

### **Independent Project: Electron Configuration and Periodic Property**

You are to prepare a collaborative document about one theory we have learned about in class as an independent project. This project will make up 15%. You will present this document and make a short (~10 minutes) presentation summing up your understanding of the concept.

Here are your parameters:

- ❖ Material should not be copied and pasted from websites; rather it should be synthesized and put into your own words.
- ❖ All group members should contribute equally to the document.
- ❖ Your document should not exceed three pages including figures, minimum of four paragraphs, five sentences each.

Questions to investigate:

1. How do you measure atomic and ionic radii?
2. Does the atom have a fixed boundary?
3. What happens to the atomic radii when electrons are added to occupy sublevels in successive higher main energy level?
4. In group 13 elements, which element Ga or Al has a smaller atomic radius?  
How is that similar/different from the trend we learned for atomic radii.
5. What is ionization energy? Does the atom become more negative or more positive as they lose electrons?
6. Can you remove an electron from a positive ion? Is it harder or easier than removing an electron from a neutral atom? Explain.
7. What is electron affinity?
8. Does an atom release or absorb energy when it acquires an electron?
9. Explain how if there is gradual increases in atomic radius down a group, there will also be a gradual increase in the ionic radius.
10. Is the electronegativity related to the size of the atom? Explain in terms of attraction force between protons and electrons.