

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.

Score	Description	Student Score
Exceeds Target (Exemplary) - Deeper more rigorous thinking - Application to real world use, teach another person, use information to solve problems in a different context, explain connections between ideas, demonstrate a unique insight and/or creative application of skills.	Relate the atomic model to the formation of ions and ionic bonding. Model what happens when ions form and then create mineral crystals. Demonstrate how the Periodic Table predicts the charges of the ions for the main block elements. Model the trends created by the ions of the main block elements.	
Mastery of Target (Application) Can apply target to new information.	Explain the difference between a neutral atom and a charged atom. Explain why some atoms tend to form ions. Use a model of the atom to diagram ions and isotopes.	
Proficient in Target - Expected level of performance for all students - Consistent and Independent	Use a model of the atom including protons, neutrons, and energy levels (not including f orbitals) to diagram a neutral atom. Using a Periodic Table: Write the Four Quantum Numbers for an electron. Write an electron configuration for a neutral atom.	
Approaching Proficiency - Basic learning necessary for foundation of target. - Recall questions, fact-based skills, basic applications - Independent, not consistent	Using the Periodic Table: Identify the number of protons, neutrons, and electrons in an average neutral atom. Using Bohr's model, diagram neutral atoms Hydrogen through Calcium.	
Needs Development With help, can demonstrate some understanding of target		
No Evidence to Measure		

HS-PS1-1. Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.