

Retake Activities for Unit 8 Atomic Model

PS Target 08-01 Describe the development of the atomic model and explain why models change over time.

Create a **spreadsheet** of the 10 main scientists including the name and description of the atomic model *each of them used or collected evidence to support*, and explain why their model was a good representation of the atom and a bad representation of the atom.

Scientist Name	Description of their model	How it was good model	How it was a poor model

PS Target 08-02 Use the atomic model to predict the *quantity, charges, masses, and locations* of subatomic particles (protons, neutrons, electrons) including *electron configuration and four quantum numbers*.

For an atom of sulfur and an atom of calcium:

Draw a **Bohr's Model** of an atom showing correct location of electrons, and correct location and counts of protons and neutrons.

Draw a **Bohr's Model** showing the most common ion each of these atoms would form and the ion charge that would happen.

Write the **electron configuration** for the electrons. (Housekeeping report)

Write the **four quantum numbers** for the outermost electron. (Maintenance report)

Create a table showing the particle type, charge, location and relative mass for the three main particles of an atom.

Particle Type	Location in an atom	Charge	Relative Mass

PS Target 08-03 Use symbols and names for elements and isotopes.

Using the [ptable.com Periodic Table](http://ptable.com), choose five different isotopes of Boron. Draw the periodic table box for each of the isotopes and write both the hyphen notation and the nuclear symbol for each of the isotopes. List how many protons, neutrons, and electrons each neutral isotope of Boron would have. Copy and complete the table for all five of your chosen isotopes.

Boron Isotope Periodic Table Box	Hyphen Notation	Nuclear Symbol	Protons Neutrons Electrons

PS Target 08-04 Use the *Standard Model* to explain the structure and forces within atoms.

- 1) Define the four universal or fundamental forces. List their relative strengths, what particles they act on, their mediating particle and whether they attract or repel or both.

Universal Force	Relative strength	Particles they act on	Mediating particle	Whether they attract, repel, or both

- 2) List the names of the six quarks and six leptons. Draw a large model of the atom that includes the appropriate particles labeled.
- 3) Draw the “Periodic Table” of particles for the Standard Model including all the quarks, leptons, and force mediating particles.

PS Target 08-05 Calculate moles from grams and grams from moles using dimensional analysis.

- 1) Calculate the number of moles in 95.00 grams of Fluorine.
- 2) Calculate the number of grams in 5 moles of Calcium
- 3) What is the mass in grams of 10 moles of Silicon?
- 4) How many moles are there in 78.07 grams of Nitrogen?
- 5) What is the amount of Phosphorus in 61.94 grams of Phosphorus?