**Reactivity of Metals Lab continued**

Ms. Purcell added 4 different metals to warm water containing a few drops of phenolphthalein (PHTH).

**Necessary Information:**

* In chemical reactions, metals lose their valence electrons to nonmetals—the more easily the metal loses electrons the more reactive the metal is.
* Phenolphthalein indicates the presence of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A lit splint test identifies a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Sketch the Ms. Purcell’s set up for the first 3 metals and for the Calcium:

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| First 3 Metals | Calcium |

Write the BCE for the 4 reactions:

**1) Li( ) + H2O( ) → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2) Na( ) + H2O( ) → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3) Mg( ) + H2O( ) → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4) Ca( ) + H2O( ) → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Draw the 4 Bohr diagrams in the order they appear in the Periodic Table:

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| **Li** |  |
| **Na** | **Mg** |
|  | **Ca** |

What was the difference in the reaction rate with water for Lithium vs. Sodium?

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What are the differences in the Bohr diagrams between Lithium and Sodium?

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What does this mean for the force of attraction between the protons in the nuclei and the valence electrons on the last energy level in each case?

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What was the difference in the reaction rate with water for Sodium vs. Magnesium?

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What are the differences in the Bohr diagrams between Sodium and Magnesium?

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What does this mean for the force of attraction between the protons in the nuclei and the valence electrons on the last energy level in each case?

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What are the differences in the Bohr diagrams between Magnesium and Calcium?

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What are the differences in the Bohr diagrams between Magnesium and Calcium?

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What does this mean for the force of attraction between the protons in the nuclei and the valence electrons on the last energy level in each case?

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Which difference is more important for the reactivity of metals? Defend. Point form—bullets!

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