Name: _____ **Date:** _____

Chemistry *~ Ms. Hart* **Class:** Anions or Cations

THE URBAN ASSEMBLY SCHOOL FOR CRIMINAL JUSTICE

4.10 Periodic Trends in Reactivity of Metals

Pre-Lab

What is **reactivity**? _____

_____

What are indications that a **chemical reaction** has occurred? _____

_____

Observations:

Period	Group 1	Video Observations	Group 2	Classroom Observations
2	Li		Be	
3	Na		Mg	
4	K		Ca	
5	Rb		Sr	
6	Cs		Ba	
7	Fr		Ra	

Results:

1) Which element from video and class observations was **the least reactive** overall? Explain how you concluded this based on your observations.

_____

_____

2) Which element from video and class observations was **the most reactive** overall? Explain how you concluded this based on your observations.

_____

_____

3) What **trend** did you observe for reactivity as you went across the periodic table? Explain how you concluded this based on your observations.

Na to Mg _____

K to Ca _____

4) What **trend** did you observe for reactivity as you went down the periodic table? Explain how you concluded this based on your observations.

Group 1_____

Group 2 (Mg-> Ca) _____

Analysis:

1) What can you conclude about the trends in **reactivity** on the periodic table as you go **across a period** and **down a group**? Explain using evidence from the lab.

_____

_____

_____

2) Reactivity is defined as gaining or losing an electron. Based on the trend for *ionization energy* and *electronegativity*, are the **atoms in the reactions** you observed likely **losing or gaining an electron**? Explain. (Be sure to state whether IE or E are high or low in your explanation).

_____

_____

_____

3) What can you conclude about the relationship between the **trend in ionization energy** and **reactivity for metals**? Why does this make sense (use answer from number 2)? Hint: use the definition of ionization energy to explain your answer.

_____

_____

_____

4) Based on what you learned for the relationship between ionization energy and reactivity for metals, **predict** what you think that the relationship will be **between electronegativity and reactivity for non-metals**? Explain (hint: do nonmetals want to lose or gain electrons?)

_____

_____

_____

5) What do you think the most reactive non-metal will be?

_____

Conclusion: (circle the correct bold word to complete the sentence below)
For metals, the most reactive element will be the element with the **highest/lowest ionization energy; metals will generally **gain/lose** an electron(s).

For non-metals, the most reactive element will be the element with the **highest/lowest electronegativity; non-metals will generally, (not always), **gain/lose** an electron(s).