

## Atomic Structure (Principles): Atoms and Isotopes - Revised Lab Requirements

This lab will teach you the basic structure of atoms. Please complete the Lab Worksheet with the following guidelines.

1. These sections have few or no changes and should be completed in the standard way, as we have discussed at length.
  - a. Name, Date, Title
  - b. Background Info (Look up Protons, Neutrons, Electrons, Anions, Cations, Isotopes, Bohr Atomic Model, Quantum Mechanical Model)
  - c. Use the following Statement of Purpose: The purpose of this lab is to learn about the structure of atoms and isotopes.
  - d. Methods - Detailed list of the steps using specific quantities when possible.
  - e. Conclusion - no need to refer to the hypothesis or identify it as supported or rejected because it's just a statement of purpose, however, **explain whether or not the lab was successful at imparting the basics of atomic structure.**
2. Changes:
  - a. Variables - skip this
  - b. Materials: skip this
  - c. Error - skip this
  - d. Data: Complete the following diagrams by drawing them yourself (no copies from the computer). USE COLOR for the different parts and label everything in all diagrams. Each diagram should be labelled with its Diagram number.
    - i. Diagram 1 - Draw any specific atom that shows the three main particles that make it up. Please sketch this yourself and label all parts. Be neat!
    - ii. Diagram 2 - Draw an anion and explain what makes it an anion
    - iii. Diagram 3 - Draw a cation and explain what makes it a cation
    - iv. Diagram 4 - Draw two isotopes of the same element. Explain why they are isotopes (what do they have in common? what is different?)
  - e. Analysis
    - i. Explain ALL of the following in a paragraph format (not a numbered list):
      1. How is atomic number different than mass number?
      2. What is a cation and what is an anion?
      3. What is an isotope?
      4. How can one determine how many neutrons are in an average atom of any element in the periodic table?
3. Be sure to attach your **handwritten lab notes** to the Lab Report