

Alkali Metals

- The alkali metals are very reactive metals
- All of them have a strong potential to react with other substances to lose their single valence electron and become a positive ion. The vigor with which they react is directly related to their position in the periodic chart.
- Observe the demonstration in class, and write a correlation statement that relates location within the column to chemical reactivity.

1. Observations (flame, no flame? color of flame, temp of water, acid/base indicator) and Association Statement

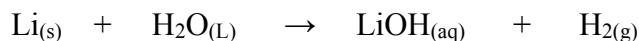
Li

Na

K

2. Explanation as related to valence electrons.

Solid lithium reacts with liquid water to produce dissolved lithium hydroxide and hydrogen gas.



3. Write out the balanced equation that represents the following reaction:

Solid sodium reacting with liquid water to produce dissolved sodium hydroxide and hydrogen gas.

4. Write out the balanced equation that represents the following reaction:

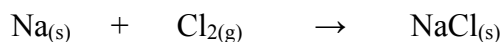
Solid potassium reacting with liquid water to produce dissolved potassium hydroxide and hydrogen gas.

Halogens

The *opposite* periodic trend occurs for the halogens. Fluorine is the *most reactive* in its family.

5. What is happening with electrons as a halogen reacts, and why does this movement of electrons make the reactivity trend opposite to the alkali metals?

A reaction between solid sodium and chlorine gas to produce solid sodium chloride is represented below.



6. Thus an extremely reactive reaction would be the combination of cesium metal with fluorine gas. Write out reaction in the space below.