker and **COVER IMMEDIATELY** with a watch glass.
  - c. Determine the speed of the reaction, if any, and record your results below.
  - d. Test the gas, if any, that is formed. Use a lighted splint at the top of the beaker. Do this without removing the watch glass.  
**BE PREPARED FOR A REACTION**
  - e. If no reaction appears to occur, heat the beaker with the water and the element to boiling. Observe and test for gas as above.
  - f. Empty the beaker. Rinse, try another element.

### **Observations**

	<b>Ca</b>	<b>Na</b>	<b>K</b>	<b>Mg</b>
<b>Speed of RXN (None, Med. Fast, Very Fast)</b>				
<b>Was additional heat needed to begin RXN</b>				
<b>Was a gas produced? If so, name the gas</b>				
<b>Color of final solution</b>				

## Conclusions

1. Did the potassium react? YES / NO
2. What told you it reacted? \_\_\_\_\_  
\_\_\_\_\_.
3. Should have hydrogen gas been present? YES / NO
4. Why was the test for hydrogen gas inconclusive for this reaction? \_\_\_\_\_  
\_\_\_\_\_.
5. Based on the physical and chemical properties observed, divide the four elements into two families. Put the members of the more reactive family on the left, and the most active of those two at the bottom.
