Modelling Atoms and Compounds Test (Science 10)

SUMMARY:

- **Testable Notes: "Section 1: Review" and "Section 2: Modelling Atoms and Compounds" and "AcCounting for Atoms"**
- Drawing elements and compounds with basic atomic "ball" models where every atom is a circle with the element symbol in it
- Counting the total number of each atom in a chemical expression
- Ionic and covalent compounds
- Bohr models of atoms, ions, ionic compounds, covalent compounds
- Lewis structures of atoms, ions, ionic compounds, covalent compounds

LEARNING MAP CRITERIA:

Relevance	Extending	Proficient	Developing	Emerging
Models, Elements and Compounds ☑	Use Lewis theory to predict the bonding structure of a covalent compound. Draw the Lewis diagram of a covalent compound. Draw the Bohr model of a covalent compound, given its formula or its contents (e.g. "covalent compound formed between hydrogen and oxygen").	Use Bohr models to demonstrate and explain how and why ionic and covalent compounds form. Draw a Bohr model for an ionic compound. Draw the Lewis structure for an atom and ion. Identify the number of lone pairs and bonding pairs when given the Lewis or Bohr diagram of a covalent compound. Compare Lewis and Bohr diagrams.	Calculate the number of protons, neutrons, and electrons, in an atom and ion. Draw a Bohr model for an atom and ion. Define cation and anion. Identify and define the valence shell in a Bohr model. Count the number of valence electrons in a Bohr model. Describe the role of valence electrons and valence shells in ionic vs covalent bonding.	Draw a Bohr model for an atom. Know the locations, charges, and relative masses of each of the subatomic particles.
Write and Balance Chemical Equations ☑	~~Write and balance chemical equations consistently and accurately.~~	~~Write and balance chemical equations, most of the time.~~ ~~State the law of conservation of mass. Explain how the law of conservation of mass relates to the balancing of chemical equations.~~	~~Write chemical formulas and names for ionic compounds (including those with polyatomic ions, multivalent metals).~~ ~~Write chemical formulas and names for binary covalent compounds.~~ ~~Write chemical formulas and names for elements.~~ ~~Define and identify the products and reactants in a chemical equation.~~ Draw a "ball" model to represent the atoms in a chemical expression. Count the number of each atom in a chemical expression. ~~Identify whether a chemical equation is balanced or not.~~	~~Identify a chemical compound as ionic or covalent based on its chemical formula or chemical name.~~ ~~Distinguish between metals and non-metals using a periodic table.~~ Distinguish between elements in a chemical compound or expression.

VOCABULARY:

(Disclaimer: This is not meant to be an exhaustive list. Vocabulary words may appear on the test that are not in this list.)

- Atom
- Ion
    - Cation
    - Anion
    - Polyatomic Ion
- Multivalent Metal
- Subatomic particle
    - Proton
    - Neutron
    - Electron
- Neutral
- Ion charge
- Metal
- Non-metal
- Bohr model
- Valence shell
- Valence electron
- Ionic compound
- Covalent compound
    - Lone pair
    - Bonding pair
- Lewis structure/diagram
- Element
- Subscript
- Coefficient

PRIMARY STUDY MATERIAL:

- "Comprehensive Chemical Compounds" Powerpoint
- Chemistry Notes Package: "Section 1 Review" and "Section 2 Modelling Atoms and Compounds"
- Workbook practice questions
- Practice Quizzes from Class
- Bohr and Lewis worksheets