

This is what your exam will cover.

After you have studied for the exam, rate your understanding of the topic from 1 (very poor) to 5 (excellent). Record this number. Then after you get your grade back, see what questions you missed and how what they covered.

Tasks	Self-rating before exam
<b><u>Chapter 1: Chemistry (not p.22-30)</u></b>	
Define hypothesis, scientific law, scientific theory, and scientific model.	
Explain how the scientific process works to create knowledge.	
Give an example of Chemistry in your everyday life.	
Use Critical Thinking skills to analyze a scientific argument. (p.32)	
Convert numbers in decimal notation to Scientific Notation	
Convert numbers in scientific notation to decimal notation.	
Use Scientific Notation to rank numbers by order of magnitude.	
Define an atom	
Define the symbols (s), (g), (l)	
Discuss the properties of solids, liquids, and gases	
<b><u>Chapter 2: Atoms (all of it )</u></b>	
Discuss the Law of Conservation of Mass, the law of definite proportion.	
Discuss how models of atomic structure have changed over time. Describe the relevant contributions of the Greeks, Dalton, Thompson, Rutherford, Chadwick	
Distinguish between element, atom, and isotope.	

Define and provide examples of atomic number, nucleus, mass number, and average atomic mass.	
Describe Dalton's atomic Theory. Discuss how our modern understanding has modified this theory.	
Discuss the model for an atom including the location, charge and relative mass of all the parts.	
List the physical and chemical characteristics of metals, non-metals, and semi-metals.	
Discuss how the arrangement of elements in periodic table is related to their atomic structure (periods, groups)	
Using the periodic table locate examples of main group elements, transition metal elements, halogens, and noble gases.	
Define the term isotope	
Define the term valence electrons. Identify the number of valence electrons in any main group element.	
<b><u>Chapter 3: Atomic Structure (not p.67-69; 79-82)</u></b>	
Describe the plum pudding model of an atom. What part of this model was based on evidence, and what part of this model was a hypothesis.	
Describe the Ruthford gold foil experiment used to characterize the nature of the structure of the atom. Briefly describe the methods, the results, and how the results improved the model of the structure of an atom.	
Compare and contrast the Plum Pudding model proposed by Thompson, and the Nuclear model of an atom proposed by Ruthford as a result of the gold foil experiment. Discuss how the parts of the atoms are arranged, how charge is distributed, and how mass is distributed.	
Define frequency, amplitude, and wavelength for light	
Discuss how the energy for light relates to the frequency and the amplitude. Given information from the electromagnetic spectrum,	
Use diagrams of light waves to determine relative frequencies or wavelengths for different kinds of light.	
Discuss the idea of quantized versus continuous as it relates to how the Bohr model was created.	

Describe the experiment we did in class with cathode ray tubes and diffraction gratings. What observations did we make? What conclusions about atomic structure did those observations lead to?	
Describe the relationship between the location of an electron (which energy level/shell) and the energy that electron has.	
Discuss the Bohr model for an atom including the location, charge and relative mass of all the parts.	
Draw the Bohr model of an atom using the appropriate symbols for the pieces and the numbers from the periodic table for the first 20 elements.	
Identify examples of elements that are metals, non-metal, semi-metals. Describe chemical and physical properties of each.	
Discuss what information the periodic table gives you about an element. What does the row tell you? What does the group tell you? Where on the periodic table are the metals, non-metals, and semi-metals.	
<b><u>Chapter 4 (No naming rules, not p 114-123)</u></b>	
Discuss the driving force for chemical bonding (the octet rule)	
Use the Bohr model of an atom to predict the charge on ion that a main group element will form	
Use the group number to find the charge on a main group element.	
Know the names, formulas and charges of the five polyatomic ions we discussed in class.	
Write balanced chemical compounds given a set of ions	
Discuss the nature of how electrons are involved in ionic bonds	
Identify a compound as an ionic compound or molecular compound based on the chemical formula.	
Define Electronegativity.	
Discuss the role of electrons in polar covalent and non-polar covalent bonds.	

Identify the negative and positive poles (partial charges) in polar covalent bonds.	
Identify which bonds are polar covalent and which bonds are non-polar covalent in a structure.	
Given a simple binary compound and the electronegativity table to determine the nature of the bonds (ionic, metallic, non-polar covalent, or polar covalent).	
Discuss how electrons are distributed in a metallic bond and relate this to physical properties of a metal.	
Define the terms ionic bond, metallic bond, covalent bond, non-polar covalent bond, polar covalent bond, single bond, double bond, triple bond.	